

Catalog of Administrative Data Sources for Neighborhood Indicators

CLAUDIA J. COULTON



A National Neighborhood Indicators Partnership Guide

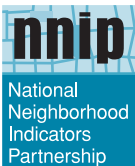


The Urban Institute

Catalog of Administrative Data Sources for Neighborhood Indicators

CLAUDIA J. COULTON

January 2008



A National Neighborhood Indicators Partnership Guide



The Urban Institute

Work on this catalog was supported by the Fannie Mae Foundation, the Urban Markets Initiative at the Brookings Institution, and the National Neighborhood Indicators Partnership. Kathryn L. S. Pettit of the Urban Institute and Patrick Simmons of the Fannie Mae Foundation provided very valuable information and suggestions on the manuscript.

Earlier versions of portions of this catalog were published in *Mapping Your Community* (HUD, 1997) and *New Approaches to Evaluating Community Initiatives, Volume 2* (Aspen Institute, 1998).

Copyright © 2008. KnowledgePlex, Inc. All rights reserved. Except for short quotes, no part of this report may be reproduced or used in any form or by any means, electronic or mechanical, including photocopying, recording, or by information storage or retrieval system, without written permission from KnowledgePlex, Inc.

The Urban Institute is a nonprofit, nonpartisan policy research and educational organization established in Washington, D.C., in 1968. Its staff investigates the social, economic, and governance problems confronting the nation and evaluates the public and private means to alleviate them. Views expressed in this report are those of the author and do not necessarily reflect the views of the Institute, its trustees, or its funders.



Contents

| | |
|--|----|
| Recent Developments in Neighborhood Indicators | 1 |
| Issues in Using Administrative Data | 3 |
| Geographic Boundaries | 3 |
| Confidentiality | 4 |
| Data Accuracy | 5 |
| Metadata | 5 |
| Matched and Longitudinal Files | 6 |
| Mobility | 6 |
| Commercial Data Products | 7 |
| Perspectives and Challenges | 7 |
| Data Sources | 9 |
| Economy | 9 |
| State Employment Services Agencies | 9 |
| County Business Patterns | 15 |
| State and Federal Collaborative Projects | 15 |
| Tax Records | 16 |
| Business Directories and Regulatory Agencies | 17 |
| Credit Bureaus and Market Research Companies | 17 |
| National Change of Address Database | 18 |
| Education | 18 |
| Public School Records | 18 |
| Early Childhood Education | 19 |
| Higher Education | 19 |
| Health | 20 |
| Vital Records | 20 |
| Notifiable Diseases or Conditions | 20 |
| Injury Surveillance | 21 |
| Immunizations | 21 |
| Medicaid Claims | 21 |
| Social Services | 22 |
| Public Assistance Files | 22 |
| Subsidized Child Care | 23 |
| Child Care Licenses | 23 |

| | |
|--|----|
| Child Welfare Records | 23 |
| Mental Health and Substance Abuse Services | 24 |
| Safety and Security | 24 |
| Municipal Police | 24 |
| Emergency 911 Call Data | 25 |
| Juvenile Court | 25 |
| Prisoner Reentry | 26 |
| Coroners' Reports | 26 |
| Child Maltreatment | 27 |
| Liquor Licenses | 27 |
| Community Resources and Participation | 27 |
| Tax-Exempt Organizations | 28 |
| Community Referral Services and Directories | 28 |
| Arts and Culture | 29 |
| Voter Records | 29 |
| Public Transit | 29 |
| Automobile Registration and Licenses | 30 |
| Community Development Investments | 30 |
| Housing | 31 |
| Home Mortgage Disclosure Act | 31 |
| Property Information | 32 |
| Municipal Housing Departments | 33 |
| Courts | 33 |
| Public Utilities | 34 |
| Public and Subsidized Housing | 34 |
| Environment | 35 |
| Environmental Protection Agency | 35 |
| Quality of Life | 37 |
| References | 39 |
| About the Author | 43 |
| | |
| TABLE | |
| 1 Summary of Administrative Data Sources for Small Areas | 10 |



Catalog of Administrative Data Sources for Neighborhood Indicators

THERE IS A LONG TRADITION OF USING data collected for administrative purposes to produce social and economic indicators (Rossi 1972; Annie E. Casey Foundation 2005). Indicators are measures of the condition or status of populations or institutions that can be compared over time or between places and groups. In recent years, there has been growing interest in developing indicators for communities and neighborhoods that can be used to improve local conditions or support action by groups and organizations that work at that level. Community indicators are employed by neighborhood associations, local governments, businesses, nonprofit agencies, researchers, youth groups, and other individuals and organizations. Indicators have been successfully used to identify problems, plan programs, stimulate action, advocate for change, target investments, evaluate initiatives, and otherwise inform the community about itself (Cowan and Kingsley forthcoming).

The data used to craft neighborhood indicators often come from administrative agencies. Administrative records are particularly useful for community indicators because they are timelier or can be applied to smaller areas than government surveys. Moreover, the application of geographic information system (GIS) technology to these records makes it feasible to calculate many indicators for small areas and to display them in useful ways. Many sources and types of data from administrative agencies can be used to produce measures useful to neighborhoods and communities.

This monograph describes these data sources because such information is not readily available in a comprehensive review elsewhere. Most databases described here are maintained by local agencies, but

a few state and federal databases can also be used for small-area measures.

The terms neighborhood and community are both used in this monograph, as they are used in practice, to refer to areas that are smaller than cities and towns. While these concepts are inherently political, social, and psychological as well as geographic, the discussion of indicators assumes that data are organized geographically so they pertain to places of local interest and identity.

This monograph begins with a brief section on recent developments in neighborhood indicators work, followed by a discussion of some practical and methodological challenges of using administrative records data for indicators. The main body of the monograph is a catalog that describes the types of administrative records being used to craft neighborhood indicators. The descriptions are brief, and, where possible, the reader is referred to sources for additional information.

Recent Developments in Neighborhood Indicators

The capacity to generate neighborhood and community indicators is growing in the United States, supported by both technical and organizational advances. On the technical front, government agencies, nonprofit organizations, and other entities increasingly maintain their records in electronic formats and can readily generate data extracts useful for neighborhood indicators. The move toward e-government has resulted in more public information being available on agency web sites, and these sources are also useful for

neighborhood indicators work. Additionally, many communities have invested in GIS resources, facilitating the accurate geographic identification of records and the mapping of neighborhood indicators.

While these technical strides have been enormous, there have been equally impressive developments in the organizational capacity for neighborhood indicators. Comprehensive indicator systems are increasingly being maintained by local or regional intermediaries; that is, organizations or networks that take on the responsibility of regularly acquiring and cleaning administrative agency data, calculating indicators, and making them widely available for use. These intermediaries and their data systems promote a multifaceted view of neighborhoods because they integrate indicators from numerous sources. The breadth of information allows communities to readily use the indicators to promote improvements. Local and regional intermediary organizations typically concern themselves not only with providing information but also with seeing that it is used effectively in the public interest. Because they are typically independent entities not tied to particular government or political sectors, these intermediaries have experienced increasing success in gaining cooperation from numerous agencies that supply the data needed for their work and in involving the broader community in using the information (Kingsley and Pettit 2004).

To support neighborhood indicators work, a number of national interest groups and networks now promote knowledge development, provide technical assistance, and advocate for neighborhood information. Some of these interest groups focus on a particular sector, such as the environment, irrespective of levels of geography (for example, <http://www.sustainabilityindicators.org>). A network that supports the development and use of neighborhood indicators across many domains is the National Neighborhood Indicators Partnership (NNIP) (<http://www.urban.org/nnip>), which as of 2007 includes partners in 29 cities that share a common philosophy of using community information to engage citizens in community change. Each partner maintains a system of recurrently updated neighborhood-level indicators across topic areas and works with residents, nonprofit groups, and government agencies to use the information to address community issues. Through NNIP the partners learn from one another and assist addi-

tional communities in developing neighborhood indicator systems.

Several national efforts are also under way to make neighborhood-level data easier for communities to acquire. DataPlace (<http://www.dataplace.org>) is a free online resource for housing, economic, and demographic data. The site provides data for geographic levels from census tracts to the nation, with the ability to scan key indicators through “area overviews” or to chart, map, or rank thousands of additional indicators. In addition, DataPlace has guides and analysis to help users understand the data sources and interpret the indicators. The site is a KnowledgePlex® initiative, originally sponsored by the Fannie Mae Foundation.

The Urban Markets Initiative (UMI), housed at the Brookings Institution, focuses on improving the availability and quality of information that can be used to connect urban communities to the economic mainstream. UMI addresses information gaps through supporting the release of current, small-area federal data and advocating for additional data releases while protecting confidentiality. The Initiative also works with private-sector actors and sponsors pilot projects to use information in innovative ways. Another national resource is the Census Bureau’s Data Ferret (<http://dataferrett.census.gov>). It is a tool that enables users to download selected data elements from multiple data sources, including the decennial census and the American Community Survey, that can provide estimates for small geographic areas.

The search for useful community indicators is also growing worldwide, and neighborhood information is becoming available in many nations. Sophisticated, online neighborhood data resources are quite prominent in the United Kingdom (Burrows, Ellison, and Woods 2005). For example, the U.K.’s Neighborhood Statistics Service (<http://www.data4nr.net>) provides local area indicators derived from administrative records of multiple government agencies. Moreover, work is under way across the European Union to develop indicators that can be used to reduce poverty and social exclusion. For example, there are numerous indicator reports on the status of children, and some of these reports are available for small areas such as communities (Ben-Arieh 2006; Bradshaw 2006). As in the United States, these developments are responsive to technological advances as well as the belief that communities can more effec-

tively act on their own behalf if they have relevant and timely information.

Work to develop indicators useful in communities is also gaining momentum in developing nations. The United Nations Human Settlements Program is beginning the task of defining global urban indicators and encouraging communities to involve themselves in making such data available to support action (<http://www.unhsp.org>). For example, a Community Based Information System has been established for selected neighborhoods in Delhi with the stated mission, “To improve the quality of life of poor communities in Delhi by democratizing information, strengthening civil society and increasing government efficacy and accountability.” Detailed data maps and neighborhood indicators profiles are available online, and these tools have been used to carry out programs to improve conditions in these locations (http://www.niua.org/cbis/cbis_index.htm).

While community organizations generally view neighborhood indicators as beneficial, the availability of unprecedented amounts of digital information about very small areas could have some unintended consequences, especially for socially or economically disadvantaged people and places (Burrows and Ellison 2004). If indicators are used to stereotype particular areas, they may exacerbate processes of spatial sorting and inadvertently add to social divisions and marginalization. Residents of areas perceived negatively on the indicators could be subjected to discrimination on this basis. Ready access to certain types of neighborhood indicators might induce individuals to avoid areas that seem to have residents unlike themselves, furthering racial, ethnic, and economic segregation. Moreover, businesses using neighborhood indicators to narrowly target their markets may bypass areas with seemingly less profit potential. Areas shunned by mainstream businesses and privileged individuals may become socially and economically isolated. Although individuals and businesses have always chosen locations based on their preferences, the easy availability of massive amounts of digital information could make these processes less individualized and more subject to manipulation and powerful interests.

Nevertheless, it is in part the threat of digital information being used to their disadvantage that motivates community-based organizations to attempt to bridge the so-called digital divide through neighborhood indicators work. These organizations typically

engage in outreach and training, especially to members of the community who would not otherwise have access to such information. By providing free access to neighborhood indicators data in a form that can be understood and used by residents, organizations attempt to reduce the power imbalance. Further, the indicators themselves become a basis for resident engagement in public affairs that affect their community. In addition, the neighborhood indicators movement strives to expand the types of measures that are used so they reflect the assets upon which communities can build, not simply the deficits. By using neighborhood indicators to also engage local governments, businesses, and a broader citizenry beyond the borders of the immediate neighborhood, community-based organizations strive to reverse the flow of resources back into neighborhoods that have been excluded.

Issues in Using Administrative Data

Using administrative agency data to measure small areas presents a series of challenges. How successfully these problems can be overcome depends on the type and source of the data and specific local circumstances. In this section, some general issues are reviewed that may or may not be barriers in specific situations.

Geographic Boundaries

The use of available data sources may present some limitations on geographic definitions. For confidentiality purposes, some data sources contain only census, postal codes, or administrative districts rather than individual addresses. It is desirable, though, to always obtain data at the smallest geographic unit available, such as the address or parcel level, since this allows maximum flexibility for the community organization to set and change boundaries and still make relevant calculations.

If measures built upon available data are to be a measure of change, it is also important that the geographic boundaries used for data aggregation are consistent over time. Census boundaries change each decade, but administrative agencies that include census geography in their data may be relying on the older definitions or use boundary files that have not been updated. Users of the data need to evaluate the

compatibility of geography between data sources and across time.

A number of sources provide data aggregated to the ZIP code level, introducing several problems for neighborhood indicators. ZIP codes are units established by the U.S. Postal Service for the purpose of delivering mail and do not comport with jurisdictional boundaries or census geography. Indeed, some ZIP codes do not have a clear spatial boundary at all. Yet ZIP codes are convenient units of aggregation because they are often contained in various records and known by the public. Also, for marketing databases, ZIP codes have a direct correspondence to mailing. However, data aggregated to ZIP code levels are less useful for neighborhood indicators because they seldom fit with other definitions of neighborhood or with political boundaries. In addition, some data sources rely on ZIP codes supplied by the consumer that are not cleaned to improve their accuracy or correspondence to geography. Several commercial firms sell ZIP code boundary files, which include lines, polygons, and single delivery locations. The Census Bureau has created geographically based ZIP Code Tabulation Areas (ZCTAs), which can improve the usability of ZIP code data for neighborhood indicators. More information on ZCTAs is available from the Census Bureau (<http://www.census.gov/geo/ZCTA/zctafaq.html>).

A final concern about the geographic units used for neighborhood indicators is what has been termed the modifiable areal unit problem (Heywood, Cornelius, and Carver 1998). If the size or number of geographic units is changed, the relationships among indicators measured on the areal units may also change. Moreover, the specific locations of the boundaries can also affect the measures and their relationships because the particular housing units or individuals included within the aggregate unit will change. For example, a census tract boundary may split a street that has a lot of crime on either side. The crime concentration would not show up because the incidents would be split across two areas. Or a county map may show a low poverty level, where a tract map would reveal isolated pockets of high poverty within the larger area. The modifiable areal unit problem has received substantial attention from geographers, especially concerning the calculation of rates and the analysis of the ecological correlations among rates (Anselin 1988). It is important that analysts of neighborhood indicators data be

sensitive to the fact that the geographic boundaries chosen for units can affect the conclusions drawn. The problem reinforces the benefits of receiving address-level data so such biases can be explored. Density mapping provides one method of minimizing this problem while still protecting confidentiality (Eck et al. 2005).

Confidentiality

Many administrative data sources contain individual information that is protected by either law or custom. Yet, confidential information about individual's street addresses may be required for small-area analysis. Administrative agencies can enter into confidentiality protection agreements with researchers who have a valid purpose for using the data to develop community measures. Users need to apply rigorous methods for guarding data that have individual identifiers, for ensuring that only necessary and secure personnel have access to the data, and for guaranteeing that the confidential data will not be released. If researchers are located in institutions with federally approved institutional review boards, they should have their confidentiality protection methods reviewed by these bodies. Some agencies have well-established guidelines for confidential data while others have little experience in this area. With the exception of a few agencies that are strictly prohibited from the release of confidential data by law, most agencies can release data if the users are made agents of the agency and agree to abide by agency rules.

The community measures based on confidential data must be calculated on areas that are large enough to conceal any individual identities. Privacy could be compromised if events are rare or if indicators are for small categories. For example, counts of employees by industry in a small area could reveal confidential information if just one or two large firms exist in that industrial classification. Thus, such figures could not be released. It is very important that analysts test data thoroughly to ensure that individuals are not identifiable before releasing data.

The confidentiality issue requires a judgment of the risk-benefit ratio. The research institution needs to be judged for its reputation and expertise in the protection of human subjects in order to determine the risk that an inadvertent breach of confidentiality may occur. The agency also needs to weigh the ben-

efit to itself and the community of having small-area data available. Many agencies do not have the internal resources to look carefully at their own data by small area. Thus, the benefits of releasing the data (under strong and binding confidentiality protection) for geographically based analysis are often significant if the agency is assured that information will be provided in return.

Data Accuracy

Small-area information produced from administrative records suffers from several types of accuracy problems. The first has to do with inaccuracies in the records themselves. Data elements that are essential for the agency's work or subject to quality control are likely to be most accurate. Thus, for example, public assistance payroll records that stem from the issuance of a check are more accurate than information obtained as background, such as educational attainment, which has no bearing on eligibility. This emphasizes the value of understanding the original purpose for which the data were collected in order to better judge the data quality. An important issue for small-area analysis is the accuracy of the addresses for the event being analyzed. A common problem is agency databases that overwrite original addresses pertinent to an event with address changes that occur after the fact. Users of administrative data for research need to check with the agency about each data element to judge accuracy.

A second problem in accuracy is reporting bias. This arises in situations where an event must be reported in order for an administrative record to be generated. For example, crimes are known to be underreported to the police, and law enforcement jurisdictions differ in their responses to crime reports. These two factors can affect whether a crime record is generated and how the crime is classified. Child abuse and neglect reports are vulnerable to similar problems resulting from possible biases in reporting and agency response.

The third issue has to do with the low number of rare events in small areas. Infant deaths, for example, will have very low frequency in a small area for a given year. Even one additional death can raise the infant mortality rate markedly without reflecting a true change in health status of the population. For rare events, small-area indicators need to use

multiyear averages or group neighborhoods together to achieve a large enough number that there is confidence in the estimate. The literature on sample size and accuracy should be consulted (e.g., Lemeshow et al. 1990).

A final source of inaccuracy in developing measures from administrative data has to do with population estimates for small areas. Many indicators are calculated as rates in order to make them comparable across small areas that differ in size. For example, teen births are converted into a teen birth rate by dividing the number of teen births in a year by the age-specific female population. The decennial census is often used as the source of the population size, but these numbers quickly become out of date. Therefore, population estimates for the years between censuses are needed. Various entities, such as state agencies and commercial vendors, produce population estimates based on various statistical adjustment models, but estimates for small areas such as neighborhoods have a larger margin of error than do estimates for large areas such as states and counties (e.g., Smith and Cody 1994). Thus, inaccuracies can be introduced into neighborhood indicators through errors in the denominators used to calculate rates, and these errors may be larger in noncensus years.

Metadata

The administrative records discussed here are generated by agencies as a part of their work. The records, for the most part, are not primarily intended to generate community statistics but to administer programs or fulfill regulations. Even though the extracted records can prove extremely useful for community indicators, they do not typically come with documentation and definitions. Indeed, the metadata, or data about the data, often have to be created through conversations among those who created the data and those working with it for other purposes.

Some common questions occur when administrative records are used to craft indicators. One is that a file may contain numerous records, some of which may be pertinent to the particular subject and time and others of which may not. The methods for proper record selection need to be specified. In addition, the information for one unit of analysis may appear in multiple records, and the records may be spread across multiple files. Considerable work often needs to go

into understanding the file formats, extracting the relevant records, geo-coding the addresses, and aggregating the data to the required units of geography.

A complicating factor in using administrative data is ensuring that the correct records have been extracted for the desired measure. Although not always explicit, the measure requires analysts to decide about (1) a window of time, (2) whether persons or events are the unit, (3) whether all cases or just new cases should be counted, and (4) how to handle duplicates. For example, a child maltreatment report is an event that involves one or more children. In a given year, the same child may be reported multiple times. Or, a single event may yield several reports. Child maltreatment cases may be carried as open records in the child welfare agency database over several months or years. Such data make possible several different measures for a small geographic area. Among the possibilities are counts of the total number of maltreatment reports in a year, the number of individual children who were reported as maltreated at least once in a year, the total number of maltreatment cases served by the agency at a point in time during the year, and the total number of maltreated children ever served during the year by the agency. In these respects, users need to be clear about exactly how their calculations are made and what the resulting measures mean.

Matched and Longitudinal Files

Administrative data are often organized by month, quarter, or year. Most are event driven, generating a record, for example, when a person is eligible for a program, a payment is made, a property is sold, or a child is born. However, communities may require some measures that reflect the fact that these events happen over time to individuals, houses, firms, or some other entity. To develop this type of measure, longitudinal records must be created from the multiple events. This requires matching across separate records using a constant identifier such as a land parcel number or an individual's case number.

Although longitudinal measures require considerably more processing effort, they may reflect important outcomes. For example, a community organization may be less interested in reducing public assistance use than in eliminating long-term dependency. The number of long-term welfare recipients in a small area can be calculated only if lon-

gitudinal files are created by matching the monthly eligibility files for each individual over a set number of years. Even though longitudinal measures can provide useful information, they present some additional problems if individuals change neighborhoods during the study period (see the next section on mobility). In such cases, a method is needed to assign the case to one of the neighborhoods or to give partial weight to the case in the two or more neighborhoods in which it appeared.

Another record linking problem arises when measures require that data be matched across multiple agencies or multiple data sets from a single agency. For example, a community organization may be interested in ensuring that preschool children of mothers moving from welfare to work are still able to take advantage of Head Start programs in the neighborhood. A match would need to be made among public assistance, employment, and Head Start records to monitor progress on this outcome.

Matching across multiple agencies may require probabilistic matching procedures because there is no universal or reliable individual identifier. For example, Social Security numbers are erroneous or not available in many data files, but names, birthdates, addresses, and other identifiers can be used to improve the accuracy of matching. Matching across databases has the potential to create some refined measures that would be useful in capturing the synergistic effect of community initiatives (Goerge, Van Voorhis, and Lee 1994).

Mobility

Neighborhoods and communities experience significant population turnover, which can complicate the interpretation of neighborhood indicators. Approximately 16 percent of the U.S. population changes residences in a given year, with slightly less than half the movers coming from another county, state, or nation (<http://www.census.gov/population/www/socdemo/migrate.html#cps>). Mobility in some communities is even higher, and year-to-year change in statistical indicators may reflect a large turnover in population. In highly mobile neighborhoods, it is therefore difficult to ascertain whether the well-being of the residents is changing or whether the new residents who replaced the previous residents are responsible for the movement in the indicator.

For some purposes this distinction may not matter, such as when indicators are used to target services to places with greatest need. However, neighborhood indicators are often used to gauge whether individuals or families in an area are being helped by some program, but comparisons over time may be flawed if the people who were the targets of an initiative have moved out of the neighborhood. To prevent faulty comparisons, communities should have information about their respective mobility rates and design their studies accordingly.

Commercial Data Products

Some small-area data are commercially available from companies that have acquired government or business records and packaged them in convenient formats. Often the companies have applied various statistical modeling or data mining methods to the underlying data to improve interpretability, ease of use, or timeliness. For example, several commercial vendors provide updated estimates of many social and economic variables from the decennial census. Some of these firms have also crafted multidimensional indexes or typologies that characterize small areas in terms of numerous demographic, social, and economic characteristics. Other commercial vendors combine government and private data on property transactions into one database.

There are several concerns about these commercial sources of data of which users should be aware. One is that the companies often place restrictions on how widely the data can be shared or distributed, limiting the use across many sectors of the community. Also, the details of the estimation methods or statistical criteria that have been applied to the data may not be fully transparent because they are proprietary. Finally, when government agencies do not provide access to their information, it may be because they lack the resources to do so, and commercialization fills the gap. However, this in turn limits the public's ability to use the data owing to financial barriers and other restrictions added by the commercial firms. There is a continuing debate regarding these issues relating to government obligation to provide open access to public records, the ability of citizens to use such information, and the commercial interests working with the government and private sector (see, for example, <http://www.opendataconsortium.org>).

Perspectives and Challenges

It has been nearly a decade since the previous publication of a catalog of data sources in *Mapping Your Community* (Washington, DC: U.S. Department of Housing and Urban Development [HUD], 1997) and *New Approaches to Evaluating Community Initiatives, Volume 2* (Washington, DC: The Aspen Institute, 1998). During that period, many technological and organizational advances have enhanced access to and use of neighborhood indicators. The use of GIS for mapping indicators has become commonplace, and community agencies and residents are coming to rely on small-area information, even down to the property level, to support efforts to improve their neighborhoods. A growing number of government agencies, nonprofit organizations, and companies supply data with geographic identifiers so they can be aggregated to neighborhood levels. In many cities in the United States, a data intermediary function has been established so multiple data sources can be accessed together and crafted into tables, graphs, or maps that show relationships and patterns. Advances in data warehousing and web services technology have made it feasible to provide greater flexibility and timeliness in generating information tailored to the user's particular application and have made tools like DataPlace possible. The ability to simultaneously assess many dimensions of neighborhood conditions has led to broader involvement and more comprehensive strategies for community change.

These social and technological advances, however, are not without their problems and limitations. At this juncture, remaining challenges include reducing the digital divide between affluent and poor communities, maintaining free and open access to information, and promoting a balanced view of neighborhood assets and problems.

Concerns about the digital divide have arisen because some groups may lack the ability to benefit from the growing availability of neighborhood indicators due to their insufficient knowledge of, or access to, information technology. There is evidence that low-income individuals and those belonging to disadvantaged minority groups have lower rates of use of digital resources than other populations. Paradoxically, though, it appears that minority populations place higher value on digital skills and access than do their majority counterparts in similar economic circumstances. Indeed, the poorer access of

African Americans and Latinos to connectivity seems to be explained by their concentration in disadvantaged neighborhoods and schools rather than their lack of interest (Mossberger, Tolbert, and Gilbert 2006). In order for the promise of neighborhood indicators to reach all communities, there needs to be continued efforts to equalize the availability of technology across school districts and neighborhoods. Also, reductions in the costs of connectivity are needed. Even though in the United States most libraries and many community centers are points of access to the Internet in low-income neighborhoods, equality in this regard will eventually call for home-based and wireless access widely spread throughout neighborhoods to further the ability of low-income neighborhood residents to use digital information in their own interests.

The digital divide is even more pervasive when industrialized nations are compared with the developing world. Even though there is growing awareness that local information can foster participation in development, the infrastructure is in its very beginning stages. Government agencies in developing nations do not necessarily have the capacity to collect and generate administrative data. Nongovernment organizations, stretched thin in their efforts to meet vast human needs, have not yet made data acquisition and distribution a priority. Additionally, the infrastructure needed to support the management and distribution of digital information is not well developed. Yet helping to build capacity to put digital information and tools in the hands of the local community is a contribution that companies and organizations in the developed world can make to those in the developing world. If these tools are embedded in the work of community members and their organizations, the capacity to gather, distribute, and act on local data can be built and made sustainable in the long run.

A second challenge for the field is maintaining open access to information and reducing cost barriers for community groups. Neighborhood indicator work is not possible without access to numerous data sources. Government records, generated in the course of agencies carrying out their functions, are the underlying sources for most neighborhood indicator data. There is a concern that commercialization of these records may make them prohibitively expensive for community organizations to obtain, or that it may

place undue restrictions on the records' distribution and use that would be to the disadvantage of community residents and organizations working with neighborhood indicators. To the degree that government turns to commercial interests for data management and distribution as a way of reducing government costs, it is important to raise the public consciousness about the potential adverse effect of this. While it may seem cost-efficient for government, the costs may be shifted elsewhere, such as to the nonprofit sector. Moreover, the restrictions placed on redistribution by the private business model can have the unintended consequence of reducing coordination and cooperation among community organizations because they cannot share the data they obtain from commercial vendors. The argument of gaining the limited funds from data sales does not take into account the community benefits that are lost by not giving nongovernment actors the information to make better decisions.

Possibilities for expanding the data-sharing roles of public service-minded intermediaries should be explored. Such intermediaries might rely on a combination of charitable contributions, public funds, and fees to support the dissemination of data to community groups. They can also build a constituency of data users to advocate for the responsible release of local data and give credit to agencies that are open to data sharing. At the same time, these intermediaries would be able to protect the privacy of the data and maintain high standards for data quality while being transparent regarding their algorithms and methods. However, it is important that these efforts be coordinated and not duplicative and that such intermediaries not be overly restrictive on how local administrative data can be downloaded and manipulated. Users should be involved in determining the best ways for the data to be managed and supplied.

A final challenge for neighborhood indicators is to move away from an exclusive problem focus and begin to depict capacities and assets on which communities can build. Until now, neighborhood indicators primarily have been used to bring attention to the high level of need in particular neighborhoods and to advocate for more government expenditures or action. By virtue of their relatively high rates on indicators of deprivation, such neighborhoods may have benefited from government programs, but they also have been negatively stereotyped and systemati-

cally deprived of opportunity in other ways. Increasingly, though, it is being recognized that community members can be engaged more effectively around their values, vision, and aspirations rather than solely recognizing their problems. Moreover, indicators that reveal the basis on which progress can be made are potentially the most useful for community development. Indeed, because such assets are not readily measurable using traditional data sources, it is even more important that efforts be made to raise them to the surface through innovative indicator work.

The development of new asset and capacity indicators of this type will require that communities experiment with various data-gathering methods. Ideally, communities will test the methods across multiple neighborhoods and conduct analyses of the validity of the resulting indicators. Such work on asset and capacity measurement will contribute to the field as a whole and support the credibility of these indicators. There have been important advances in the concepts underlying neighborhood measures such as a growing focus on econometrics (Raudenbush and Sampson 1999). Further, technological developments such as handheld devices, wireless Internet access, and data warehousing can facilitate neighborhood data collection and reduce the costs of compiling the data from multiple neighborhoods and quickly summarizing it and making it available. When new asset and capacity information is available along with many of the existing administrative data sources described in this monograph, a fuller and more balanced picture of neighborhoods should emerge.

Data Sources

Although the list of data sources covered in this monograph is long, it is not exhaustive. The sources are grouped into eight categories: economy, education, health, social services, safety and security, community resources and participation, housing, and environment. This categorization reflects the primary use to which the data have been put. However, many of these data sources, when combined with other information, can prove valuable across categories. (See summary in table 1.)

To the degree possible, the monograph describes primary data sources; that is, the process or agency where the information originates. Although some data may also be available through organizations that

have preprocessed or repackaged the data, users of the data should be aware of the qualities and limitations of the underlying data. In addition, it is generally recommended that individuals interested in using these data sources make further inquiries regarding data interpretation and quality. Because of the local nature of much of the data, the descriptions provided here may not match exactly what is to be found in a particular locale.

Economy

Many community organizations have economic development as an aspect of their work. As such, they require information about the local economy and employment and business activity in an area. Several administrative data sources are useful for this purpose.

State Employment Services Agencies

Departments of employment services are the primary sources of employment information in states. These departments, though, do not usually publish information for neighborhoods. Nevertheless, when subjected to geographic analyses, several of their databases may be useful in measuring aspects of employment within neighborhoods.

ES202 Employer Master File

Each state is federally mandated to collect reports related to the unemployment insurance (UI) program from every establishment (i.e., organization or firm) that employs more than one worker (U.S. Department of Labor 1997). These reports are used to generate the ES202 database. This database covers nearly all civilian employers with paid employees. Self-employed individuals, such as doctors and attorneys, and family businesses with no paid employees may be missing from this database. A limitation of these data files at the state level is that they do not include individuals who live in the state but are employed in another state.

The data contained in the ES202 file include establishment name, legal name, address, city, ZIP code, state, county code, four-digit industry (standard industrial classification) code, ownership code (indicating public or private ownership), number of

text continues on page 14

TABLE 1

Summary of Administrative Data Sources for Small Areas

| Data source | Indicator examples | Source organization |
|---|--|--|
| Economy | | |
| ES202: Employers quarterly reports of industry classification, total employment, and payroll | % change in total employment % employment in firms by size | State employment services agencies |
| UI wage record: Employee earnings and weeks worked | % former welfare recipients who found jobs Average earnings of participants in training | State employment services agency |
| UI claimant file: Applicants for unemployment benefits | # of UI claims filed Average weeks of benefits paid | State employment services agency |
| County Business Patterns: ZIP code counts of total employment and firms by size | # of jobs % change in employment | U.S. Census Bureau or DataPlace |
| LEHD: Longitudinal Employer-Household Dynamics data on workforce | Employment by industry Travel to work patterns | U.S. Census Bureau |
| ADARE: Administrative Data Research and Evaluation Project data on program participants | % TANF recipients employed % WIA participants working | Participating state agencies |
| Tax records: IRS statistical summaries for ZIP codes | % low-income filers filing EITC average adjusted gross income % returns with dividend or interest income | Internal Revenue Service or DataPlace |
| Business directories and regulatory agencies: Records on businesses (e.g., InfoUSA) or of agencies that regulate businesses (e.g., FDIC) | # of establishments by industry per capita bank deposits | Commercial vendors or local government agencies |
| Credit bureaus and market research companies: Credit and consumer records | % households with credit cards % households with buying habits | Commercial vendors |
| Change of address: Change of address records filed with post office | % households with move % movers leaving county | Commercial vendors under contract with USPS will provide for a list of names and addresses |
| Education | | |
| Public school records: Personnel records of students enrolled in public schools | % children absent more than 20% of school days % children passing proficiency exam | Boards of education |
| Head Start records: Individual records of students enrolled in Head Start | % eligible children attending Head Start Average number of months enrolled | Local Head Start agency |
| School readiness and preschool records: Individual records at enrollment | % kindergarteners with preschool experience | Boards of education |
| Higher education: State Board of Regents records on students enrolled in colleges and universities | % attending community college | State boards of regents |

TABLE 1
(Continued)

| Data source | Indicator examples | Source organization |
|--|--|---|
| Health | | |
| Vital records: Birth, death, and fetal death certificates | % pregnancies with adequate prenatal care Infant mortality rate Teen birth rate % births to unmarried mothers | State vital statistics office or local birth and death registrar |
| Notifiable diseases or conditions: Records of reportable disease incidence | # cases of sexually transmitted diseases % children screened testing positive for lead | State and local health departments |
| Injury surveillance: Records of injuries treated in emergency departments | Rate of injuries by age | Local health departments or injury prevention consortia |
| Immunizations: Surveys or records of immunization status | % survey respondents appropriately immunized by age 2 | State health departments |
| | % children entering school appropriately immunized by age | Local school boards |
| Medicaid claims: Claim or encounter forms submitted for services | Annualized rates of ambulatory care use | State Medicaid agency |
| | % newborns with appropriate # of well child visits in first year | |
| Social Services | | |
| Public assistance records: Monthly eligibility and payment files | # recipients per 1,000 population | State or local human services agencies |
| | Total dollar amount of benefits paid per month | |
| | % long-term recipients | |
| Subsidized child care: Records of children receiving day care subsidies | # children in subsidized child care | State or local human services agencies |
| Child care licenses: Records of licensed day care providers | # child care slots by type % increase in child care slots | State agency responsible for child care licensing or local child care resource and referral network |
| Child welfare records: Records of children in custody or receiving protective services | # children taken into custody annually | State or local child protective services agency |
| | # children under agency supervision per 1,000 child population | |
| Mental health and substance abuse services: Records of individuals receiving services from mental health and substance abuse agencies | Rates under treatment | Mental health boards and alcohol and other drug boards |
| | Inpatient days per capita | |
| Safety and Security | | |
| Municipal police departments: Records of crime reports, victims, suspects, and arrests | # crimes per 100,000 population | Local police departments or regional agency |
| | % crimes committed by residents versus nonresidents | |

(continued)

TABLE 1Summary of Administrative Data Sources for Small Areas (*Continued*)

| Data source | Indicator examples | Source organization |
|---|---|---|
| Safety and Security | | |
| 911 calls: Calls to the local emergency dispatch system | # calls for domestic violence % change in calls | Local police departments or regional agency |
| Juvenile court filings: Records of charges in court filed against or on behalf of juveniles | Juvenile crimes rate % juvenile filings that are for violent offenses | Juvenile courts |
| Prisoner reentry: Records of prisoners leaving prisons to return to communities | # returning prisoners per 1,000 residents % returnees under supervision | Local, state, and federal corrections departments |
| Coroners' reports: Records of autopsies | % homicides involving firearms # suicides involving drugs | Local coroner |
| Child maltreatment: Records of reports for child abuse and neglect made to child protection authorities | % children with maltreatment reports per 1,000 children % reports that involve neglect | State or local child protective services agencies |
| Liquor licenses: Permits to sell alcoholic beverages | # and type of outlets | State liquor control agency |
| Community Resources and Participation | | |
| Nonprofit organizations: Forms filed with Internal Revenue Service (IRS) for nonprofit status and yearly tax-exempt (990) filing | # nonprofit organizations by type | National Center for Charitable Statistics of Urban Institute or IRS |
| Community referral (211) services: Community referral programs database on agencies and calls | # agencies by service area % calls by type | Local information and referral agencies and 211 programs |
| Arts and culture directories: Entries in directories maintained by local associations | # organizations by type | Local associations for arts and culture |
| Voter records: Voter registration | % eligible voters who are registered | Local boards of elections |
| Public transit: Records of bus and commuter rail routes and schedules | Distance to job concentrations Location of transit stops | Regional transportation agencies |
| Automobile registrations and licenses: Records for vehicles and driver's licenses | # automobiles per capita % population with valid driver's licenses | State motor vehicles agencies |
| Community Development Investments: Records of funding expenditures by CDBG and community development agencies | # dollars expended annually % expenditures by category | Local governments and community development organizations or intermediaries |
| Housing | | |
| HMDA: Records of loan applications and approvals | # loans for residential % loans that are subprime lenders | Federal Reserve Bank's Financial Institutions Council DataPlace |

TABLE 1
(Continued)

| Data source | Indicator examples | Source organization |
|---|---|---|
| Housing | | |
| Local tax assessor: Real property records maintained for taxing purposes | % properties that are residential % properties tax delinquent Median housing assessed values | Local tax assessor |
| Local recorder: Records of deed transfers and sales | Median sales price # sheriff's sales | Local recorder of deeds or property transfers |
| Building and demolition permits: Records of permits issued | Total value of construction # buildings demolished | Municipal building departments |
| Housing code enforcement: Records of violations | % properties with violations | Municipal building departments |
| Courts: Court dockets on foreclosures, evictions, and code enforcement actions | # foreclosures per 1,000 residential properties | Local courts |
| Public utilities: Records of utility such as water, electric, etc. | # properties with water shut off for > 1 month | Utility companies |
| Public and subsidized housing: Records of units of housing | # public housing units # LITC units # Section 8 certificate holders | Local housing authorities and HUD for selected years or DataPlace |
| Environment | | |
| AirData: Emissions and compliance data for air pollution point sources and levels of pollution observed at monitoring stations | Location and amount of pollutants emitted Amount of air pollutants at different monitoring locations | Environmental Protection Agency (EPA) |
| Water discharge: Records on water-discharge permits regulated under the Clean Water Act | Location of wastewater discharge sources Location of sources in violation of discharge regulations | EPA |
| Superfund sites: Records on Superfund cleanup sites | Location of Superfund sites Current enforcement status | EPA |
| Toxic chemicals and hazardous waste: Data about the release and transfer of toxic chemicals and disposers of hazardous waste | Amount of toxic chemical releases Type of chemical released | EPA |
| Planning and engineering agencies: Information on quality of life land use such as parks, walkable areas, trails | Square miles designated as parks or nature preserves Miles of bike trails % street miles with sidewalks | City and regional planning agencies |

employees, and total quarterly wages. Total monthly employment is provided for each establishment. A variable indicates whether the company is a multi-unit employer, such as a company with multiple branches or plants, or a single-unit employer. The data are updated quarterly by the state's employment services agency. The data are available electronically, but the format may vary by state.

While they provide unique establishment-level information, the ES202 data have some well-known problems (White et al. 1990; Leete and Bania 1995; Waits, Rex, and Melnick 1997). One problem is the accuracy of the establishment's address information. Although firms are instructed to use the address of the actual employment location, some firms mistakenly report all employment at the address of a headquarters or list the address of the accountant who completes the report. There are additional problems if the user wants to look at establishments over time. The establishment has unique identification numbers to link quarter by quarter; but, if an establishment changes ownership, these numbers may change, making it difficult to link these establishments over time.

The advantage of the ES202 data is the accuracy of the total employment reported by each firm. The federal mandate carries with it a tax liability that encourages accurate reporting of employment. In addition, the ES202 employment counts at the county level have been found to closely track other official government measures of employment.

There are federal and state restrictions on who may obtain ES202 data and how it may be used. In addition, state employment services agencies must adhere to strict confidentiality rules when reporting the data. If one establishment in any industrial classification and any given geographic area accounts for more than 80 percent of the employment, the data must be suppressed. In addition, if an establishment is one of only two within a given industry and given geographic area, the data must be suppressed.

The ES202 data can be used to calculate several community measures of employment. It should be noted that these measures pertain to people working in neighborhood firms, not to neighborhood residents. Total employees, wages paid, and number of establishments can be calculated by industry codes for various geographic areas. Average payroll per employee by industry and geographic area can also be calculated. If data are analyzed over time, the

number of business openings, closings, relocations, and associated changes in employment and wages can be determined. Employment gains and losses by geographic area and industry codes can also be computed. The ES202 employment data have been used to measure employment change by industry in small geographic areas, develop estimates of employment in various geographic areas, determine location of specific types of employment, and estimate locations of expected job openings. ES202 data are to some degree comparable to County Business Patterns, a data source described later in this section. The advantage of ES202 is that it provides establishment names so they can be tracked over time, and it is more specific than County Business Patterns about the number of employees within specific industries. These differences will be discussed further in the section on County Business Patterns.

UI Wage Record

The UI wage record is also available from a state's employment services agency. It is collected under the same federal mandate as ES202. The file contains information about the employer, such as name, address, city, ZIP code, state, and industry code. The wage record file also contains specific information about the employee such as name, Social Security number, quarterly wages paid, and weeks worked. Like the ES202 data, the UI wage record files are produced quarterly, subject to federal and state restrictions on availability and use.

The UI wage records cannot be used alone to develop neighborhood indicators because in most states they do not contain individual wage earners' home addresses. However, public assistance records that are address-coded have been linked to UI records to determine employment experiences of welfare recipients within a geographic area. For example, the percentage of adults who left welfare for employment has been examined by census tract through linking these two data sources (see Brock et al. 2002). Links could be made to other agency records as well.

UI Claimant File

The UI claimant file is collected under the same federal mandate as ES202 and the UI wage record. This file contains specific information about the individuals who have filed for unemployment compensation. The data available from this file include the claimant's

Social Security number, address, birth date, sex, and race. Additional information includes weekly benefit amount, average weekly wage, number of weeks qualified for UI, date of claim, date of separation from job, pay rate, and employer UI account number. These data are confidential and state and federal regulations restrict who may obtain these data and how they may be used. The data are available quarterly from the state's employment services agency.

The community measures that can be developed from these data include the number of persons receiving benefits per 1,000 population, average length of time on unemployment, and percentage who have exhausted benefits. Demographic characteristics of unemployment compensation recipients can also be computed. The data have been used, in conjunction with other data sources, to target recipients who have exhausted benefits and to provide access to job training programs.

County Business Patterns

Another source of information that can provide estimates of employment for small areas are the County and ZIP Code Business Patterns files from the U.S. Census Bureau (<http://www.census.gov/epcd/cbp/view/cbpview.html>). County Business Patterns provides annual data on the total number of establishments, mid-March employment, first quarter and annual payroll, and number of establishments by nine employment-size classes by detailed industry for all counties in the United States and the District of Columbia. ZIP Code Business Patterns presents data on the total number of establishments, employment, and payroll for more than 40,000 five-digit ZIP code areas nationwide. In addition, the number of establishments for nine employment-size categories is provided by detailed industry for each ZIP code (see Bajaj, Kingsley, and Pettit 2005).

The Census Bureau compiles the Business Patterns information from various data sources including their own surveys and administrative records from the Bureau of Labor Statistics, Social Security Administration, and Internal Revenue Service (IRS). Although most sectors of the economy are covered, there are a few notable omissions such as self-employed individuals, agricultural workers, and most government agencies. Most ZIP codes are derived from the physical location address reported in

Census Bureau programs. The IRS provides supplemental address information. Those employers without a fixed location or with an unknown ZIP code are included under an "unclassified" category indicated by ZIP code 99999.

The ZIP code-level file can be used to measure total employment and payroll in the ZIP code and change in employment levels over time. It can also be used to estimate the number of firms in particular industries broken down by size ranges. Total employment counts in some ZIP codes are suppressed if cell sizes are so small that a firm could be identifiable. Compared with ES202, County Business Patterns data have several advantages and disadvantages. Advantages include the fact that these data are available for the entire United States in a uniform format. The disadvantages are that ZIP code is the smallest unit of geography available and that there are no exact counts of employment by industry, only employment ranges. However, a study that compared ZIP code-level estimates of employment by industry from ES202 and County Business Patterns found they were highly correlated (Bania and Leete 1997). The ZIP code business patterns data can be obtained through the Census Bureau (<http://www.census.gov>). A number of indicators derived from this data source can be viewed for ZIP codes, counties, and larger geographies at Data-Place (<http://www.dataplace.org>).

State and Federal Collaborative Projects

Combining multiple sources of data related to employment and workforce conditions is a promising way to overcome the limitations of individual data sets and provide a more complete set of indicators of the economy for small areas. Several such efforts are under way that involve collaborations among state and federal agencies and draw on some of the data sources discussed above. Although these projects have not yet produced workforce or economic indicators for geographic areas smaller than counties, they may ultimately be able to do so with appropriate safeguards to protect confidentiality.

Longitudinal Employer-Household Dynamics (LEHD)
Longitudinal Employer-Household Dynamics is a "voluntary partnership between state labor market information agencies and the U.S. Census Bureau to develop new information about local labor market

conditions at low cost, with no added respondent burden, and with the same confidentiality protections afforded census and survey data” (<http://lehd.dsd.census.gov/led>). This partnership between the Census Bureau and the states collects and scrubs the UI wage records and employer ES202 data and adds other federal administrative and survey data. A key element of the program is to do this while protecting the confidentiality of people and firms that provide the data. At present, all but seven states have joined the program, though there is a lag time for data being produced. For participating states, a series of quarterly workforce indicators can be obtained for counties within the states through the LEHD web site or through a restricted data center at Cornell. Also, for selected states, information for small geographic areas such as ZIP codes and neighborhoods can be obtained through “On the Map.” This mapping tool provides counts of employers and employees by industry, numbers of new hires, and the relationship between where workers live and work. Interested parties should work with their state employment agencies to access additional or more detailed data for small areas.

Administrative Data Research and Evaluation Project (ADARE)

Several states have joined together to link records from several administrative agencies for conducting research and developing indicators related to the workforce and the economy. Specifically, partner states have merged UI wage records, Workforce Investment Act standardized records, and Temporary Assistance for Needy Families (TANF) records so they can be used for policy research (see <http://www.ubalt.edu/jfi/adare/aboutus.htm>). Although these merged files have not yet been used to measure workforce development at the neighborhood level, they do contain addresses, which should enable analysis at the community level when the numbers of cases are sufficient to protect confidentiality. Interested parties should work with their state employment agencies regarding the development of neighborhood indicators from these linked data sources.

Tax Records

The IRS prepares statistical summary information based on individual and business tax returns, and several of the resulting data files are useful sources for

neighborhood indicators. However, the indicators exclude households who do not file taxes, and thus likely miss some households with low income levels. This bias has been reduced in the past few years as the earned income tax credit (EITC) has encouraged more low-income households to file taxes. The summary data are available for ZIP codes as well as larger geographic units such as cities and counties. Cells with small numbers are suppressed to protect confidentiality.

The Stakeholder Partnership, Education and Communication database focuses on selected market segments related to IRS objectives. These include tax returns claiming the EITC, low-income returns, and returns filed by the elderly. Counts of these types of returns are provided as well as a large amount of information about the returns, such as the adjusted gross income, the status of the filer, whether a child care tax credit is claimed, and more. The data are contained in numerous tables in an Access database format and are available for multiple years. In this file, some cleaning of ZIP codes has taken place to make them compatible with county or state definitions.

Another IRS data file is e-file Demographics (<http://www.irs.gov/taxpros/providers/article/0,,id=141177,00.html>). It was developed to supply marketing information pertinent to the electronic filing of tax returns. However, these spreadsheets also contain information at the ZIP code level useful for neighborhood indicators, such as the age of the primary filer, the average adjusted gross income, and other characteristics of the filing units. Information on business tax returns is available at the county level.

Statistics of Income (SOI) tax stats (<http://www.irs.gov/taxstats/indtaxstats/article/0,,id=96947,00.html>) is another IRS data source, but it is only available for selected years and has an irregular release schedule. These spreadsheets provide selected income and tax information items classified by state, ZIP code, and size of adjusted gross income. The IRS developed these ZIP code data tables by summing the returns by the ZIP code provided on the return by the taxpayer. No attempt was made to correct the ZIP codes provided by the taxpayers.

The SOI files contain data on three types of income. Adjusted gross income is the sum of all taxable sources of income less any adjustments allowed. Salaries and wages is the amount generally reported to the taxpayer on Form W-2. Taxable interest is the

taxable portion of interest reported to the taxpayer on Form 1099-INT. These data elements can be used to craft indicators of income sources and amounts by ZIP code.

The IRS data sources described above can be used together to profile the economic characteristics of individuals who file tax returns in a ZIP code. However, each source has a few unique features, such as how the filing units are grouped or ZIP codes determined. Numerous indicators from these three IRS sources have been incorporated into the DataPlace web site (<http://www.dataplace.org>) where they can be viewed or mapped for ZIP codes and larger areas.

Business Directories and Regulatory Agencies

The number and types of business establishments in neighborhoods can be a useful indicator of economic development and community quality of life. In particular, the growth or decline of particular sectors may be a signal that investments or types of economic activities in the area have shifted. Information on commercial establishments that provide consumer goods and services (e.g., grocery stores, banks, child care centers, physicians' offices) can provide insights into the accessibility of goods and services and quality of life in a community.

Many commercial products such as InfoUSA provide the addresses of businesses along with information about the businesses. Libraries may have a list of the directories available and the types of information each directory provides. These directories may not be a complete source of business information; however, used in conjunction with each other and additional sources, they may enhance the accuracy of establishment information for a given geographic area (Carlson 1995). These commercial products often cull numerous data sources, such as telephone listings (e.g., Yellow Pages), credit ratings (e.g., Dun and Bradstreet), and sector-specific listings (e.g., Harris Directory) to produce their information. The firms that sell these databases often place restrictions on their use to protect their proprietary interests. For example, they may limit the number of records that can be extracted or restrict what information can be further distributed to the public. These limitations make them somewhat problematic for neighborhood indicator systems that promote broad and open information access in the community.

Agencies that regulate business can be a source of data about the location of selected types of businesses. For example, the Federal Deposit Insurance Corporation (FDIC) maintains a database on the banking institutions it regulates (<http://www2.fdic.gov/sod>). The availability of banking services is often of interest to community development organizations. The data from FDIC can be used to determine how many banking institutions are located in neighborhoods or the level of deposits per capita.

Numerous businesses require local licenses to operate, and some businesses (e.g., restaurants and child care centers) fall under special regulation by the health or other departments of local government. These local licensing and regulatory data sources provide another potentially rich source of information on business operations and can be used to describe the location of various services and vendors within neighborhoods.

Credit Bureaus and Market Research Companies

Neighborhood and location-specific data are increasingly being used by companies in targeted direct mail campaigns and market evaluations for their products. Commercial vendors supply databases for these purposes that may include information on consumer credit and expenditures, property information, or demographic characteristics of households. These data are typically aggregated to relatively small areas useful in marketing, such as ZIP + 4 digit postal codes. These commercial data products have some potential usefulness as sources of neighborhood indicators. For example, some communities have used commercial products for up-to-date population and other demographic estimates between census years. Credit scores and other credit information have been used by a few communities to measure credit accessibility or the economic status of neighborhoods, but their application as neighborhood indicators is in its early stages. For example, the Reinvestment Fund in Philadelphia has used credit scores of residents as part of its neighborhood profile analysis (<http://www.trfund.com/policy/policy.rema.methodology.htm>).

Another application of marketing company data in neighborhood indicators work can be seen in the use of a new mover data file in Pittsburgh by researchers

at Carnegie Mellon University (Gradeck 2004). The file contains names and addresses of new movers culled from various sources such as change of address requests, utility companies, and deed transfers. For about half these movers, the file includes the ZIP + 4 location of their previous residence. These two pieces of information can be used to calculate several indicators such as the share of new residents in the neighborhood who moved from out of state or other neighborhoods within the city or region. By linking new mover data files to decennial census data or other information about neighborhood economic and social characteristics, analysts can determine whether in-movers to a community are coming from neighborhoods of greater, lesser, or similar advantage. A notable limitation of the new mover file, and a potential source of analytic bias, is that not all movers are included. In particular, households that do not file change of address notices or are not purchasing property are not represented.

The cost of acquiring these commercially prepared data sets has often been a barrier for neighborhood organizations and local data intermediaries. Additionally, there have been some concerns that these types of credit and consumer data tend to underestimate the market strengths of inner-city neighborhoods (<http://www.socialcompact.org/index.htm>). Nontraditional sources of information on credit worthiness, such as cell phone and utility payment records, are typically omitted from commercial consumer credit files but offer an alternative and possibly more accurate measure of consumer potential in inner-city neighborhoods (Information Policy Institute 2005).

National Change of Address Database

The United States Postal Service compiles the National Change of Address (NCOA) database and licenses it to companies who can make address change information available under strict limitations. The file at a point in time contains records of address change requests for the previous four years, but only the most recent address is available. The limitations on release of the information are designed to protect the privacy of the individuals who file address changes. Specifically, the party requesting the new addresses must submit exact names and previous addresses for matching with the NCOA file, and data are provided only for exact matches.

This database can be used to develop neighborhood indicators regarding patterns of out-migration if a list of neighborhood residents is available from another source. For example, such a list of names and addresses might be compiled from administrative records or directories. The study in Pittsburgh cited above was able to use this data source for selected neighborhoods because local community development corporations had previously compiled names and addresses of neighborhood residents (Gradeck 2004). The change-of-address information allowed the community to determine the rate at which households were moving, the proportion of movers who were leaving neighborhoods, and the types of neighborhoods to which out-migrants were relocating.

Education

Educational outcomes are important indicators of the well-being of the community and the functioning of its school systems. The implementation of the No Child Left Behind Act has resulted in growing uniformity across school districts in the types of data they collect and maintain. State education agencies typically publish overall reports for the state, school districts, and specific schools, but they seldom produce data based on the neighborhood in which children live. In order to develop indicators by neighborhood, it is usually necessary to access individual student records with home addresses. All individual-level education data are strictly confidential and must be handled in highly secure environments with proper privacy protection under the Family Educational Rights and Privacy Act (FERPA). With proper safeguards, however, education data may be made available for research purposes.

Public School Records

Most public school districts maintain computerized files of individual student records. These records are confidential but, with proper protection agreements, can be used to develop measures for small areas. These files can include the student's address, the school attended, school transfers or dropouts, scores on standardized achievement and proficiency tests, attendance and disciplinary records, free or reduced-price lunch eligibility, and student and family demographic information. Data availability is limited for private and

parochial schools because most of them maintain separate and unique record systems. The nature of these records varies considerably across districts.

The student record data can be used to calculate attendance rates and average academic achievement for students by neighborhoods in which they live or by neighborhoods in which the schools are located. The percentage of neighborhood children passing proficiency examinations at various grade levels can also be determined. School and residential mobility can be calculated by matching students' records across years to determine the proportion that changes schools or residences. Although school system data are sometimes used to calculate dropout rates, these can be quite problematic because of student mobility, grade repetition, and other factors that make it difficult to obtain an accurate count of students who enter but do not complete high school (Kaufman, Alt, and Chapman 2004).

Selected information about student demographics, schools' locations and characteristics can be obtained from the National Center for Education Statistics (<http://www.nces.ed.gov/ccd/>). Although the students in the school may come from many neighborhoods, this can provide neighborhoods with descriptive information about the schools located there. Most state departments of education provide data for public schools on their web sites on various performance measures.

Early Childhood Education

Head Start Records

Local Head Start agencies maintain records on children enrolled in Head Start and on the individual Head Start programs. These files contain the child's address, the Head Start center location, enrollment dates, and other selected family and child information. These records are confidential, and their format and availability differ across local agencies.

Head Start records can be geo-coded and aggregated to calculate rates of Head Start enrollment in small areas and distances between home and centers for residents. Matched with school enrollment files, they can be used to calculate Head Start participation rates among children entering school.

School Readiness and Public Preschool Records

An increasing number of public schools now uniformly assess children entering kindergarten. These records

may include the student's and parents' names, address, and various measures of the child's performance on school readiness measures. They may also contain information on the child's preschool education.

School entry records have also been used to determine immunization status of children entering school. In states where these measures have been implemented statewide, school readiness data may be available from state departments of education. Some states have moved toward universal prekindergarten programs that can serve as additional sources of information about children's access to early childhood education.

School records can be used to measure the percentage of children in neighborhoods who reach school ready to learn. They can also be used to derive indicators of access to preschool education and factors that promote early childhood development. A consortium of 17 states has defined a number of school readiness indicators, some of which could be measured at the neighborhood level (see <http://www.gettingready.org>).

Higher Education

With the exception of looking at educational attainment of the adult population using data available through the census, there has been little attempt to analyze higher education from a neighborhood perspective. However, as higher education becomes an increasingly important prerequisite for labor market success, it will be useful to have information on higher education enrollment of community residents and their access to colleges and universities. State boards of regents can be a source of data on student enrollment, usually in state-supported education institutions. Student records collected by the board may contain information on the type of institution, the number of course hours taken, student demographics, and the current or home address of the student. These records are confidential under FERPA.

These records can be used to generate age-specific counts and rates of enrollment in higher education institutions. Matched with secondary school records, it would be possible to calculate the percentage of a neighborhood's high school graduates who are going on to higher education within a specified period. The percentage of enrollees in various types of institutions such as four-year colleges, technical schools,

and community colleges is another indicator that could be developed from these data.

Health

Health is defined as not merely the absence of disease but also the overall physical, mental, and social well-being of a person. Vast improvements have been made in the area of preventive health in the past 50 years, especially in developing nations, but health indicators for many low-income communities compare unfavorably with the overall high standard of health in the United States (Geronimus et al. 1996; Howell, Pettit, and Kingsley 2005). There is a tradition of examining health using small-area data (see Pettit, Kingsley, and Coulton 2003). Most health data are subject to strict privacy protection under the Health Insurance Portability and Accountability Act of 1996 (HIPAA). Agencies can make data available for scientific research purposes if the privacy standards set forward in the act are met.

Vital Records

Registration of births, deaths, fetal deaths, and other vital events is a state and local function. The civil laws of every state provide for a continuous, permanent, and compulsory vital registration system. The state vital statistics office issues certificates of live birth, fetal death, or death either directly or through a local registrar.

The records are typically compiled by the state vital statistics office. Birth information is available in two sections. In the first section, the index portion, each record contains a unique birth certificate number, mother's name, address, and other demographic and person-identifying information. The other portion is called the statistical file and has, in addition to the birth certificate number, information about prenatal care, congenital anomalies, and birth weight. The two portions can be linked together using the birth certificate number. Because personally identifiable data are contained in birth files, they are confidential records. A fetal death file is also available that contains much of the same information as the birth file but also includes the cause of death.

Many small-area indicators can be calculated from birth certificate data. Age-specific birth rates per 1,000 women can be determined. Recorded birth

weights can be analyzed to arrive at the number of low-birth-weight infants and calculate the percentage of all births that are low birth weight. Using the information about mother's prenatal care visits, various indexes of prenatal care adequacy can be calculated from these data (Kessner et al. 1973; Koroukian and Rimm 2002; Kotelchuck 1994).

The death file consists of a unique death certificate number, name, Social Security number, and cause of death. The death files are public record. Death certificates can be analyzed for small areas to see if the leading causes differ from those of the nation as a whole. Infant death rates (of children less than age 1) can be calculated and compared with city, state, and national figures to identify areas of comparatively high infant mortality rates. Excess mortality can be calculated by comparing age-specific deaths in the neighborhood with the expected deaths based on a standard population (McCord and Freeman 1990).

Most state and local governments publish vital statistics reports, some of which contain small-area data. The National Center for Health Statistics (NCHS) publishes monthly and annual reports for the nation, states, counties, cities, and regions. Selected NCHS publications can be viewed at <http://www.cdc.gov/nchs/>. For a more detailed discussion of the use of vital records for neighborhood indicators, see Coulton (1998).

Notifiable Diseases or Conditions

Diseases caused by the direct or indirect spread of pathogens from one person to another are called communicable diseases and include such afflictions as tuberculosis, syphilis, and AIDS. Many communicable diseases are reportable, under law, to local and state health officials. Physicians are responsible for filing these reports. A list of nationally notifiable diseases is available at <http://www.cdc.gov/epo/dphsi/phs/infdis.htm>.

Although not always computerized, these data are maintained by state and local health departments and usually contain addresses that would allow small-area analysis. However, confidentiality concerns require special justifications for release of such data. Further, small geographic areas may have incidences so small that no meaningful analysis can be carried out. Examples of the types of indicators that could be developed are the incidence of communicable dis-

eases in a given area and the classification of these diseases within specific groups.

In addition to communicable diseases, some other conditions are recorded by local health departments or reported to state agencies and can be used for small-area analysis. Elevated lead levels in children are one such condition that has received considerable attention because of its profound effect on child development and its tendency to be concentrated in poor, urban neighborhoods. The proportion of children who are screened and test positive for lead is an indicator tracked in many areas. This indicator is becoming more useful as various agencies have increased their screening of at-risk populations. For technical specifications on this indicator see http://www.cdc.gov/nceh/indicators/lead_BLL.htm.

Injury Surveillance

Various data sources have been used to monitor injuries in local communities. The most comprehensive injury surveillance systems tap into numerous data sources to calculate indicators such as injury rates for the population. For an example of a surveillance system that reports injury rates down to the town level in Massachusetts, see <http://www.mass.gov/dph/bhsre/isp/isp.htm>.

A key data source for injuries at the local level is emergency medical services delivered to persons needing immediate attention. Accident victims and patients having heart attacks are examples of those needing immediate medical attention. When transport is via the public system, the reports will appear in 911 data, which are discussed more extensively in a subsequent section.

Many medical emergencies, however, are treated in hospitals but do not appear as 911 calls. A more complete measure of these emergencies could come from hospital records, but no common database for emergency room visits exists in most cities. The considerable interest in injury control (see for example, <http://www.cdc.gov/ncipc/>) could ultimately spur development of unified databases of emergency hospital visits at the local level. In addition, the availability of E codes for injuries in the International Classification of Disease System makes it possible to establish necessary data systems, and a growing number of communities are exploring such systems.

When many hospitals and emergency service agencies in a city collaborate on an injury registry system, it is possible to calculate injury rates for small areas. Among the important indicators are rates of intentional and accidental injury by age group (Rivara, Calonge, and Thompson 1989). Among youth in particular, injuries are a good indicator of health risk as well as social control in a community (Prothrow-Stith 1991).

Immunizations

The child population's status on immunizations is considered an important measure of the adequacy of preventive health care. It is not only the protection afforded by the vaccine that is of interest but also the accompanying chance for a medical professional to examine the young child who is receiving immunizations according to the prescribed schedule.

No law requires states to collect data on immunizations. The Centers for Disease Control and Prevention conduct national surveys of the immunization status of children, but the sampling design does not allow estimation for small areas such as neighborhoods (see <http://www.cdc.gov/nis>).

Some states conduct their own surveys to estimate the number of children immunized, and some communities are experimenting with computerized immunization-tracking systems. School registration records may be another source of small-area immunization status data because schools and child care centers are mandated to ask for proof of immunization before they admit students. These data have been used to determine how many children in the cohort that entered school in a given year were immunized at the appropriate ages.

The lack of complete and uniform coverage of any of these data sources makes it challenging to develop immunization rates by neighborhood. Adding to the technical difficulty is the fact that the recommended immunization schedule is tied to the age of the child, so rates need to be age-specific and organized by the residential location of the child at the appropriate age. Thus, there are significant problems in looking at immunization data for small areas.

Medicaid Claims

Medicaid provides medical assistance for certain individuals and families with low incomes and financial

resources. Claims filed by medical providers for services delivered under Medicaid may be a valuable source of data on medical conditions and services for populations in small geographic areas. Although Medicaid program administration varies from state to state, it is likely that Medicaid claims data can be obtained from the state agency that administers the program. Medicaid claims data may include provider description, classification of illness, procedure codes, service dates, and service charges. The recipient's address, required for small-area analysis, may need to be merged into the claims file from a separate eligibility file. The Medicaid Statistical Information System program requires states to submit records on Medicaid enrollees and their claims in a uniform format (see <http://www.cms.hhs.gov/MSIS>).

In states that enroll Medicaid-eligible families in managed care, the format of usage data may change. Many states require managed care providers to submit encounter forms that contain information about services received. However, because these forms are not tied directly to reimbursement for the service, they may be less reliable than the previously described Medicaid claims data.

Owing to confidentiality issues, special requests justifying need are necessary before a state agency will release Medicaid claims or eligibility data. These medical records are protected under HIPAA, and they must be rigorously protected from any inadvertent breach of privacy.

Several small-area indicators can be developed using Medicaid claims data. Annualized rates of types of medical care usage (emergency, inpatient, ambulatory, etc.) by age can be computed for enrolled populations. Actual use of medical services by an enrolled population can be compared to a standard of care. For example, the proportion of continuously enrolled infants who receive the standard schedule of well-child visits in their first year of life can be calculated.

Social Services

Social services are a range of public and private programs rendered to individuals and families to improve their economic, social, physical, and mental well-being. Service provision and usage data can be used to craft indicators reflecting the expressed needs of the population in small geographic areas. Sometimes ser-

vice usage rates are interpreted as proxies for the level of the problem to which the services are addressed. However, service use results from the interaction between the recognition of needs and how well services are known and available. Indicators crafted from service data, therefore, do not typically illuminate unmet needs but rather those needs being addressed through the existing service delivery system. As such, these indicators are likely to underestimate the number of individuals in the community who are affected by various problems.

Public Assistance Files

Various forms of cash and in-kind assistance are given to eligible persons who qualify under means-testing criteria. These programs operate under state and federal law but are delivered locally. TANF is the major program for the provision of cash assistance and other services to low-income families. However, public assistance also includes food stamps, Medicaid, emergency assistance, and general assistance in many places.

Data on public assistance benefits are available through the state or local departments of human services. Computerized individual records including name and address, case and recipient numbers, Social Security number, program participation, eligibility status, and benefit amount are contained in monthly files. Records can be extracted for family units or individual recipients. A few states maintain longitudinal records, but in many places these have to be created by merging monthly records to create a history for individuals.

Public assistance files are confidential and can be released only for valid purposes with proper protection agreements in place. Some social services departments have geo-coded their monthly files and can provide data already aggregated to small geographic areas rather than releasing names and addresses of individuals, thereby reducing the confidentiality problems. However, without recipient identifiers, longitudinal or matched files cannot be created.

Monthly files can be used to calculate participation in various public assistance programs for neighborhood residents. Longitudinal files can be used to calculate rates of long-term and short-term welfare participation. When public assistance records are merged with unemployment insurance wage records (discussed above), rates of moving from welfare to

work in small geographic areas can be calculated (Coulton 1999).

Subsidized Child Care

The child care programs operated under the Child Care and Development Block Grant maintain records on children receiving child care subsidies or vouchers, their families, and child care providers. These data are confidential but may be available through state or local departments of human services for valid research purposes with proper protections for confidentiality in place. Records typically include name of parent and child, address, eligibility status, service hours per week, estimated cost per week, and child care provider. Social Security numbers may also be available. The records are organized by month and there may be separate records for eligibility and payment. Children receiving child care subsidies because of their participation in public assistance programs and those whose parents qualify because of their low-income working status are included. These records are confidential.

The numbers and proportions of neighborhood children receiving child care subsidies can be calculated using these data. The total dollar value of these subsidies in the neighborhood can also be measured as well as the types of providers that are chosen. National- and state-level reports on child care provided under the Child Care and Development Block Grant Act can be found at http://aspe.hhs.gov/_/index.cfm.

Child Care Licenses

Every state has particular requirements for child care providers to obtain a state license. Directors and teachers who work in child care centers must have training in the care of children. Licensing rules also limit how many children can be cared for in any program and how many adults need to be present to care for children of certain ages.

Data on child care licenses are obtained through the state or local agency charged with the licensing responsibility. Local child care resource and referral agencies often maintain computerized databases on child care providers as well. Records may contain the name and address of the licensee; number of slots for infants, toddlers, preschoolers, and school-age

children; and additional child care information. Some indicators that can be developed for a small geographic area include the numbers, type, and location of slots relative to employment locations and to the welfare and working poor population. National information about child care can be obtained from <http://www.nccic.org/>.

Child Welfare Records

Child welfare services include protective services for at-risk children and families, crisis intervention and prevention, and various forms of substitute care such as foster and residential care. Confidential child welfare records are maintained by county and state departments of child welfare or child protection. Although there are federal requirements for computerized child welfare information, the data systems vary in their completeness and accuracy. State and local records may include name, address, family income, educational attainment of parents, religion, ethnicity, marital status, and other demographic information. Dates and status of child abuse and neglect reports and dates of entry into and exit from custody, foster care, residential treatment, protective services, and special programs are also important pieces of information that may be included in data systems. In many states, the child abuse and neglect reports are in different data systems than those containing the ongoing protective services information. (Child maltreatment records are discussed in a subsequent section.)

Neighborhood measures can be developed using geo-coded child welfare records. The number of children in custody or in foster care can be calculated for small geographic areas. When using these records, care must be taken to identify children with multiple episodes of custody or protective services placements and families in which multiple children enter custody or placement. If adjustments are not made, these related events can inflate rates and other measures. Further, it is important to recognize that counts of new cases entering the system in a given period will differ from the number of cases that are open at a point in time, or the number of individual children who are ever in an open case during a year. Analysts need to take care to determine that the most useful counts are selected for the specific purpose and that, if a rate is calculated, the appropriate denominator is used. Additionally, if comparisons are made across

time or across jurisdictions, the analyst needs to assure that the calculations were made consistently.

Child welfare records can be merged with other agency records to examine the interrelationships among services provided by various child-serving agencies and to track outcomes (Goerge et al. 1994). For example, by merging child welfare and TANF records, analysts can examine whether families hitting welfare time limits have particularly high rates of child welfare involvement. Although record matching and file merging are challenging, they can provide the kind of information useful to community organizations. A number of reports that use child welfare data are available at http://www.acf.hhs.gov/programs/cb/stats_research.

Mental Health and Substance Abuse Services

Mental health and alcohol and other drug abuse services are delivered by a wide range of public, nonprofit, and for-profit organizations. Although no single agency maintains data on all such programs, public programs operating under the authority of local boards often generate data useful for developing small-area measures. The data have limited coverage, however, because many services do not fall under the public system. Local boards often maintain confidential, computerized records that contain the client's name, address, and dates and types of service received, including admissions to inpatient facilities or treatment centers. The availability and format of these records vary considerably from one local board to another.

Several neighborhood indicators can be developed from the geo-coded records. These include percentage of the population receiving treatment, demographic characteristics of patients, prior treatment history, duration of treatment episodes, and key services received. The federal government has a Substance Abuse and Mental Health Services Administration that provides national-level information at <http://www.samhsa.gov>.

Safety and Security

Safety and security within the neighborhood are of major concern in almost all communities, and many neighborhood groups work to reduce crime and vio-

lence. In addition, neighborhood safety is often used as a proxy for such concepts as social control and social integration because these have relatively strong correlations with measures of safety (Morenoff, Sampson, and Raudenbush 2001; Sampson, Raudenbush, and Earls 1997). Information regarding the safety of a given geographic area can be found in several data sources.

Municipal Police

Police departments maintain records for each incident of reported crime occurring in their jurisdiction. These records contain a significant amount of information about the crime incident and, when available, the victim, suspect(s), and/or arrestee(s).

The crime reports contain specific information about the crime, such as location, type of crime, time, date, weather conditions, and information about the arresting officer(s) including name(s) and badge number(s). The incidents are classified by the type of crime such as homicide, rape, aggravated assault, robbery, burglary, arson, auto theft, domestic violence, simple assault, menacing, and drug-related violations such as trafficking or possession. Information is also available regarding the type of weapon used during the crime. For many crime reports there is also a file of information about the victim, including race, sex, address, age, and date of birth. Police departments also maintain an arrest database. Included in each arrest report are address, race, sex, age, and date of birth of the arrestee. Information is also available about the suspect(s). It includes the same geographic and demographic information as the arrestee data but also contains physical characteristics describing a suspect.

Crime incident reports can be linked to victim, arrest, and suspect reports using a report number. Since this information is sensitive, the willingness of a police department to release these data varies by jurisdiction. Most departments have data that are available electronically and updated frequently, if not continuously.

Several small-area indicators can be developed with these data. The number and rates of crime by geographic area can be calculated. When making these counts, many researchers use only serious crimes, called Part I crimes under the terminology of the Uniform Crime Reports. Part I crimes include murder and nonnegligent manslaughter, forcible rape,

robbery, aggravated assault, burglary, larceny-theft, motor vehicle theft, and arson. Crimes can also be disaggregated by the race, sex, and gender of victims and assailants or by the victim-assailant relationship. For example, it can be determined whether the victim and assailant live in the same neighborhood or whether they are of the same race. Weapons use by crime type can also be calculated.

Crime data have been used by diverse groups and individuals, including researchers, planners, and administrators, to document and study crime levels in communities. Communities have used crime data to determine the need for violence-prevention programs or community policing programs. The relationship between crime and other social indicators has been studied to understand or determine the possible causes and effects of crime.

The Federal Bureau of Investigation (FBI) administers the Uniform Crime Reporting (UCR) program, which compiles and maintains nationwide crime statistics. Local and state law enforcement agencies voluntarily participate in this program. Historically, local jurisdictions submitted summary UCR reports to the FBI annually. These summary reports were typically not useful for neighborhood indicators because they covered larger areas. More recently, the FBI has developed the National Incidence-Based Reporting System (NIBRS). Local law enforcement agencies that have implemented NIBRS now have a database compatible with national standards and useful for spatial and neighborhood analysis. The FBI maintains a web site at <http://www.fbi.gov>.

Emergency 911 Call Data

The 911 emergency system is generally operated by a county or regional agency. All 911 calls for emergency service are processed by the appropriate police department. The calls for fire or emergency medical services are routed to the appropriate agency.

The data available from the 911 calls include information about the caller and the emergency. Information about the caller includes name, address, and phone number. This information is not always complete because some callers do not identify themselves. Available information about the emergency includes the exact location, date and time of call, description of emergency, whether an ambulance was required, and a priority and alarm level based on type of emer-

gency. The time a call is received by police, time of arrival to the scene, whether a contact was made, and description of the result of the call are also available.

The data are organized by priority level, with 1 the most serious and 4 the least. The data are categorized by type of call, such as whether the call indicates a crime against a person, an accident (e.g., hazardous waste), a public safety threat (e.g., bomb threat), a property crime, or a request for general assistance (e.g., hauling a prisoner, assisting with a traffic stop). The ability to obtain these data and the format of the data vary by jurisdiction.

The small-area indicators that can be developed from these data include police response times and number of 911 calls by priority level. In addition, the calls can be categorized based on the description of the emergency. For example, the number of 911 calls indicating violent crime (e.g., homicide, robbery, domestic violence) can be calculated. In addition, the number of 911 calls indicating property crimes or public safety issues can be calculated.

The data from 911 calls can supplement other crime-related information. The 911 data provide information about incidents that may not result in a crime report, such as altercations within households or minor disturbances. The data regarding response times could be useful for police departments and communities as a whole. Slow response times may indicate a need for more staffing during particular times or in particular areas.

Juvenile Court

The juvenile court handles cases of delinquency, unruliness, abuse, neglect, and dependency for all individuals under the age of 18. A record is maintained for each juvenile who enters the court system.

The computerized juvenile court records often include information about the offender, including age, sex, race, address, and birthdate. These records also include information about the location, date, and type of offense. Offenses include violent crimes such as homicide and robbery, property crimes, drug violations, and less serious offenses such as disorderly conduct, curfew violations, and truancy. The data include information identifying the case such as a case number, case type, source of complaint (e.g., parent, school), judge, disposition, and disposition date. In addition, there is information regarding

probation, such as probation officer, days on probation, and, where applicable, detention home location and release date.

Although the addresses of the offender and victim and location of offense are recorded, the ability to obtain this information will vary by court system. The ability to obtain demographic characteristics of the victim and offender such as race, sex, and age will also vary by court system. Address and demographic information about the victim and offender are confidential but can be released for research with proper confidentiality protections. The juvenile court may release an annual report aggregating data to the municipality or county level, but neighborhood indicators are seldom published.

The neighborhood indicators that can be developed from juvenile court records include delinquency rates; number and type of crimes committed by juveniles; and the race, sex, and age of the offenders. If the victim information is obtained, the victim-offender relationship by sex, race, age, and geography can also be determined. The data have been used by various individuals and groups, including researchers, policymakers, juvenile justice advocates, and administrators, to determine the level of juvenile crime and develop strategies and programs to reduce it. The Office of Juvenile Justice and Delinquency Prevention provides information at <http://ojjdp.ncjrs.org>.

Prisoner Reentry

The return of individuals from prison is of growing concern in communities. As a result of mandatory sentencing laws implemented in the late 1980s, high numbers of individuals were taken out of communities and are now returning. Studies have shown that these individuals tend to be concentrated in central cities, and particular neighborhoods are disproportionately affected (Travis 2005).

There are several sources of data related to prisoner release or the reentry of former prisoners into communities (see La Vigne and Cowan 2005). State departments of corrections release individuals with felony convictions. City or county correctional facilities release persons awaiting trial or serving sentences for misdemeanors. The Federal Bureau of Prisons releases individuals convicted of federal crimes. Parole and probation departments have information on the individuals they supervise.

The information maintained by all these entities is confidential.

For neighborhood indicators on reentry, it is ideal to be able to obtain the destination address at release. However, the corrections agency may not have this information on prisoners who are released without supervision. In those cases, only an address at admission may be available. It is likely that either of these addresses will be only temporary. And users should be careful to identify halfway homes or emergency shelters in their analysis.

Neighborhood indicators that can be calculated are the number of prisoners reentering to the community by the pre-incarceration address or destination location, the rate per 1,000 population, and the percent returning with and without supervision. The concentration of returning prisoners in certain neighborhoods can be measured by calculating the percentage of a state's or region's returning prisoners that locate in the top frequency neighborhoods. Further information about prisoner reentry is available at <http://www.ojp.usdoj.gov/reentry>.

Coroners' Reports

The coroner determines the circumstances, manner, and cause of all violent, sudden, unusual, and unattended deaths. The coroner prepares a detailed report outlining all the findings surrounding a death. The coroner's report contains confidential information about the victim and, when applicable, the assailant. Information about the victim includes age, sex, race, and address. Additionally, the report contains information regarding any drug(s) or alcohol found in the victim's system at the time of death. Information about the death includes place, date, time, and day of death; type of death (e.g., homicide, suicide); mode of death (e.g., shooting, stabbing); and, where applicable, caliber of weapon. The information available about the assailant includes sex, race, age, address, and previous offenses. The records are maintained by a local coroner's office, but the format and accessibility of the data may vary by jurisdiction. Much of the report, for example, may not be computerized.

The community indicators that can be developed from these data include suicide and homicide rates, places of death, times and days when death occurs, and how death occurs. Information about the victim

and assailant, such as race and sex, can be determined. In addition, the victim–assailant relationship by age, race, sex, and geography can be determined. Coroners’ reports can be used in conjunction with police crime reports to enhance the information available regarding homicides and suicides. Coroners’ reports contain more detailed information about a death than do the crime reports from a police department or death certificates.

Child Maltreatment

Incidents of child abuse and neglect are reported to local child protection agencies. The agency investigates each claim and determines whether abuse or neglect has occurred or is occurring. A record is maintained for each reported incident of abuse or neglect.

The data available from reports of alleged incidents of child abuse or neglect include location of incident; person reporting incident (e.g., teacher, doctor, neighbor); type of incident (e.g., sexual, physical, emotional); and whether the alleged incident was substantiated, indicated, or unsubstantiated. Risk assessment information may also be available. Identifying information may include the victim’s address, birth date, gender, and relationship to the alleged perpetrator.

The confidentiality and sensitivity of this information is an important concern, particularly when identifying information such as addresses are requested. The ability to obtain these data varies depending on the purpose for which they are sought. Generally, the data are available electronically for research purposes but they must be protected in highly secure environments with strict safeguards. An important consideration for neighborhood indicators is whether the victim’s address at the time of the incident is stored, or whether it is overwritten if the child moves or is placed outside the home.

Indicators that can be developed from these data include child abuse rates, types of abuse and neglect being reported, and numbers of substantiated versus unsubstantiated incidents. The age and gender of victims can be determined. The perpetrators of abuse (e.g., parents, other relatives) and those reporting the abuse (e.g., social workers, teachers) can also be determined. The data have been used by assorted groups and individuals, including researchers, child welfare

advocates, and policymakers, to document the problem of child maltreatment and determine the factors that may contribute to it. Rates of reported child maltreatment can also be calculated. When organized by birth cohort, life table methods can be applied to develop local longitudinal indicators of child maltreatment (Sabol, Coulton, and Polousky 2004). Local child maltreatment rates can be compared with national statistics included in an annual series of reports on child maltreatment released by the Children’s Bureau (http://www.acf.hhs.gov/programs/cb/stats_research/index.htm#can).

Liquor Licenses

State liquor control agencies are responsible for issuing permits to manufacture, sell, and distribute alcoholic beverages. They collect and maintain a record for each individual or company involved in one of these activities. This public information includes name of permit holder, permit class (e.g., carryout beer only, wine only), and address of permit location, including street, city, ZIP code, county, and taxing district. The address can be problematic in liquor permits because in some cases it does not represent the true location of the outlet. In these cases, the name of the permit holder may provide some clue to the outlet’s true location.

A few community measures can be developed from these data. For example, the total and per capita number of alcohol outlets can be calculated for a given geographic area. These counts and rates can be computed for different types of outlets such as carryout stores or bars. In addition, it can be determined whether these alcohol outlets carry beer, wine, hard liquor, or all three and how late the alcohol can be sold. The data have been used by researchers to examine and document the relationship between the density of alcohol outlets and the levels of crime and related problems in an area (Freisthler 2004).

Community Resources and Participation

There is growing recognition that community participation and neighborhood resources are important to residents. Further, community organizations are often interested in rebuilding community infrastructure and capacity. These phenomena are difficult to

capture using administrative data, but a few sources are listed here.

Tax-Exempt Organizations

Nonprofit organizations that are tax exempt must file documents with the Internal Revenue Service under sections 501(c) and 501(c)(3) of the tax code. These filings are public information and the associated IRS records can be a source of data for neighborhoods to identify the types of nonprofit organizations nearby, and the size and expenditures of the local nonprofit sector.

With the exception of charities with less than \$5,000 and some religious organizations, nonprofit organizations must file registration documents to secure their status (forms 1023 or 1024). These forms contain their address plus descriptive and financial information on the organization. Most nonprofit organizations are also required to file a yearly 990 form that contains financial and organizational information. However, in point of fact, some organizations do not file the 990 every year, resulting in uneven coverage in some areas. Another limitation of these data for neighborhood work is that organizations with less than \$25,000 in receipts and religious organizations are not required to file these forms.

The National Center for Charitable Statistics (NCCS) at the Urban Institute maintains a number of databases that compile these IRS forms and are available for a fee from the center (<http://nccsdataweb.urban.org>). A core database contains information about the location of the organization, its finances, its employees, and organizational codes as to the type of work it does, according to the National Taxonomy of Exempt Entities. Additional databases are available for more specialized purposes. It is important that analysts carefully study the detailed documentation provided with these data sets because a number of procedures must be followed to make accurate counts and estimates using these data.

NCCS data files can be used to develop measures of the size of the nonprofit sector and the types of nonprofits located in the neighborhood. Multiple years of data can be used to detect the changing geography of nonprofit organizations. (See, for example, De Vita et al. 2004). Although the data can be geographically organized according to the address that is

on the filing form, this is not necessarily the location at which all the organizations activities are carried out. For example, some nonprofits that do significant work in neighborhoods may file their forms from a downtown central office. Therefore, some local groups have used the NCCS file as a starting point and then adjusted it using local directories to get a more complete count of organizations active within their neighborhood.

Community Referral Services and Directories

Organizations and associations are important community resources and may be indicative of neighborhood capacity. Information about the numbers and types of these entities can be used to create indicators of community assets. There is not one complete listing for all such groups, but several sources can be concatenated to achieve the greatest coverage.

Information and Referral Systems

Many communities have centralized information and referral (I&R) services that take telephone inquiries and provide callers with information about where they can get help. In a growing number of communities, these are now part of specialized 211 programs (<http://www.211.org>). These I&R programs maintain a computerized database of agencies and programs that could be used as a source of data for neighborhood indicators. Standardized categories are typically used to describe services provided by agencies. In addition, the addresses of the agencies are often available. Together, these data could be used to identify the number and types of agencies and services within neighborhoods. A limitation of these data, though, is that they do not contain information on agency size or budget, making it difficult to quantify the amount of capacity within the area.

Additionally, 211 programs keep data on the types of requests they receive and the ZIP code of the caller. Such data could be used to craft indicators of expressed need in neighborhoods. For example, the number of calls for specific needs and the percent that can be met by a referral are commonly calculated. However, such indicators are probably underestimates of need because not everyone with a need calls I&R services. Further, not everyone who is given a referral successfully obtains a service that meets their need.

Community Directories

Community-based organizations (CBOs) and other community assets are important to neighborhood planning. Unfortunately, no single database provides information on all community assets. Nevertheless, some listings may be useful for this purpose. The computerized Yellow Pages can be geo-coded and provide information on organizations that choose to be listed there. Also, many CBOs belong to associations whose directories may be useful in constructing neighborhood measures. For example, a listing of libraries and their addresses can be obtained from the American Library Association. Faith-based organizations and places of worship may be listed by a local ecumenical council. Neighborhood development corporations and neighborhood centers may be listed by the city economic development agency. Parks and playgrounds are another type of community asset that can be identified using information from the local parks administrative department.

While available listings can provide the geographic location of CBOs, the listings seldom provide data that can capture the magnitude of the organizations' operations or contributions. Such data may need to be collected directly from the organizations themselves.

Arts and Culture

The opportunity to participate in arts and cultural activities is a key dimension of neighborhood resources. In addition, the promotion and support of local arts and cultural events and celebrations is often a part of community-building efforts. Nevertheless, the data sources for measuring these resources at the neighborhood level are limited because they typically do not capture arts and culture activities that occur outside mainstream institutions. Indeed, the Urban Institute's Arts and Culture Community Building Indicators Project concluded that indicators should address four aspects of arts and culture: presence of arts and culture venues including smaller and nontraditional settings, participation levels of a broad range of community members, impact of arts and culture in the community, and resources available to support arts and culture of value to the community (Jackson, Herranz, and Kabwasa-Green 2003).

The NCCS data, described above, can be used to identify nonprofit organizations in arts and culture categories, but the larger of these often serve regions

rather than the individuals living in the neighborhoods in which the institutions are located. Similarly, the County Business Patterns data, also discussed in an earlier section, can be used to estimate the number of establishments and their size for arts and culture-related industry codes. Directories of museums, performing arts companies, and other arts venues can also be used to compile lists of resources. However, as noted above, these lists may miss important venues and cannot be used to measure participation levels or the arts and culture resources that actually affect particular neighborhoods.

Voter Records

Voter registration and participation are recorded by local boards of elections. These records are public but vary in their format and accessibility. Boards of elections may routinely report numbers of registered voters by ward or other political jurisdiction, but these do not necessarily fit the boundaries of interest to community organizations. Therefore, access to voter addresses is needed to calculate the rates of participation and registration that would be useful indicators of civic involvement. Voter records have been used to measure participation by neighborhood. Both the percentage of residents who are registered to vote and the percentage who vote in key elections have been calculated. For national information on voting and voter registration, see <http://www.census.gov/population/www/socdemo/voting.html>.

Public Transit

Access to public transportation and the destinations accessible by public transport is of some interest for small areas. For example, communities may want to know how easily residents without automobiles can reach important locations within the metropolitan area and can walk to transit stops within their neighborhood. Ridership information may prove useful to communities advocating for expansion or retention of services. Access to public transit can reduce the economic costs of getting to work and limit the environmental impact of traffic.

Bus and train schedules and routes are published by local transit authorities and can be converted to distances from transit stops and travel times to key destinations from points of origin within neighborhoods.

Most transit authorities have computerized route and schedule information that can facilitate this task. Transit agencies also collect information on ridership for various routes.

Small-geographic-area indicators can be developed from such transit data. The average time it takes for areas residents to commute to clusters of employment growth is an example that is important to planners of workforce development programs (Coulton, Leete, and Bania 1999; Sanchez 1999). Also, the distance of the average neighborhood resident to a transit stop could be calculated as a measure of transportation access. National information on public transit is available on the American Public Transit Association web site, <http://www.apta.com>.

Automobile Registration and Licenses

Records of automobile registrations and licensed drivers can be used to develop additional indicators of a neighborhood's access to the region and its general level of resources. These records are public and can be obtained from a state's Bureau of Motor Vehicles. Some states use a dynamic database that is updated when changes are made. Available data include addresses for the various types of vehicles registered and the classification of the vehicles (commercial, passenger, government, etc.).

Examples of community measures that can be developed using such data are the number of registrations in a year, the number of automobiles owned per capita, the average number of vehicles owned by households, and the median age of registered automobiles. The number of licensed drivers per 1,000 population is an additional indicator of the neighborhood residents' access to automobile transportation.

Community Development Investments

Efforts to revitalize and improve neighborhoods often include making investments in housing, commercial areas, green spaces, or other amenities. These investments may come from the public, nonprofit, or for-profit sector and are often put together by community-based organizations and intermediaries. Although it is difficult to capture all these investments, there are several useful sources of data for this information.

Community Development Block Grants

The Community Development Block Grant (CDBG) program is funded by the HUD and administered by the community receiving the funding. It provides important resources for neighborhoods (Galster et al. 2004). This entitlement program provides annual grants to entitled cities to assist them in carrying out a wide range of community development activities directed toward neighborhood revitalization, economic development, and the provision of improved community facilities and services. Areas with concentrations of low- and moderate-income populations are specifically targeted for CDBG investments. Each city allocates the funding to projects it deems appropriate and consistent with HUD regulations.

Data on CDBG projects are available from the municipal departments responsible for community development or planning. The data may include name and address of the funding recipient, location of recipient, description of activity funded, activity codes, amount of funding, year activity was funded, amount of funding expended in a given period, geographic area served by the activity, and number of persons and/or households served by the activity. Activities include housing rehabilitation or construction and improvements to the neighborhood such as parks, streets, and facilities. In addition, the racial and income characteristics of the persons and/or households served by particular activities may be available.

Even though this information is public record, the ease of obtaining and using the information varies by community. Although each city must submit an annual report to HUD summarizing the previous year's CDBG activities, the address-specific project data necessary for neighborhood analysis may not be readily available or in an electronic format.

There are some ambiguities with these data, particularly when focusing on neighborhood analysis. It is difficult to accurately determine the financial benefit a given neighborhood is receiving from some types of CDBG activities. Some projects, for example, target multiple neighborhoods, or a project located in a neighborhood may offer citywide programs. Such expenditures must either be apportioned across many neighborhoods or left out of neighborhood-level analyses.

Community Development Organizations

Community development corporations, neighborhood housing agencies, and neighborhood revitalization groups are important sources of investments in many neighborhoods. These organizations, individually or collectively, maintain records of these projects. The data may include the address or parcel number of the property, the dates of the project, the monetary value of the project, and information about the nature of the project or improvement. Indicators that can be calculated from these data include the total value or per capita value of investments, the percentage of investments in various types of projects, or the number of properties invested in per square mile. The availability of these data will vary by community.

Housing

Many community organizations are interested in improving the housing in their neighborhoods or in increasing the supply of affordable housing. A considerable amount of available data can be used to develop indicators of housing stock, conditions, and markets in small areas. The data come from diverse sources and cover such topics as type, size, condition and quality of housing; residential construction and demolition activity; and housing finance.

Home Mortgage Disclosure Act

The Home Mortgage Disclosure Act (HMDA), enacted in 1975, is implemented by the Federal Reserve Board. This act requires covered institutions to compile and disclose data about loan applications received and loans originated or purchased during each calendar year. Institutions that are required to file HMDA data include commercial banks, savings and loans, credit unions, and mortgage companies that meet specific reporting criteria.

The data are maintained in the institution's Loan Application Register (LAR). Each LAR record contains loan application information such as type (conventional or government-backed), purpose (home purchase, refinance, or improvement), amount, and action taken (e.g., application approved or denied). Each record also contains some applicant and co-applicant characteristics such as race, gender, and gross annual income. Also, beginning in 2004, the file includes interest information on loans with high inter-

est rates. Information about the property type (single-family, multifamily, or manufactured home), intended occupancy (owner-occupied or not), and location (e.g., census tract, county, metropolitan statistical area, and state) is also in each LAR record. In addition, each record includes a few variables describing the census tract in which the property is located such as population, number and percentage of minority population, median income, and number of owner-occupied units.

In addition to the LAR record, there is a Transmittal Sheet (TS) record. The TS record contains information about each financial institution, such as name, address, parent company name and address, and tax identification number. The LAR and TS data can be linked by using a respondent ID and agency code found on both these files.

HMDA data are available from the Federal Financial Institutions Examination Council (<http://www.ffiec.gov/hmda>). A wide array of indicators based on HMDA data can be extracted for census tracts and larger geographic areas at Fannie Mae Foundation's DataPlace web site (<http://www.dataplace.org>).

Several community indicators can be developed from the HMDA data. The total number of loans applied for and whether they were approved, denied, or withdrawn can be determined. The purpose for the application or loan, such as whether it was to purchase, improve, or refinance a home, is available. The type of application or loan, such as whether it was conventional, Federal Housing Administration, Veterans Administration, or Farmers Home Administration, is available. Because demographic characteristics of the loan applicants and co-applicants are available, approval and denial rates based on race, gender, and income can be computed. The approval and denial rates of the financial institutions can also be computed for small areas. The financial institutions doing most of the lending in a particular area or to a particular group can be determined, as well as the lending patterns of specific financial institutions. HUD also develops an annual file of subprime lenders (available at <http://www.huduser.org/data/sets/manu.html>) that can be linked to the LAR records to determine loans from these institutions.

The HMDA data have been used by fair-housing groups to look at lending patterns in communities and determine whether any discriminatory practices are involved. The data are also useful for public officials

to determine whether financial institutions are meeting the housing credit needs of their communities. Additionally, the economic stability of neighborhoods can be assessed by computing trends in overall home lending and conventional mortgage activity. For more information about HMDA data and its uses, see Pettit and Droesch (2005).

Property Information

A great deal can be learned about the land use, housing stock, and real estate market in neighborhoods using data sources that pertain to property. Many local government agencies maintain electronic files and web sites that contain this information, which is public record. Several of these data sources can be linked together using the permanent parcel number for the property. In many areas, these parcels have been digitized so they can be mapped. Parcel-to-address correspondence files allow address-based data to be integrated as well. While these data have always been used for government operations, several cities have begun to use these data in innovative ways to inform public and private decisions about properties (Kingsley and Pettit forthcoming).

Local Tax Assessor or Auditor

A wide variety of information about every property is collected and maintained by the local auditor or assessor's office. This information is collected for the purpose of levying taxes.

The property information may consist of several records. The tax billing record may include parcel or property number, owner's name and address, land and building assessed values, property class, land use codes, gross taxes, special assessments, and tax payment or delinquency status. The property characteristics record may include parcel number, number of rooms, type of structure, style of garage, roof type, year built, lot size, land use code, and a rating of the condition of the property. The tax billing and characteristics data are updated when events such as sales occur, with major revisions of all records occurring periodically when revaluation of property is performed. If the city does not have archiving procedures in place, historic data may be overwritten and lost. While this information is public record, the ease of obtaining it in a usable format for analysis may vary from one region to another.

Several small-area measures can be developed from tax assessor's property data. The median assessed values of homes as well as the percentage change in assessed valuation can be computed. The number of tax-delinquent properties can be determined. The conditions of properties can be ascertained. All these indicators can be computed by property class (i.e., residential, commercial, industrial), land use (e.g., single-family, commercial warehouse, manufacturing plant), and geographic area. Trends in housing conditions and valuation can be used as indicators of the strength of the housing market.

Recorder of Deeds

Local governments are responsible for recording changes in property ownership. The deed transfer records include information about property sales and transfers, parcel number, names of buyer(s) and seller(s), address of property, sales amount, date of sale, and deed type. Since these transactions are continuous, deed transfer data should be obtained frequently in order to have timely information. These data can be used to gauge the sales activity in neighborhoods and to calculate median or average sales prices. Trends in the volume of property sales and transfers can be determined. The number of sales by deed type (e.g., sheriff sales) can be determined and may be a sign that the housing market is distressed.

Deed transfer data are often used to examine sales prices as an indicator of market strength in neighborhoods. It is important that analysts developing these types of indicators select the types of deeds that are evident of market transactions (often called "arm's length" sales) and take into account the possibility that several deed transfers may be recorded within a period of interest. Especially in low-income neighborhoods where many deed transfers may not result from a sale on the open market but through a sheriff's sale, foreclosure, transfer to a nonprofit organization, or quit claim to a related person, there may not be sufficient numbers of arms-length sales in a given period to reliably measure such characteristics as median home price.

Deed transfer records are often linked with property characteristics data from the tax assessor to allow more precise comparisons. For instance, separating sales of single-family homes from multifamily homes allows a more valid comparison of sales prices over time or across neighborhoods. Similarly, using infor-

mation on the year on which the building was constructed, the sales prices of older and newer homes could be examined. Subsetting properties according to their characteristics is important, especially in areas where the housing stock is changing. Such adjustments for variation in property characteristics are particularly important to assess the influence of demolition, new construction, and home improvements on median sales prices in neighborhoods.

Municipal Housing Departments

Housing departments maintain several types of records based on their regulatory functions. Several of these can be used to craft indicators of housing conditions and neighborhood investments. These records are public information but may be located in various offices, and electronic access will vary. The records are updated frequently.

Building and Demolition Permits

Building and demolition permits are collected and maintained within a municipality's building or housing department. The permits are necessary to ensure that zoning requirements and building standards are met. The data available on permits may include name of owner, address of property, parcel number, written description of work to be done, codes identifying work to be done, permit use class (e.g., commercial, residential), estimated cost of work to be done, permit issue date, and expiration date. In addition, there may be information about the contractors performing the work, such as name and registration number. The building permit also contains the inspection date, building inspector, and permit fees.

The small-area indicators that can be developed from these data include the number of permits by type (e.g., new construction, external rehabilitation) and the number of permits for commercial versus residential properties. Additionally, it is possible to calculate the estimated value associated with the building permits by type, although there is not necessarily any verification of these estimates by the housing department. The permit data have been used to determine the investment being made in residential rehabilitation and new housing construction by geographic area. Also, neighborhood groups have been interested in tracking housing demolition through the permitting process.

Housing Code Enforcement

Housing code enforcement information is available from the city's building inspection or housing division. The housing code sets the rules for basic maintenance and upkeep for decent housing. The main purpose for housing codes is to ensure the upkeep of the property and the health and safety of the occupants of a building. Municipalities differ in their inspection policies and in the aggressiveness of inspection and enforcement. If the process is complaint-driven, then the indicators derived from code violation reports may not accurately reflect the condition of properties across the community but rather of locations where problems are more likely to be reported.

The information available from a housing code violation report may include owner of the property, address, parcel number, codes being violated, inspector name, date violation cited, time allotted to comply, compliance date, and whether legal action was taken. In addition to code violations, city building inspection or housing departments may maintain records of nuisances, which are problems that make a neighborhood unattractive or unsafe.

The small-area indicators that can be developed from these data include number and rate of properties with violations, types of violations (e.g., faulty wiring, paint needed), major versus minor violations, and number and rate of nuisances (e.g., abandoned buildings and cars, garbage improperly stored) by geographic area. The compliance rates of code violations or nuisances can be calculated. In addition, the number of violations that result in legal action can be calculated.

Courts

Actions filed in courts can be used for indicators related to neighborhood housing. A growing number of courts have computerized their records, but there tends to be considerable variation across jurisdictions. Although they are public record, an important limitation of court dockets for neighborhood work is that they may not contain the property address or parcel number in the computerized record. This is due to the fact that the action filed is against a person, such as the owner or renter, rather than the property itself. However, there is growing interest among community groups in using court information to address community development concerns.

Municipal Court

Municipalities file cases for noncompliance with housing codes or other violations related to housing in municipal court. Also, landlords file eviction actions in municipal court. Some municipalities have special courts for housing-related matters. Court records from these actions can be used to develop neighborhood indicators. For example, an indicator of housing affordability problems in neighborhoods may be trends in eviction rates per capita. Trends in prosecutions for code violations may be an indicator of stepped-up code enforcement or deterioration of properties.

State Court

Actions for foreclosure due to nonpayment of property taxes or mortgages are filed in state court. These court records may include data on the owner of the property, the identity of the entity bringing the action, the amount of the claim, and the status of the proceedings. The type and frequency of such actions can be used to develop indicators related to the financial vulnerability of home owners or neighborhood stability. High rates of foreclosure, for example, are strong predictors of neighborhood decline (Immergluck and Smith 2005). Trends in foreclosures have also been used to identify problems such as financially stressed households or predatory lending.

Public Utilities

Records maintained by public utility companies can be used to construct indicators of neighborhood turnover or to identify housing units that may be at risk of vacancy, abandonment, or physical decline. In particular, when utilities are turned off repeatedly or for a prolonged period, this may be a sign of a property in distress. Municipal water departments are a promising source for this type of information because the records are public. Records for each housing unit show the dates of various actions and amounts of unpaid charges on the meter or unit. To be useful, these data should be linked to the specific parcel and aggregated to larger units of geography. The number and percent of housing units with water shutoffs in a given period can be useful to groups working to prevent deterioration and vacancy from occurring (Hiller et al. 2003).

Public and Subsidized Housing

Local housing authorities administer several types of subsidized housing. These include housing units they directly own as well as those assisted under tenant-based and project-based (e.g., Section 8) subsidies. Data on all these types of public and assisted housing are useful for neighborhood information. Housing authorities typically maintain records on households that receive housing vouchers and the addresses of the housing units they rent. Also, the housing authorities maintain data on the housing developments they directly operate and can provide summary data on the number of units, their locations, and characteristics of residents. Data are also available on the privately owned buildings or projects that have received subsidies, including information on when these subsidies expire. Generally, local housing authorities are willing to make such data available for use in developing neighborhood indicators such as counts of subsidized rental units.

The Department of Housing and Urban Development also collects and maintains information about public and subsidized housing units across the nation. HUD periodically releases a file (*A Picture of Subsidized Households*) with information available about the tenants of public and subsidized housing and about the housing projects. This file can be used for neighborhood-level analysis. Generally, the information in the file has been collected at the local level and reported to HUD. This information can be obtained through the HUDUSER database at <http://www.huduser.org>.

Two files provide additional information about privately owned subsidized housing. HUD produces the Multifamily Assistance and Section 8 Contracts (formerly known as Section 8 Expiring Use) database monthly. The database represents a snapshot of all multifamily assistance and Section 8 project-based subsidy contracts, including the address of the property, the number of subsidized units, the number of bedrooms in the units, and the expiration date of the contract. The file is available in an Access database at <http://www.hud.gov/offices/hsg/mfh/exp/mfhdiscl.cfm>. Selected indicators are also available at DataPlace.

The Low-Income Housing Tax Credit data file lists all the properties receiving the credit since 1987. The database includes project address, number of

units and low-income units, number of bedrooms, year the credit was allocated, year the project was placed in service, whether the project was new construction or rehab, type of credit provided, and other sources of project financing. It is already geo-coded and has a census tract identifier when possible. It is available for download at <http://www.huduser.org/datasets/lihtc.html>. Selected indicators are also available at DataPlace.

Public and subsidized housing data can be used to determine the economic status and mobility of residents receiving housing assistance within neighborhoods. Combined with a total housing unit count from the census or from local property records, it can be used to calculate the percentage of housing in the neighborhood that is publicly operated or subsidized. The data have been used by researchers, evaluators, and housing administrators to profile the public and subsidized housing population and develop programs to assist tenants in moving from subsidized housing to home ownership. Local researchers and advocates use the project-based Section 8 data to monitor contracts that are coming up for expiration and to work with tenant organizations to preserve affordable housing opportunities in cases where the owner decides not to renew (Tatian 2006).

Environment

The environment is a broad concept, but within neighborhood indicators work it is associated with the concept of healthy and sustainable communities. These concepts imply the importance of reducing influences that would harm the environment and promoting practices and uses that will sustain the environment. Although vast amounts of data are available on potential harms, it is also important that indicators be developed to track the positive aspects of neighborhood environments.

Environmental Protection Agency

While environmental quality and safety has typically been monitored at the state or regional level, several data sources can be used to generate information for smaller areas. Many of these sources provide the locations from which environmental hazards emanate, and many communities have an interest in knowing their proximity and exposure to these hazards. The largest

single source of such data is the U.S. Environmental Protection Agency (EPA), which maintains several different databases on air and water quality, compliance with environmental regulations, release of toxic materials, pollution discharge, and Superfund sites. Because of the EPA's role as a regulation-enforcing organization, most of the data relate to monitoring sources of pollution rather than to overall environmental quality.

Most of the EPA's databases can be found in its Envirofacts Warehouse (<http://www.epa.gov/enviro>), which integrates data from separate programs through an easy-to-use interface. Through the Envirofacts web site, users can query the different databases to obtain information on sources of air pollution, compliance with water-discharge permits, Superfund sites, releases of toxic chemicals, hazardous waste sites and transporters, and over 675,000 EPA-regulated or -monitored facilities. Envirofacts permits users to limit their searches to locations in a particular state, city, county, or ZIP code. The locational information in the database includes the street address, city, state, county, and ZIP code, as well as the latitude and longitude for each site. With the latitude and longitude, a user can map the locations of different sites using mapping software or aggregate information to any geographic units. The Envirofacts web site also includes a mapping function that allows the user to produce customized maps of data in the system. The numerous types of data available through Envirofacts are described below. In some cases, it is possible to obtain additional or more detailed information by accessing data directly from within specific EPA programs.

AirData

The AirData site (<http://www.epa.gov/air/data/index.html>) makes available annual summary data from two of the EPA's key air pollution data sources. The National Emission Inventory (NEI) database provides estimates of annual emissions of criteria and hazardous air pollutants from all types of sources. The NEI database in 2002 replaced two separate EPA databases for emissions of criteria air pollutants (National Emission Trends) and hazardous air pollutants (National Toxics Inventory). The Air Quality Subsystem (AQS) database provides air monitoring data; that is, ambient concentrations of criteria and hazardous air pollutants at monitoring sites, primarily

in cities and towns. While AirData provides annual summary data, more detailed data can also be obtained through the specific EPA regulatory and monitoring programs.

The NEI contains both emissions and compliance data on numerous air pollution point sources regulated by the EPA and/or state and local air regulatory agencies. NEI also contains data on industrial plants and their components: stacks, the points at which emissions are introduced into the atmosphere; points, the emission points or processes within a plant that produce the pollutant emissions; and segments, the components of the processes that produce emissions. Compliance data are maintained at the plant and point levels, tracking classification status, inspections, and compliance actions. There are also data on releases that are not point-specific.

The information in NEI is used by the states in preparation of State Implementation Plans to track the compliance status of point sources with various regulatory programs and to report air emissions estimates for pollutants regulated under the Clean Air Act. General source identification information is maintained, such as name, address, industrial classification, operating status, and description, as well as descriptive and parametric data on stacks, emission points, and processes within the facility.

Data from NEI can be used to locate neighborhood sources of different types of air pollutants regulated under the Clean Air Act, including carbon monoxide, nitrogen dioxide, sulphur dioxide, and particulates. Information is also available on the amount of emissions each source produces annually, and whether the facility is in compliance with government clean air programs. This information can be used to identify the important air polluters in a neighborhood and to see how many are complying with emission standards.

While the NEI maintains data on sources of air pollution, it does not have information on the levels of pollutants found in the air. That is found in the AQS, which contains measurements of ambient concentrations of air pollutants and associated meteorological data from thousands of monitoring stations operated by the EPA and other national, state, and local agencies. Since monitoring stations are available only at selected locations throughout the entire United States, these data may not be suitable for neighborhood-level analysis.

Water Discharge

The Permit Compliance System (PCS) is maintained by EPA's Office of Enforcement and Compliance Assurance and contains data on more than 75,000 water-discharge permits regulated under the National Pollution Discharge Elimination System (NPDES) of the Clean Water Act. The NPDES permit program regulates direct discharges from municipal and industrial wastewater treatment facilities that discharge into the navigable waters of the United States. The database includes information on permit issuance, permit limits, monitoring data, and other data on facilities.

The location of different wastewater discharge point sources can be identified and located with the PCS. Users can also identify sources that are in violation of discharge regulations and are undergoing enforcement actions. The Envirofacts Warehouse is the easiest way to obtain data from the PCS.

Superfund Sites

The Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) is the official repository for site- and non-site-specific Superfund data in support of the Comprehensive Environmental Response, Compensation, and Liability Act. CERCLIS contains information on hazardous waste site assessment and remediation from 1983 to the present, including data on active sites from point of discovery to listing on the National Priorities List through completion of remedial and response actions. CERCLIS data can be obtained through the Envirofacts web site. Users can get the address, latitude, and longitude of Superfund sites; the type of incident that led to the site being classified as a Superfund site; and the current enforcement status and activity. These data can be used to identify Superfund sites that are in or near a neighborhood and identify those sites that are undergoing cleanup (see <http://www.epa.gov/superfund/sites/cursites/index.htm>).

Toxic Chemicals

EPA's Office of Prevention, Pesticides, and Toxic Substances maintains the Toxic Release Inventory System (TRIS). TRIS has data about the release and transfer of toxic chemicals and compounds by medium of release (air, water, underground injection, land disposal, and off-site), reported by required sub-

mitters. Users can identify locations of toxic chemical releases in or near particular neighborhoods, going back to 1987. The amount of each release can be obtained, as well as whether the release occurred in the air, water, underground, or on land. TRIS also identifies the owner of the facility responsible for the release and the type of treatment used to deal with the release.

The Toxic Release Inventory can be accessed through the TRI Explorer (<http://www.epa.gov/triexplorer/>). Geographic representations of these data are also available (<http://toxmap.nlm.nih.gov/toxmap/main/index.jsp>). State data files are also available and designed to minimize the amount of coding necessary to get release, transfer, waste management, and other information on submissions for a specific reporting year (<http://www.epa.gov/tri/tridata/index.htm>).

In addition, the HazDat database (<http://www.atsdr.cdc.gov/hazdat.html#A3.1.2a>) of the Department of Health and Human Service's Agency for Toxic Substances and Disease Registry (ATSDR) contains substance-specific information such as the ATSDR Priority List of Hazardous Substances, health effects by route and duration of exposure, metabolites, interactions of substances, susceptible populations, and biomarkers of exposure and effects. HazDat also contains data from the EPA CERCLIS database, including site CERCLIS number, site description, latitude/longitude, operable units, and additional site information.

Quality of Life

Several data sources can be used to assess positive aspects of the natural and built environment that may affect quality of life or the health of neighborhoods. These include the degree to which land is

protected for natural purposes or supplies areas for recreation, exercise, and habitat.

Regional planning agencies typically maintain data on land use for specific purposes. For example, land areas set aside for parks, playgrounds, bike trails, nature preserves, and special districts are identified. In many cases, this information will be available with digitized geographic information or parcel information. Using this, along with other geographic information about the neighborhood, allows the calculation of indicators such as the amount and proportion of land assigned these various uses. If the agency has kept records over multiple years, it is possible to calculate the change in the amounts of land for these sustainability purposes.

Some communities are pursuing methods of evaluating the walkability of streets and areas. Although mostly in its infancy, this type of work has the potential to generate data for community indicators. For example, the linear miles of sidewalks as a proportion of all streets in an area can be calculated if the data are available. It may be important to factor in information about traffic safety into these calculations. This type of information may be culled from databases maintained by county engineers and local law enforcement agencies.

Finally, indicators can be developed that relate to other aspects of the built environment that communities may value. For example, buildings designated for historical preservation, or signage and statuary that are symbolically representative of community values, may contribute to the quality of life for residents. Other aspects of the built environment, such as pedestrian areas designated for shopping and amenities, may be valued because they foster social interaction. The locations of these assets can be digitized and information about their proximity, size, or quality can be used for neighborhood indicator development.



References

- Annie E. Casey Foundation. 2005. *City and Rural Kids Count Data Book*. Baltimore, MD: Annie E. Casey Foundation. Available at <http://www.aecf.org/kidscount/>.
- Anselin, Luc. 1988. *Spatial Econometrics: Methods and Models*. Boston, MA: Kluwer Academic.
- Bajaj, Beata, G. Thomas Kingsley, and Kathryn L. S. Pettit. 2005. "Business Patterns and Trends: National Summary." Draft. Washington, DC: Fannie Mae Foundation. Available at http://www.dataplace.org/help/business_patterns_aug_2005.pdf.
- Bania, Neil, and Laura Leete. 1997. *Geographic Distribution of Job Openings within the Cleveland-Akron, Columbus, and Toledo Metropolitan Areas: Data Sources and Methodology*. Available at <http://www.huduser.org/publications/pubasst/welfare/appenda.html>
- Ben-Arieh, Asher. 2006. "Is the Study of the 'State of Our Children' Changing? Re-visiting after 5 Years." *Children and Youth Services Review* 28(7): 799–811.
- Bradshaw, John. 2006. "The Use of Indicators of Child Well-Being in the United Kingdom and the European Union." In *Indicators of Children's Well-Being: Understanding Their Role and Policy Influence*, edited by Asher Ben-Arieh and Robert Goerge (63–82). Dordrecht, NL: Springer.
- Brock, Thomas, Claudia Coulton, Andrew London, Denise Polit, Lashawn Richburg-Hayes, Ellen Scott, and Nandita Verma. 2002. *Welfare Reform in Cleveland: Implementation, Effects, and Experiences of Poor Families and Neighborhoods*. New York: Manpower Demonstration Research Corporation. Available at <http://www.mdrc.org/publications/50/overview.html>.
- Burrows, Roger, and Nick Ellison. 2004. "Sorting Places Out? Towards a Social Politics of Neighbourhood Informatization." *Information, Communication and Society* 7(3): 321–36.
- Burrows, Roger, Nick Ellison, and B. Woods. 2005. *Neighborhoods on the Net: The Nature and Impact of Internet-Based Neighborhood Information Systems*. Bristol, UK: The Policy Press.
- Carlson, Virginia L. 1995. "Identifying Neighborhood Businesses: A Comparison of Business Listings." *Economic Development Quarterly* 9(1): 50–59.
- Coulton, Claudia J. 1998. *Vital Records: A Source for Neighborhood Indicators*. Washington DC: The Urban Institute. Available at <http://www2.urban.org/nnip/pdf/vitalrec.pdf>.
- . 1999. *Public Assistance: A Source for Neighborhood Indicators*. Washington DC: The Urban Institute. Available at <http://www2.urban.org/nnip/pdf/pubasst.pdf>.
- Coulton, Claudia J., Laura Leete, and Neil Bania. 1999. "Housing, Transportation and Access to Suburban Jobs by Welfare Recipients in the Cleveland Area." In *The Home Front: Implications of Welfare Reform for Housing*, edited by Sandra J. Newman (123–48). Washington, DC: Urban Institute Press.
- Cowan, Jacob, and G. Thomas Kingsley. Forthcoming. *Stories: Using Information in Community Building and Local Policy*. 3rd ed. Washington, DC: The Urban Institute.
- De Vita, Carol J., Eric Twombly, Jennifer Auer, and Yuan You. 2004. "Charting the Resources of the Pittsburgh Region's Nonprofit Sector." Washington, DC: The Urban Institute. Available at <http://www.urban.org/url.cfm?ID=411068>.

- Eck, John E., Spencer Chainey, James G. Cameron, Michael Leitner, and Ronald E. Wilson. 2005. *Mapping Crime: Understanding Hot Spots*. Washington, DC: National Institute of Justice.
- Freisthler, Bridget. 2004. "A Spatial Analysis of Social Disorganization, Alcohol Access, and Rates of Child Maltreatment in Neighborhoods." *Children and Youth Services Review* 26(9): 803–19.
- Galster, George, Chris Walker, Chris Hayes, Patrick Boxall, and Jennifer Johnson. 2004. "Measuring the Impact of CDBG Spending on Urban Neighborhoods." *Housing Policy Debate* 15(4): 903–34.
- Geronimus, Arline T., John Bound, Timothy A. Waidmann, Marianne M. Hillemeier, and Patricia B. Burns. 1996. "Excess Mortality among Blacks and Whites in the United States." *New England Journal of Medicine* 335(21): 1552–58.
- Goerge, R., J. Van Voorhis, and B. J. Lee. 1994. "Illinois Longitudinal and Relational Child and Family Research Database." *Social Science Computer Review* 12: 351–65.
- Gradeck, Bob. 2004. "Using Change of Address Data as a Research Tool." Pittsburgh, PA: Carnegie Mellon University.
- Heywood, Ian, Sarah Cornelius, and Steve Carver. 1998. *Introduction to Geographical Information Systems*. New York: Addison Wesley Longman.
- Hiller, Amy E., Dennis P. Culhane, Tony E. Smith, and C. Dana Tomlin. 2003. "Predicting Housing Abandonment with the Philadelphia Neighborhood Information System." *Journal of Urban Affairs* 25(1): 91–105.
- Howell, Embry, Kathryn L. S. Pettit, and G. Thomas Kingsley. 2005. "Trends in Maternal and Infant Health in Poor Urban Neighborhoods: Good News from the 1990s, but Challenges Remain." *Public Health Reports* 120(4): 409–17.
- Immergluck, Dan, and Geoff Smith. 2005. "There Goes the Neighborhood: The Effect of Single-Family Mortgage Foreclosures on Property Values." Chicago: Woodstock Institute. Available at http://www.woodstockinst.org/fairness_in_mortgage_lending.
- Information Policy Institute. 2005. *Giving Underserved Consumers Better Access to the Credit System: The Promise of Nontraditional Data Sources*. New York: Information Policy Institute. Available at <http://www.infopolicy.org/pdf/nontrad.pdf>.
- Jackson, Maria-Rosario, Joaquín Herranz, and Florence Kabwasa-Green. 2003. "Art and Culture in Communities: A Framework for Measurement." Washington DC: The Urban Institute.
- Kaufman, Phillip, Martha Naomi Alt, and Christopher D. Chapman. 2004. *Dropout Rates in the United States: 2001*. NCES 2005-046. Washington, DC: National Center for Education Statistics. Available at <http://nces.ed.gov/pubs2005/2005046.pdf>.
- Kessner, D. M., J. Singer, C. E. Kalk, and S. Schlesinger. 1973. *Infant Death: An Analysis by Maternal Risk and Health Care*. Washington, DC: Institute of Medicine and National Academy of Sciences.
- Kingsley, G. Thomas, and Kathryn L. S. Pettit. 2004. "Neighborhood Information Systems: We Need a Broader Effort to Build Local Capacity." Washington, DC: The Urban Institute.
- . Forthcoming. "Data and Decisions: Parcel-Level Information Changing the Way Business Gets Done." Urban Markets Initiatives working paper. Washington, DC: The Brookings Institution.
- Koroukian Siran M., and Alfred A. Rimm. 2002. "The Adequacy of Prenatal Care Utilization (APNCU) Index to Study Low Birth Weight: Is the Index Biased?" *Journal of Clinical Epidemiology* 55: 296–305.
- Kotelchuck, Milton. 1994. "An Evaluation of the Adequacy of Prenatal Care Index and a Proposed Adequacy of Prenatal Care Utilization Index." *American Journal of Public Health* 84: 1414–20.
- La Vigne, Nancy G., and Jake Cowan. 2005. *Mapping Prisoner Reentry: An Action Research Guidebook*. Washington, DC: The Urban Institute.
- Leete, Laura, and Neil Bania. 1995. *Assessment of the Geographic Distribution and Skill Requirements of Jobs in the Cleveland-Akron Metropolitan Area*. Cleveland, OH: Case Western Reserve University.
- Lemeshaw, Stanley, David Hosmer, Janelle Klar, and Stephen Lwanga. 1990. *Adequacy of Sample Size in Health Studies*. New York: John Wiley & Sons Ltd.
- McCord, C., and Harold Freeman. 1990. "Excess Mortality in Harlem." *The New England Journal of Medicine* 322(3): 173–77.
- Morenoff, Jeffrey D., Robert J. Sampson, and Stephen W. Raudenbush. 2001. "Neighbor-

- hood Inequality, Collective Efficacy, and the Spatial Dynamics of Urban Violence.” *Criminology* 39(3): 517–60.
- Mossberger, Karen, Caroline J. Tolbert, and Michelle Gilbert. 2006. “Race, Place, and Information Technology.” *Urban Affairs Review* 41(5): 583–620.
- Pettit, Kathryn L. S., and Audrey Droesch. 2005. “A Guide to the Home Mortgage Disclosure Act Data.” Draft. Washington, DC: Fannie Mae Foundation. Available at http://www.dataplace.org/help/hdma_guide_aug_2005.pdf.
- Pettit, Kathryn L. S., G. Thomas Kingsley, and Claudia J. Coulton. 2003. *Neighborhoods and Health: Building Evidence for Local Policy*. Washington DC: The Urban Institute. Available at <http://www2.urban.org/nnip/health03.html>.
- Prothrow-Stith, Deborah. 1991. *Deadly Consequences*. New York: Harper-Collins.
- Raudenbush, Stephen W., and Robert J. Sampson. 1999. “Ecometrics: Toward a Science of Assessing Ecological Settings, with Application to the Systematic Social Observation of Neighborhoods.” *Sociological Methodology* 29: 1–41.
- Rivara, Frederick P., Ned Calonge, and Robert S. Thompson. 1989. “Population-Based Study of Unintentional Injury Incidence and Impact during Childhood.” *American Journal of Public Health* 79(8): 990–94.
- Rossi, Peter H. 1972. “Community Social Indicators.” In *The Human Meaning of Social Change*, edited by Angus Campbell and Philip E. Converse. New York: Russell Sage Foundation.
- Sabol, William, Claudia Coulton, and Engel Polousky. 2004. “Measuring Child Maltreatment Risk in Communities: A Life Table Approach.” *Child Abuse and Neglect* 28: 967–83.
- Sampson, Robert J., Stephen W. Raudenbush, and Felton Earls. 1997. “Neighborhoods and Violent Crime: A Multilevel Study of Collective Efficacy.” *Science* 227(Aug. 15): 918–24.
- Sanchez, Thomas W. 1999. “The Connection between Public Transit and Employment: The Cases of Portland and Atlanta.” *Journal of the American Planning Association* 65(3): 284–96.
- Smith, Stanley K., and Scott Cody. 1994. “Evaluating the Housing Unit Method: A Case Study of the 1990 Population Estimates in Florida.” *Journal of the American Planning Association* 60: 209–21.
- Tatian, Peter. 2006. *District of Columbia Housing Monitor: Fall 2006*. Washington, DC: Neighborhood-InfoDC.
- Travis, Jeremy. 2005. *But They All Come Back: Facing the Challenge of Prisoner Reentry*. Washington, DC: Urban Institute Press.
- U.S. Department of Labor. 1997. *BLS Handbook of Methods*. Washington, DC: U.S. Department of Labor, Bureau of Labor Statistics. Available at <http://www.bls.gov/opub/hom/home.htm>.
- Waits, Mary Jo, Tom Rex, and Rob Melnick. 1997. “Cluster Analysis: A New Tool for Understanding the Role of the Inner City in a Regional Economy.” Paper presented at the U.S. Department of Housing and Urban Development Community Outreach Partnership Conference, Phoenix.
- White, Sammis B., John F. Zipp, William F. McMahon, Peter D. Reynolds, Jeffrey D. Osterman, and Lisa S. Binkley. 1990. “ES202: The Data Base for Local Employment Analysis.” *Economic Development Quarterly* 4(3): 240–53.



About the Author

Claudia J. Coulton is a professor and codirector of the Center on Urban Poverty and Social Change at Case Western Reserve University in Cleveland,

Ohio. She was one of the founding partners in the National Neighborhood Indicators Partnership.



The Urban Institute

2100 M Street, NW
Washington, DC 20037

Phone: 202.833.7200

Fax: 202.429.0687

<http://www.urban.org>