Leaving No U.S. City Behind

THE U.S. CITIES SUSTAINABLE DEVELOPMENT GOALS INDEX

ISSUE 2018

Jessica Espey, Hayden Dahmm and Laurie Manderino

With contributions from John Biberman, Yingxin Ye, Gary Verburg, and Juan Puyana

SUSTAINABLE DEVELOPMENT SOLUTIONS NETWORK
A GLOBAL INITIATIVE FOR THE UNITED NATIONS

June 2018

Leaving No U.S. City Behind

THE U.S. CITIES SUSTAINABLE DEVELOPMENT GOALS INDEX

ISSUE 2018

Abstract

The United States of America (U.S.) is often referred to as the land of opportunity. It is the world's richest large economy, home to many of the world's leading technologies and institutions of higher learning. Yet, for many in the U.S. these opportunities are unattainable. Gender, age, race and income determine how easily a person can access education, healthcare and economic opportunities. And compounding all of these vulnerabilities is geography. Where a person is born can have a huge impact on their ability to access social and economic opportunities, while also affecting the sustainability of the environment in which they live. This problem is particularly apparent in American cities and urban areas, which are home to 85.5 percent of the domestic population. The Sustainable Development Goals (SDGs), universally adopted by the world's governments in 2015, aim to set a framework for action on economic development, social inclusion, and environmental sustainability. This second, improved edition of the U.S. Cities SDG Index aims to help urban leaders identify the many sustainable development challenges affecting their cities, including inequality of opportunity. The Index covers the 100 most populous cities (measured as Metropolitan Statistical Areas, or MSAs) in the U.S., accounting for 66 percent of the domestic population. It synthesizes data available today across 44 indicators spanning 15 of the 17 SDGs that apply to urban areas. The data provide a more holistic and comprehensive assessment of the sustainable development challenges faced by U.S. cities than is available through other metrics. Results show that all U.S. cities, even those at the top of the Index, have far to go to achieve the SDGs; as many as 62 cities are less than half way there. Common challenges for all cities include eradicating poverty (Goal 1), healthy food and diets (Goal 2), health and wellbeing for all (Goal 3), gender equality (Goal 5), providing affordable and clean energy for all (Goal 7), reducing inequality (Goal 10) and climate action (Goal 13). Progress on the social and economic dimensions of sustainable development will require local government leaders to examine inequality and disadvantage within their cities and communities. In nine MSAs in the sample of 100 MSAs studied (referred to as 'the sample' going forward), child poverty rates were 50 percent higher than that of the overall local poverty rate, while in more than half of the MSAs, the poverty rate amongst non-whites was twice that of whites. To tackle these systemic inequalities, local government leaders need to adopt long-term, targeted social policies and also invest in more disaggregated data to better identify specific areas for improvement.

Authors' Note

The views expressed in this report do not reflect the views of any organization, agency or program of the United Nations. It has been prepared by a team of independent experts of the SDSN Secretariat.

Acknowledgements

The authors are very grateful for advice and feedback from several colleagues and partners. Particular thanks go to Guido Schmidt-Traub for his thoughtful comments and guidance throughout, and to Professor Jeffrey Sachs who led this project in 2017 and inspired the 2018 edition. Thanks also to Grayson Fuller, Guillaume Lafortune and Mihir Prakash for their technical assistance. In addition, the authors would like to thank Rekha Raghunathan and Vikrant MS from IIHS for copy-editing and designing the report. The authors would like to acknowledge Solomon Greene and colleagues at the Urban Institute for the brilliant work they did on available indicators for local SDG monitoring in their publication "Hacking the Sustainable Development Goals: Can US Cities Measure Up?" Finally, the authors would like to thank the Kresge Foundation for their generous support for the production of this report.

TABLE OF CONTENTS

FOREWORD

The U.S. Cities Sustainable Development Goals Index

Jeffrey D. Sachs

For Mayors and local government leaders across the United States (U.S.) and around the world, the Sustainable Development Goals (SDGs) offer a set of integrated objectives to achieve more prosperous, fair and environmentally sustainable cities. SDG 11 in particular calls for making cities "inclusive, safe, resilient, and sustainable." The SDGs provide a long-term and non-partisan framework for achieving these bold and worthy objectives.

By measuring progress towards the SDGs, cities gain an important tool, enabling each city to benchmark its progress relative to the goals and to peer communities around the country and the world. The United Nations Sustainable Development Solutions Network (SDSN) is proud to present the 2018 U.S. Cities SDG Index Report as a contribution towards sustainable development in America's cities. The 100 metropolitan areas examined in this report include 210.9 million inhabitants, constituting 66.2 percent of the U.S. population.

Our hope is that the U.S. Cities SDG Index will not only help cities to benchmark their progress, but also facilitate peer-to-peer exchanges of best practices. We are already seeing the benefits of this exchange in action. Through networks like the U.S. Conference of Mayors and groups of cities such as San Jose, Baltimore, New York, and Orlando that are working with SDSN to pursue the SDGs, we are seeing an active uptake of the SDGs at the urban level throughout the U.S.

This year's U.S. Cities SDG Index uses measurements on 15 of the 17 global SDGs to shine a spotlight on many of the challenges that U.S. cities face, such as access to healthcare, obesity, income inequality and violent crime. San Jose-Sunnyvale-Santa Clara metro region in California (CA) achieves the top spot for the second year in a row as the metropolitan area closest to achieving the SDGs, yet it is only 68% of the way to meeting the SDGs overall, highlighting the continued efforts that will be needed in the coming years.

America faces many daunting problems. Gun violence is soaring. The inequality of income and wealth is at all-time highs. Substance abuse and notably the opioid epidemic is claiming vast numbers of lives. Water supplies are unsafe. Greenhouse gas emissions, causing climate change, are at unacceptable levels. And large numbers of young people are ending up with huge student debt yet no four-year-college degree. There is of course progress as well, such as in deploying renewable energy and forging new partnerships between universities and city governments for innovation and job creation.

Federal politics are typically paralyzed these days, in the grips of vested interests and lobbyists that block effective actions. Yet real solutions and progress can still be won at the local and state level. The SDGs encourage cities to find new solutions, and the U.S. Cities SDG Index offers cities a powerful tool for goal setting and measuring progress. With 85 percent of Americans living in cities and metro areas, mayors and local government leaders have the power to usher in a new era of inclusive and sustainable prosperity.

EXECUTIVE SUMMARY

In 2015, world leaders issued a clarion call to promote sustainable development by tackling climate change and environmental sustainability, growing inequalities and social exclusion, and ensuring economic opportunities for all. To this end they adopted Agenda 2030 and its 17 Sustainable Development Goals (SDGs). In three years, strong progress has been made by a large number of countries, but there is also growing interest and commitment from local governments. Thousands of cities worldwide are putting sustainable development at the top of their agenda, recognizing that economic prosperity, social inclusion, and environmental sustainability are foundations of urban development. They use Agenda 2030 and its associated SDGs as shared goals and metrics to track progress, enable city-to-city learning, and as a means to raise domestic and international resources.

In the United States (U.S.) the engagement of local government leaders is crucial as 85% of the domestic population lives in cities and their surrounding metropolitan areas. These cities are centers of economic enterprise and innovation, with the ten largest metropolitan areas accounting for 34% of the country's total GDP. But they are also responsible for much of the country's waste and environmental destruction, including more than 80% of the country's CO2 emissions.[i] It is cities in the U.S. that will make or break sustainable development for the country.

The SDSN has prepared this 2018 U.S. Cities SDG Index to inform on the state of sustainable development in U.S. cities and to spur on local level action.

The Index covers the 100 most populous city regions (Metropolitan Statistical Areas or MSA) within the U.S., which are home to 66% of the domestic population. It is a composite index comprised of 44 indicators, which cover the broad range of challenges featured in the SDG framework, excluding Goal 14 on Life Below Water and Goal 17 on Partnerships for the Goals.

In this 2018 index, the San Jose-Sunnyvale-Santa Clara metro region in California (CA) occupies the top-spot for the second year in a row, with an overall index score of 68.57. This means that the San Jose MSA is 68.57% of the way to fully achieving the SDGs, according to the measures used in this Index. The fact that the best performing city in the U.S. is only 68% of the way there shows the long road all U.S. cities have to travel if they are to meet the ambitious SDGs by 2030. Remarkably, 62 of the 100 MSAs are less than half way towards achieving the goals.

Persistent problems for U.S. cities include access to healthcare, obesity, income inequality and violent crime—all of which are concentrated in the lowest ranking MSAs such as New Orleans-Metairie MSA in Louisiana (LA), Baton Rouge, LA, Bakersfield CA, Indianapolis-Carmel-Anderson, Indiana (IN), and Jackson, Mississippi (MS). As with the 2017 report, viewing the results on a map shows a clear concentration of low ranking MSAs in the Midwestern and Southern region of the U.S. East Coast. The coastal regions of the country have consistently high-ranking MSAs.

In the 2017 edition of the U.S. Cities SDG Index, a few striking results such as higher incidences of child poverty and acute racial inequalities across cities were highlighted. In this 2018 edition these social inequalities have been examined in more detail to better understand not only in which cities and MSAs the poorest and most marginalized live, but also how social inequalities might be deepening deprivations within cities.

Through disaggregation and correlation analysis, acute social disparities, such as the fact that in all but one MSA (Provo-Orem, UT) child poverty rates are greater than poverty rates for the entire MSA population, have been identified. Nine MSAs in the sample that was studied have child poverty rates that are more than 50% greater than the overall local poverty rate, and Cape Coral-Fort Myers, Florida (FL), has a child poverty rate 67% greater than that of the overall local poverty rate. McAllen-Edinburg-Mission, Texas (TX), has the highest child poverty rate in the country at 44.7%, compared to a local poverty rate of 32.8%. Early poverty is associated with negative outcomes later in life. The analysis performed corroborates this, as child poverty has been found to be correlated with youth being out of education or employment across the 100 MSAs in the sample.

U.S. cities experience deep racial

disparities. In 57 MSAs, the poverty rate among non-whites is at least twice that of whites, and in six MSAs, it is over three times the rate for whites.[ii] Similarly, non-white unemployment rates are at least 50% greater than that for whites in 73 MSAs and are 100% that for whites in 34 MSAs.

These findings serve to demonstrate the multidimensional nature of poverty in U.S. cities, and how different forms of inequality and deprivation can keep people trapped in cycles of poverty and poor health. The analysis found correlations between high poverty levels among non-whites, infant mortality, and other acute health concerns such as food insecurity, obesity, and deaths from heart attack (see Chapter 5), reinforcing other literature and panel studies that suggest poverty can affect the entire lifecycle. Targeted policies, early in the lifecycle, will be required to tackle social inequalities in order to achieve sustainable development in every city in the U.S.

A major constraint in preparing this Index was data availability. Many crucial sustainable development indicators had to be excluded as the data were either unavailable or had limited coverage; for example, maternal mortality data, compiled by the CDC, were only available for 7 of the 100 city regions in the sample.

It is inexcusable that an advanced, high-tech economy does not adequately track maternal mortality. As a leading advocate of the 2030 Agenda for Sustainable Development, the U.S. committed to using data to achieve sustainable development, rectifying global and domestic inequalities, and ensuring 'no one is left behind'. Investments in local-level statistical systems, and a strong federal commitment to collate and share these data, will be essential to the design of successful policies and programs to tackle the sustainable development challenge. Better U.S. data will also enable future iterations of the U.S. Cities SDG Index to more accurately reflect sustainability trends in the U.S.

This report is intended to serve as a tool for U.S. cities to track their progress over time, relative to an international standard of sustainable development. It is hoped that the report will also enable cities to identify peers struggling with similar challenges, and help facilitate a national dialogue on how to accelerate progress. It is a technical resource but also an advocacy tool, which shines a spotlight on the poor state of social, economic and environmental development in many cities across the U.S. It also offers hope by highlighting cities that are tackling these challenges and can offer inspiration to others across the country.

Glossary

Core Based Statistical Areas (CBSAs): County or counties (or equivalent entities) associated with at least one core urbanized area or urban cluster of at least 10,000 population, plus adjacent counties with a high degree of social and economic integration and a core measured through commuting times.

Global SDG Index: On July 20, 2016, the SDSN and Bertelsmann Stiftung launched a Global SDG Index and a set of dashboards to provide a report card for tracking SDG progress and ensuring accountability. The Global SDG Index is an annual product available at www.sdgindex.org.

Inter-Agency and Expert Group on SDG Indicators (IAEG-SDG): On March 6, 2015, at its forty-sixth session, the United Nations Statistical Commission created an Inter-agency and Expert Group on SDG Indicators (IAEG-SDGs), composed of Member States and including regional and international agencies as observers. The IAEG-SDGs was tasked with developing a global indicator framework to accompany the 17 SDGs and 169 targets agreed upon by UN Member States at the SDG Summit in September 2015. The set of official SDG indicators is available at: https://unstats.un.org/sdgs/iaeg-sdgs/.

Metropolitan Statistical Areas (MSAs): County or counties (or equivalent entities) associated with at least one urbanized area of at least 50,000 population, plus adjacent counties.

OneNYC: New York City's sustainability strategy, first published in April 2015. It is unique in being the first-ever city strategy to align with, and take inspiration from, the Sustainable Development Goals.

Paris Climate Agreement: The Paris Agreement is an agreement within the United Nations Framework Convention on Climate Change (UNFCCC) dealing with greenhouse gas emissions, climate change mitigation, adaptation, and finance starting in the year 2020. The language of the agreement was negotiated by representatives of 195 countries at the 21st Conference of the Parties of the UNFCCC in Paris and adopted by consensus in December 2015. The agreement aims to hold the increase in global average temperatures to well below 2 degrees Centigrade above pre-industrial levels.

Principal City: The largest incorporated place with a population of at least 10,000 in a core based statistical area (CBSA).

Sustainable Cities Initiative (SCI): In 2013, SDSN initiated a pilot project called the Sustainable Cities Initiative, which aims to support local governments in implementing a holistic sustainable development agenda. As part of this initiative, SDSN developed a partnership with three U.S. cities and local academic institutions to support the design of local SDG-aligned goals, targets and indicators and a framework for implementation. The USA SCI cities are San Jose (CA), Baltimore (MD) and New York (NY).

Sustainable Development: The concept of sustainable development is based on a three-part, normative framework, which embraces economic development, social inclusion and environmental sustainability, and is pursued in concert with one another. Sustainable development is also a field of study, which, through analysis, aims to explain and predict human and natural systems interactions.

Sustainable Development Goals (SDGs): The Sustainable Development Goals are a set of 17 goals and underlying targets included in the 2030 Agenda for Sustainable Development. They were developed by 193 UN Member States between 2012 and 2015 and endorsed by this group in September 2015, including by the U.S.

Acronyms

ACS	American Community Survey
BEA	U.S. Bureau of Economic Analysis
CBSA	Core Based Statistical Area
CDC	Center for Disease Control and Prevention
CO2e:	Carbon Dioxide Emissions in Metric Tons Per Capita
Gini	The Gini coefficient is a measure of income inequality, where zero shows perfect equality
GIS	Geographical Information Systems
GMP	Gross Metropolitan Product
IAEG-SDGs	Inter-Agency and Expert Group on Sustainable Development Goal Indicators
MDG	Millennium Development Goals
MSA	Metropolitan Statistical Area
OECD	Organization for Economic Cooperation and Development
OMB	U.S. Office of Management and Budget
SCI	SDSN's Sustainable Cities Initiative
SDGs	Sustainable Development Goals
SDSN	Sustainable Development Solutions Network
STEM	Science, Technology, Engineering and Math
UNFCCC	United Nations Framework Convention on Climate Change
U.S.	United States of America

1. INTRODUCTION

Eighty-five percent of the U.S. population lives in cities and their surrounding metropolitan areas. These cities are centers of economic enterprise and innovation, with the ten largest metropolitan areas accounting for 34% of the country's total GDP. The New York metro area alone has a GDP of $1.43 trillion, which is larger than the total GDP of many countries including Australia, Mexico and Spain.[iii]

U.S. cities are hubs of art and culture, home to the majority of the country's 35,000 museums.[iv] They are centers of learning, boasting some of the world's best educational institutions. However, these cities also face very severe challenges.

As highlighted in SDSN's 2017 U.S. Cities SDG Index, income and job inequalities are acute. Many cities are experiencing dangerous levels of water scarcity and drought, food insecurity and high levels of poverty, underemployment, health disparities, and persistent levels of crime and violence.[v] Exacerbating the vulnerability of many who live in cities are social and economic inequalities—women, children, youth, and people of color experience higher incidences of poverty and deprivation.

This 2018 index report improves on SDSN's 2017 U.S. Cities SDG Index by incorporating more, and higher quality data, from a broad range of sources. The methodology is also updated to highlight specific challenges facing U.S. cities. Chapter 5 examines the experience of individuals living in those cities and how their lived experiences may differ depending on their gender, age and race. Agenda 2030 has committed all countries, including the U.S., to ensure that no one is left behind in the pursuit of sustainable development. It is therefore crucial that not only aggregate progress across cities is considered, but also progress within cities for those of different genders, ages, races and ethnicities. By shining a spotlight on these issues, it can be seen that every city—even the best performers—has much to do to ensure that all of their residents can avail themselves of the city's opportunities.

Tackling the complex web of challenges facing U.S. cities requires that mayors and local government leaders take a holistic approach, considering social, economic and environmental dimensions concurrently, while setting ambitious long-term goals that provide a roadmap for the future. Long-term goal-setting is also required to tackle the root causes of inequality and marginalization, through investments in education, healthcare and social support that can help break the inter-generational transfer of poverty and ensure everyone has an equal start in life.[vi]

In 2017 some first-mover cities—San Jose, Baltimore and New York City—that are leading the way, setting holistic sustainable development plans based on consultation with local stakeholders, and considering data on past, current, and projected future performance, were highlighted. They had taken inspiration from Agenda 2030 and its 17 SDGs, agreed upon in 2015 by the U.S. and 192 other nations, and were showing its relevance in the U.S. Thanks to their efforts, as well as momentum among the international community, a second wave of commitment can now be seen. Los Angeles, Orlando, New Orleans, Atlanta and many more U.S. cities have expressed their support for the SDGs and are exploring ways to actively employ the framework in their communities (see Box 2).

Why Develop a U.S. Cities SDG Index?

The U.S. Cities SDG Index provides a portrait of sustainable development at the local level for the 100 most populous metropolitan areas in the U.S. The Metropolitan Statistical Area (MSA)[vii] has been used as the geographic unit instead of the nuclear city, because more comparable data are available at this level. Additionally, many of the SDG challenges translate most naturally onto the interconnected metropolitan region rather than individual jurisdictions within the MSAs. Nonetheless the term "city" has been used interchangeably with MSA unless otherwise noted. Taken together the 100 MSAs within the index are home to 66% of the US population.

The SDG Index enables us to see which U.S. cities and regions are faring well or performing badly on specific goals. The Index consists of 44 indicators spanning 15 of the 17 SDGs. Goal 14 on Life Below Water and Goal 17 on Partnership for the Goals are excluded since they do not

apply to many U.S. cities and/or data are insufficient.

The concept and methodology for this urban index is based upon the 2017 edition (http://unsdsn.org/resources/publications/us-cities-sdg-index), which in turn draws heavily from the Bertelsmann Stiftung and SDSN Global SDG Index (http://sdgindex.org).

In 2016, the Global SDG Index ranked the U.S. 25th among all countries pursuing the SDGs. In 2017, the U.S. was 45th as a result of the inclusion of additional indicators that assessed international spillover effects such as CO2 emissions and tax evasion. It was these low scores that, in part, prompted the creation of this U.S. Cities SDG Index, so that the country's specific challenges and cross-country variation could be understood.

For each goal in the U.S. Cities SDG Index, indicators that evaluate aspects of sustainable development have been identified, for which data are readily available and are consistently collected across the country. Although many of the indicators are the same as the 2017 index, the data have been updated and/or the methodological compilation of the indicator has been improved. In addition, the Index features some new indicators such as the food insecurity rate, infant birth weight, the percentage of 3-4 year olds enrolled in school, and the percentage of businesses owned by women—all of which are crucial measures for understanding equality of opportunity across the U.S. Therefore, the two indices are not directly comparable. As with last year, it has been found that all U.S. cities featured in this Index perform poorly on one or more goals, highlighting widespread sustainable development challenges such as environmental degradation, access to vital infrastructure, and social disparities, among others.

This report is intended to serve as a tool for U.S. cities to track their progress over time, relative to an international standard of sustainable development. It is also hoped that it will enable cities to identify peers struggling with similar challenges and help facilitate a national dialogue on how to accelerate progress. It is a technical resource, but also an advocacy tool, that, even in the past year, has helped to foster interest in the SDGs among mayors and other local government leaders on the relevance and utility of the SDG framework. It also aims to encourage the U.S. federal government to examine and track the status of sustainable development across its cities and MSAs, complementing the work the Federal Government is already doing with its SDG national dashboard (https://sdg.data.gov).

The U.S. Cities SDG Index presents a picture of urban sustainable development in the U.S. It is a composite index, which includes measures of specific local challenges in American metropolitan areas. These indicators map closely to the set of global SDG indicators proposed by the UN's Inter-Agency and Expert Group on SDG Indicators, but have been selected primarily based on their relevance to the U.S. context.

What are the Main Objectives of the U.S. SDG Index?

This report provides the following:

- a consolidated database of indicators to monitor sustainable development in the U.S.;
- a snapshot of where U.S. cities stand on SDG implementation to help identify priorities for early action in each city;
- a snapshot of the most pernicious inequalities hindering progress;
- a list of data gaps that are hindering cities' and the federal government's ability to effectively monitor sustainable development at the local level.

This Index and its selection of indicators can also serve as a tool for benchmarking progress on different aspects of sustainable development, and help city administrators prioritize policy and investment areas.

As the experiences of first-mover cities are shared and practical resources expand—such as this annual index, SDSN's "Getting Started with the SDGs in Cities" guide and SDG Academy's Sustainable Cities Massive Open Online Course[viii]—it is clear that progress, feasibility and momentum are scaling up quickly. By joining the growing list of cities that prioritize sustainability, cities across the U.S. can use limited resources more efficiently and effectively to improve the quality of life of their residents.

How does the 2018 Index differ from the 2017 Index?

The U.S. Cities SDG Index is intended to be an iterative product, and it is hoped that with greater data availability and feedback from local users of the product, refinements and developments can be made annually. To this end, the 2018 edition of the U.S. Cities SDG Index has undergone a number of improvements, which strengthen the quality and methodological rigor of the Index. However, this does mean that the 2017 and 2018 editions are not directly comparable. Substantive changes to this year's edition of the Index include adjusting county data to better account for population distribution within MSAs, consolidating duplicative indicators, more evenly distributing indicators across goals, and adding and removing a range of indicators for quality concerns. More details on the methodology are provided in Chapter 2 and Annex A.

BOX 1: WHY SHOULD CITIES PURSUE THE SDGS?

In September 2015, government leaders from all member countries of the United Nations adopted the 2030 Agenda for Sustainable Development. This agenda includes 17 Sustainable Development Goals, or SDGs, and 169 targets, which set out quantitative objectives across the social, economic, and environmental dimensions of sustainable development, all to be achieved by 2030. Central to this agreement was recognition that cities have a crucial role to play in promoting sustainable development. Urban areas occupy only 2–3 percent of global land area but have a disproportionate impact on development that can be leveraged for large gains in the fight against poverty, inequality and climate change. Many goals will be primarily delivered by the world's mayors.

For mayors and local leaders that are working to improve the quality of life in urban environments, the SDGs provide a roadmap for more balanced and equitable urban development. The mounting challenges posed by climate change, environmental degradation, food security, and civil unrest and violence, need different development solutions from those of the previous century. The SDGs offer a set of integrated objectives which can bring about a more sustainable vision of urban development, one that provides equal opportunities to all inhabitants, promotes healthy living environments with access to green spaces, and is resilient in the face of everyday disasters and climate risks. The goals provide a long-term, non-partisan framework to tackle these challenges, which can transcend political cycles. Furthermore, the goals and their accompanying indicators are a useful scorecard for measuring progress, which can also facilitate peer-to-peer exchange and learning. Finally, the goals are a helpful mobilization tool with which to engage city residents on local sustainable development challenges.

The quest to build sustainable cities, and their importance for the world's global development, is also putting mayors and local government leaders at the forefront of international politics. Cities like Copenhagen have gained considerable attention and investment by aiming to be the first capital city in the world to be carbon neutral. The Carbon Neutral Cities Alliance represents some of the most aggressive urban climate action with goals of 80–100 percent greenhouse gas emissions reductions and 100% renewable energy targets by 2050. Likewise, the Global Covenant of Mayors for Climate and Energy, with over 9000 Global Covenant Cities, has received considerable media coverage as the world's largest coalition of city leaders addressing climate change. Signatories pledge to reduce their greenhouse gas emissions, track their progress, and prepare for the impacts of climate change. These kinds of initiatives are spurring interest and investment in 21st Century urban development.

Recognizing these opportunities, a number of U.S. cities, like San Jose, New York, and Baltimore, have already started to integrate the SDGs into their strategy and planning. They are taking the framework and goals as guideposts to ensure that their cities are growing economically, respecting the environment, and becoming more inclusive (see also Box 2).

For the American government, studying the plight and progress of U.S. cities (and specifically the 100 MSAs covered in this report) provides a window into the lives of more than 60% of the total population of the U.S. Examining the status of this large population more closely allows us to see both the bright spots and challenge areas, both sectorally and geographically, and to direct resources and attention as needed to make SDG attainment possible at the national level. The SDGs are an opportunity to address many of the U.S.' challenges while building on the country's great reservoirs of dynamism and talent.

Box 2: U.S. CITIES ADVANCING THE SDGS

In the past year, there has been a marked increase in the number of city and local government leaders pledging their support to sustainable development and putting in place concrete action plans to achieve it. Recent campaigns, including We Are Still In and the Climate Mayors initiative have galvanized this movement, and highlighted widespread Mayoral commitment to tackling climate change; in the 2018 American Mayors Survey, eight in ten U.S. mayors consider climate change as an issue important to address in their cities. Beyond a purely climate-oriented perspective on sustainability, the Mayor's Survey lists degrading infrastructure, rising inequality, affordable housing, and jobs and economic growth as key concerns. These issues directly correspond to the multi-dimensional, holistic approach suggested in the SDG framework. As sustainable development plans have become more common as a model of long-term city planning in the United States, with many variations therein, the SDGs can act as a unifying and coordinating framework to facilitate more cross-city collaboration. Listed below are examples from five major U.S. cities that have taken action on sustainable development with an aim to achieving the ambitions of the SDGs.

Over the past decade, Orlando has leveraged its Green Works Orlando initiative to make it one of the most sustainable cities in the Southeast -- a particularly urgent accomplishment, given the pressing threats of climate change in the region. The plan includes targets for livability, green energy, sustainable food systems, water, and transportation, and features a resident engagement strategy. This year, under the leadership of Mayor Buddy Dyer, the city is adapting its Community Engagement Plan for Green Works Orlando by mapping the SDGs to its goals, targets, and strategies identified in the community as the city's priority initiatives. Mayor Dyer discussed his commitment to the SDGs and his eagerness to align with the global framework at the 2018 U.S. Conference of Mayors Winter Meeting.

Los Angeles has made a broad public commitment to the SDGs, empowered by active leadership from Mayor Eric Garcetti, their newly announced Global Ambition Local Action initiative, and a robust partnership with Occidental College. The city has worked with students from several local universities to first map its policies and programs, and data and budgets to the SDGs. It intends to build off this work to launch the expanded capacity mapping effort with multi-sector stakeholders throughout the greater Los Angeles community, aiming to use the SDG framework to identify projects in order to address underserved targets and communities.

Three cities that were first movers mapping existing priorities to the SDGs have now moved to a second stage of implementation, incorporating the SDGs into new policies and reporting mechanisms.

Baltimore announced its Baltimore Sustainability Plan in April 2018. The plan incorporates environmental and social goals for the city, along with equity as a core focus. In Baltimore, this means making sure that all of the city's aims—and the data used to measure its progress—explicitly considers residents often left out of sustainability planning. The plan aims to be inclusive for all residents by considering the impact that a resident's race, gender, employment status, age, and neighborhood have on sustainability outcomes such as public health and economic opportunity. The city considers the plan globally inspired, as it draws from the work exploring indicators and data for the SDGs to "inform policies on topics such as poverty and jobs." Baltimore's

Mayor Catherine Pugh spoke at the 2018 U.S. Conference of Mayors Winter Meeting about the importance of data to monitor and deliver on the city's commitment to its residents, citing the work of partner University of Baltimore to help the city measure critical indicators like evictions and incarceration.

San Jose, which ranks at the top of the 2017 and 2018 USA Cities Index, views the SDG framework as useful to reinforce its new Climate Smart San Jose plan, which was adopted in February 2018 by the San Jose City Council. The Climate Smart Plan, one of the most ambitious sustainability plans in the country, includes bold new programs that incorporate strategies to tackle affordable housing and local job creation in San Jose. Mayor Liccardo presented the plan at the 2018 U.S. Conference of Mayors Winter Meeting, discussing how the SDGs reinforce their ambitious aims. The City of San Jose hosted a workshop in April to bring together stakeholders from across the city, and key partners including SDSN, the Global Development Incubator and Stanford University, to discuss leveraging the SDGs to achieve the Climate Smart plan. San Jose is exploring the creation of SDG Compacts designed to serve as mutual accountability mechanisms with set interim targets, in order to activate the Climate Smart plan and make meaningful progress towards the SDGs in their city.

New York was the first city to develop a city plan with equal emphasis on environmental and social sustainability and explicit linkages to the SDGs—OneNYC. New York announced in May 2018 that they would be the first city in the world to voluntarily report on local SDG progress indicators as part of the annual Voluntary Review process at the United Nations' High Level Political Forum. New York's action will lead the way for more cities, both in the U.S. and globally, to report on their progress towards the 2030 deadline for the SDGs.

In addition to these five first-movers, many other cities in all regions of the U.S. have expressed interest in applying the SDGs to strengthen sustainability plans and advance equity agendas. Technical support from academic entities like SDSN and local universities, as well as peer-to-peer conversations, are necessary to localize the SDGs. According to the 2018 Mayors Survey, over 50% of mayors in U.S. cities look to their peers—U.S. city leaders—to source new ideas. The SDG framework offers a consensus approach to achieving sustainability and the opportunity for U.S. and global cities to come together to share their experiences tackling similar challenges.

Written by Melika Edquist (SDSN) and Nilda Mesa (Columbia University)

2. HOW WAS THE INDEX CALCULATED?

Methodological Summary

The U.S. Cities SDG Index ranks 100 U.S. MSAs, according to 44 indicators across 15 of the 17 Sustainable Development Goals.[ix] The selected indicators are closely aligned to the IAEG-SDG indicators endorsed by the UN Statistical Commission.[x]

Each indicator is scaled from 0 to 100, with 100 being the best possible score and 0, the worst. For some indicators, the best possible score is set by the ambitious and aspirational global SDG agenda. For example, Goal 1: End Poverty implies a poverty rate of 0%, consistent with eradicating all poverty. For other indicators, the aspirational target is not so clear. When possible, the principle of "leaving no one behind" has been adopted to develop the aspirational target (e.g. a zero-gender gap in earnings and a 100% school enrollment rate). For the rest of the indicators where no universal aspirational target exists, the upper bound (best possible score) has been based on the average of the top five performing cities, unless the average of the top five was considered to be particularly poor relative to other OECD countries. For example, for obesity, the upper bound is set at the average of the top five performing OECD countries. The OECD average was used in an attempt to raise the bar given very high levels of obesity in the U.S. and the need to focus on solutions. The lower bound was set according to observed poor performance. For most indicators, the worst value was defined as the 2.5th percentile from the 100 MSA distribution. For some indicators, standards were set according to OECD performance. For information on each indicator's upper and lower bound, please see Annex D.

After defining the upper and lower bounds for each indicator, the arithmetic mean was used to aggregate indicators within each SDG, and then rank cities accordingly. This makes it easy to interpret the U.S. Cities SDG Index. A city that scores 50 on an indicator is halfway towards achieving the best possible outcome. For more information on the methodology followed and its limitations for calculating the U.S. Cities SDG Index please see Annexes A and B.

How Does the 2018 Index Differ from the 2017 Index?

The 2018 edition of the U.S. Cities SDG Index has undergone a number of improvements. These improvements strengthen the quality and methodological rigor of the Index but do mean that the 2017 and 2018 editions are not directly comparable. Substantive changes in this year's edition of the Index include:

- Additional indicators: Four completely new indicators have been added to this year's Index, and two indicators have been significantly redefined to give us better insight into progress on that particular goal and/or to better align with the international indicators recommended by the IAEG-SDG. Examples include the percentage of 3 to 4-year old's enrolled in school, including nursery, pre-k and kindergarten. Measuring early school enrolment is a crucial indicator of child development and was made possible by new data sources from the 2016 American Community Survey.
- Indicator removal: Although the majority of indicators featured last year are included in this year's Index, there are some that were removed due to data quality concerns or because they were considered to be duplicative. For example, share of homeowners that spend more than 30% of income on housing costs (Goal 11), has been removed as the issue is already captured by housing affordability. Where two or more indicators cover the same SDG target (such as use of public transport, and other modes of sustainable transport such as walking / cycling), they have been combined so that the particular target is not given undue weight within the goal.
- Changes to the indicator calculation: To improve upon the representativeness of the indicators in this Index, a number of methodological changes such as weighting MSA data by county populations, have been made. In total, 22 of last year's indicators

have undergone quality improvements in the 2018 edition.

- Distribution of indicators across goals: In the 2017 edition of the index, a number of goals had only one indicator (due to limited data availability) while others, like health, had up to 10. This meant that individual indicators under specific goals carried less overall weight, while others represented up to 1/16th of the whole Index score. This is not in and of itself problematic if the single, standalone indicator is a good proxy for the ambitions of the whole goal (e.g. household carbon emissions as a proxy for Goal 13 on climate action), but it did seem inconsistent. In the 2018 edition, the distribution of indicators has been equalized as best as possible, so that no goal has more than 8 indicators. Examples include moving low birth weight from Goal 2 to Goal 3, since it is more a measure of maternal health than it is of child nutrition. Broadband penetration has also been moved from Goal 17 to Goal 9, as it is one of many infrastructure variables, which did not seem a suitable reflection of the whole of Goal 17.
- Leaving No One Behind: The 2017 edition of this Index highlighted gender, race, and geography to be major determinants of a person's life opportunity. In this 2018 edition, this issue is explored in more detail, disaggregating a number of indicators to see how different groups experience the same issue, as well as looking at how gender, age, and race affect one's ability to harness opportunities and/or exposure to additional vulnerabilities. The aim is to motivate local government leaders to focus on long-term policy changes that can tackle structural determinants of poverty and ensure equal opportunity for all, such as access to quality early education, adequate housing, and healthcare.

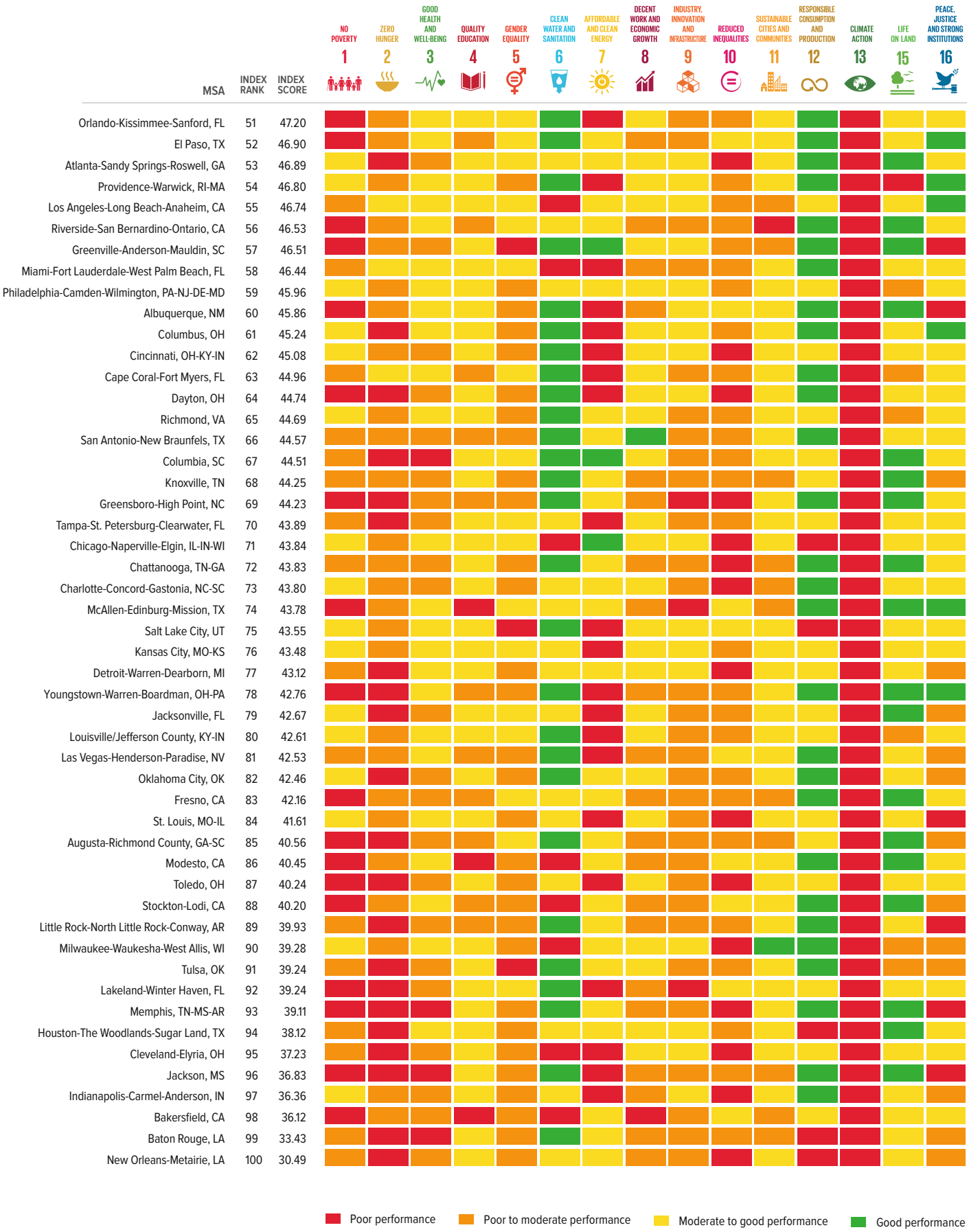
3. RESULTS AND KEY FINDINGS

Table 1: The U.S. Cities SDG Index and Dashboard

MSA	INDEX RANK	INDEX SCORE	NO POVERTY 1	ZERO HUNGER 2	GOOD HEALTH AND WELL-BEING 3	QUALITY EDUCATION 4	GENDER EQUALITY 5	CLEAN WATER AND SANITATION 6	AFFORDABLE AND CLEAN ENERGY 7	DECENT WORK AND ECONOMIC GROWTH 8	INDUSTRY, INNOVATION AND INFRASTRUCTURE 9	REDUCED INEQUALITIES 10	SUSTAINABLE CITIES AND COMMUNITIES 11	RESPONSIBLE CONSUMPTION AND PRODUCTION 12	CLIMATE ACTION 13	LIFE ON LAND 15	PEACE, JUSTICE AND STRONG INSTITUTIONS 16
San Jose-Sunnyvale-Santa Clara, CA	1	68.57															
Seattle-Tacoma-Bellevue, WA	2	63.52															
Boston-Cambridge-Newton, MA-NH	3	61.86															
San Francisco–Oakland–Hayward, CA	4	61.70															
Madison, WI	5	61.23															
Manchester-Nashua, NH	6	60.76															
Albany-Schenectady-Troy, NY	7	60.44															
Bridgeport-Stamford-Norwalk, CT	8	60.16															
Oxnard-Thousand Oaks-Ventura, CA	9	60.10															
Provo-Orem, UT	10	59.66															
Washington-Arlington-Alexandria, DC-VA-MD-WV	11	58.44															
Worcester, MA-CT	12	58.21															
Raleigh, NC	13	57.30															
San Diego-Carlsbad, CA	14	57.20															
Des Moines-West Des Moines, IA	15	57.18															
Hartford-West Hartford-East Hartford, CT	16	56.66															
Boise City, ID	17	56.48															
Portland-Vancouver-Hillsboro, OR-WA	18	56.17															
New York-Newark-Jersey City, NY-NJ-PA	19	55.64															
Rochester, NY	20	54.74															
Allentown-Bethlehem-Easton, PA-NJ	21	54.61															
Ogden-Clearfield, UT	22	54.39															
Trenton, NJ	23	54.38															
Minneapolis-St. Paul-Bloomington, MN-WI	24	54.27															
New Haven-Milford, CT	25	53.62															
Spokane-Spokane Valley, WA	26	53.57															
Harrisburg-Carlisle, PA	27	53.46															
Baltimore-Columbia-Towson, MD	28	53.29															
Lancaster, PA	29	53.06															
Sacramento–Roseville–Arden-Arcade, CA	30	52.26															
Springfield, MA	31	51.95															
Buffalo-Cheektowaga-Niagara Falls, NY	32	51.67															
Austin-Round Rock, TX	33	51.16															
Pittsburgh, PA	34	50.85															
Urban Honolulu, HI	35	50.83															
Syracuse, NY	36	50.75															
Denver-Aurora-Lakewood, CO	37	50.44															
Palm Bay-Melbourne-Titusville, FL	38	50.07															
Omaha-Council Bluffs, NE-IA	39	49.88															
Virginia Beach-Norfolk-Newport News, VA-NC	40	49.79															
Colorado Springs, CO	41	49.38															
Tucson, AZ	42	49.34															
Phoenix-Mesa-Scottsdale, AZ	43	49.11															
Scranton–Wilkes-Barre–Hazleton, PA	44	48.90															
Akron, OH	45	48.86															
Nashville-Davidson–Murfreesboro–Franklin, TN	46	48.80															
Grand Rapids-Wyoming, MI	47	48.53															
Charleston-North Charleston, SC	48	48.07															
Wichita, KS	49	47.88															
Dallas-Fort Worth-Arlington, TX	50	47.44															

Poor performance | Poor to moderate performance | Moderate to good performance | Good performance

3. RESULTS AND KEY FINDINGS (Contd.)



Which U.S. Cities Perform Best?

Table 1 provides the full index results, including each MSA's rank among the entire group and its Index score, ranging from 0 to 100. The San Jose–Sunnyvale–Santa Clara metro region in California performs best for the second year in a row, with an overall index score of 68.57. This means that the San Jose MSA is 68.57% of the way to fully achieving the SDGs, according to the measures used in this Index. Table 1 also presents a dashboard of each city's performance on each of the 15 SDGs measured in this Index. The San Jose MSA is in the green bracket for seven of the 15 goals. It is also among the top ten for nine of the 15 goals (see 'Goal by Goal Rankings' below). The Seattle–Tacoma–Bellevue MSA in Washington state ranked second overall with an Index score of 63.52, followed by Boston–Cambridge–Newton, (MA–NH) and San Francisco–Oakland–Hayward (CA). It is also worth noting that three of the top 10 MSAs are in the state of California.

Which are the Worst Performing U.S. Cities?

New Orleans–Metairie metro region in Louisiana is the lowest ranking MSA, with particular challenges on health indicators, obesity, income inequality, and violent crime. Other MSAs ranking in the bottom 5 are Baton Rouge, LA, Bakersfield, CA, Indianapolis–Carmel-Anderson, IN, and Jackson, MS.

Rankings can vary from year to year due to both changes in city performance and refinement of the indicators selected to represent each of the goals. An example would be Detroit which moved up in the rankings from 98 last year to 77 this year. Its ranking in 2018 benefited from a marked improvement in the sustainable cities goal (Goal 11), at least partly attributable to a change in the indicators used for Goal 11. Similarly, its improved ranking for Water and Sanitation (Goal 6) is because the indicator of households without access to piped water and sanitation is no longer being considered due to data quality concerns. Access to piped water and sanitation remains a pertinent issue however and its omission highlights a limitation to this Index. Detroit also improved markedly on Goal 5, raising its ranking by 26 places, largely due to the addition of a new indicator for this goal representing the percentage of businesses owned by women. On this indicator, Detroit was the 6th best performing MSA.

What are Some Emerging Regional Trends?

Figures 1 and 2 illustrate the results geographically. Figure 1 shows each MSA's overall Index score bracket (demarcated by green, yellow, orange or red) and their rank. Figure 2 shows the overall Index score bracket and the population density of each MSA. As with the 2017 report, a geographic view of the rankings shows a clear concentration of low ranking MSAs in the midwestern and southern regions. The northern portion of the country has consistently higher-ranking MSAs.

Figure 1: Map of MSAs by Index Score Bracket, with Ranking also shown (please refer to Table 1 for a list of the ranks next to corresponding MSA names)

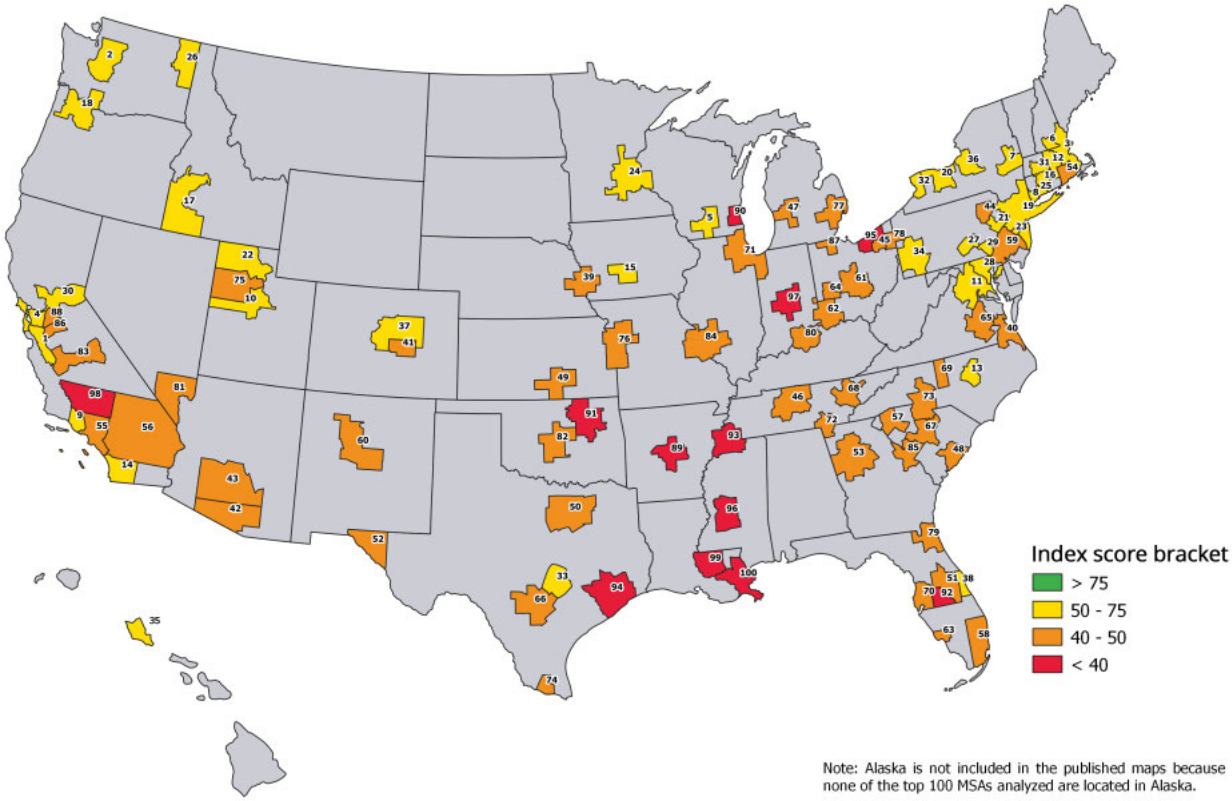
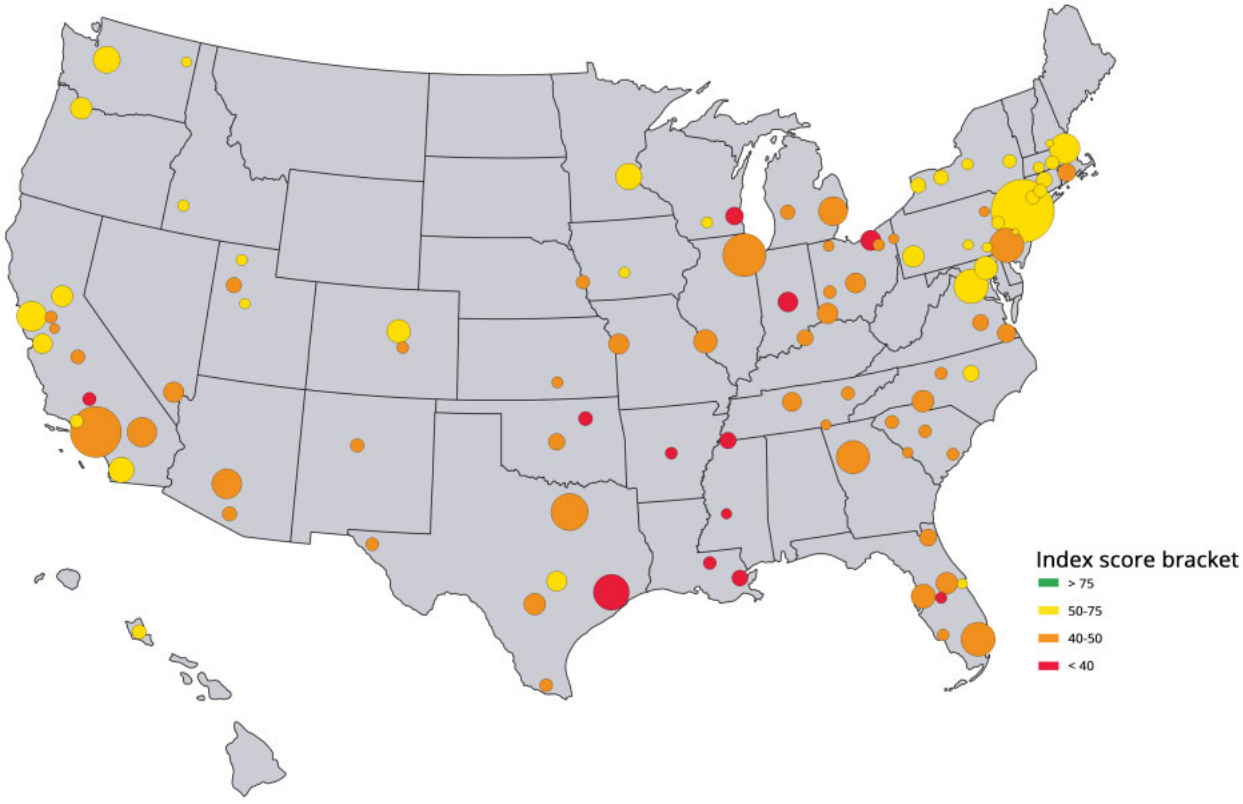


Figure 2: Map of MSAs Showing Overall Index Score Brackets by Population Weighted Bubbles



Note: Circle size is indicative of the total population of the MSA.

What are the Key Findings by Goal?

Looking at Table 1 which lists the rank for each MSA and shows its relative performance on each SDG, common challenges can be seen across U.S. cities. These include Poverty (SDG 1), Food and Diet (Goal 2), Gender (Goal 5), Affordable and Clean Energy (SDG 7), Inequality (SDG 10), and Climate Action (SDG 13).

One can also evaluate and compare overall progress on each goal in absolute terms. Figure 3 shows progress on each goal by charting the average score for all MSAs relative to the ideal score of 100. In absolute terms, it can be seen that the two goals in need of the biggest improvement are those relating to innovation and infrastructure (Goal 9) and Food and Diet (Goal 2).

Although Goal 9 has only three red-shaded boxes in Table 1 depicting low relative performing MSAs, many of the remaining MSAs are bunched in the second lowest bracket, shaded in orange. This is why the average score for this goal lands it in one of the lowest spots in absolute terms.

Taking a closer look at individual goals it can be seen that Poverty (Goal 1) is generally most acute in the southern part of the country (see Figure 4). The average poverty score for all MSAs was only 38.15, meaning that on average U.S. cities are only 38% of the way towards meeting Goal 1.

Figure 3: Average Score for all MSAs by SDG

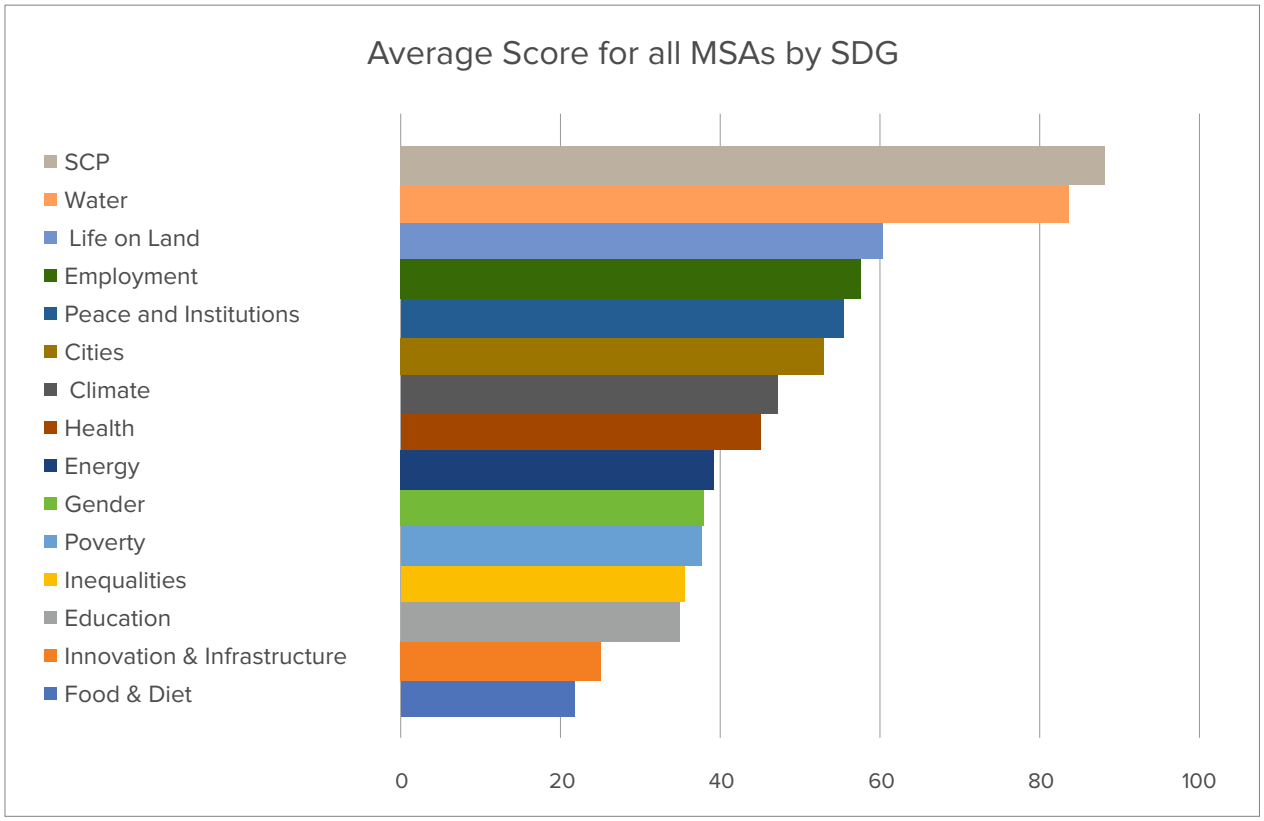
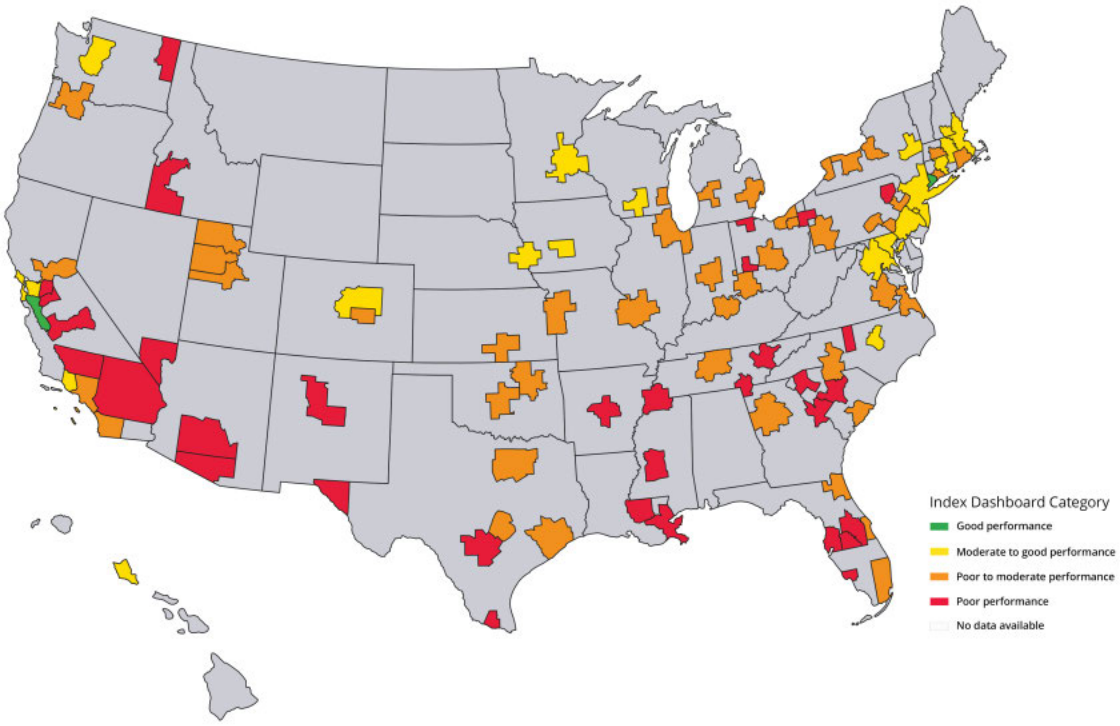
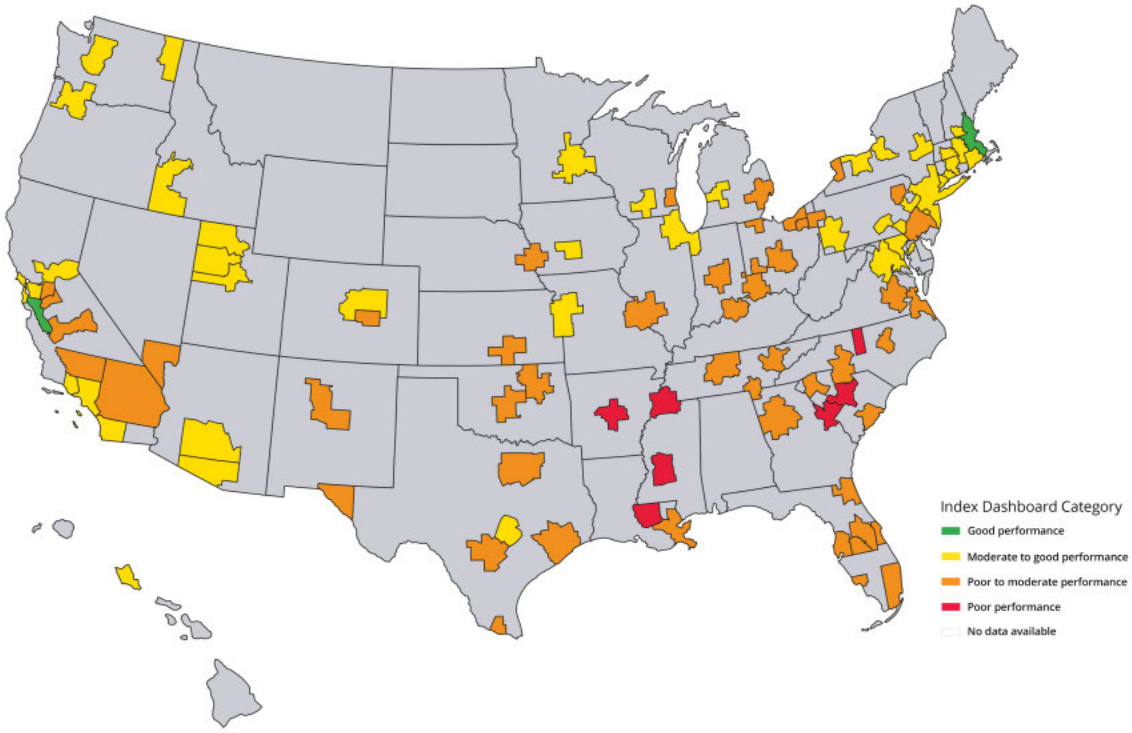


Figure 4: MSA Dashboard Categories for SDG 1



Boston–Cambridge–Newton, MA–NH was the MSA that scored the highest for Good Health and Well Being (Goal 3), followed by San Jose–Sunnyvale–Santa Clara, CA, and Madison, WI. With few exceptions, the Midwest and Southeast regions scored the lowest on this goal. Nine of the ten lowest ranking MSAs are located in these two regions (see Figure 5).

Figure 5: MSA Dashboard Categories for SDG 3



The indicators used to assess MSA performance on Industry, Innovation and Infrastructure (Goal 9) relate specifically to innovation (patent applications) and to broadband penetration, measured as the percentage of households with a broadband connection. It was difficult to find measures for other aspects of infrastructure with sufficient data availability. All but 13 of the MSAs scored below 40, being widely outscored by the top group that includes San Jose–Sunnyvale–Santa Clara, CA, in the first place with a score of 82.56, followed by San Francisco–Oakland–Hayward, CA, and San Diego–Carlsbad, CA, —all Californian MSAs (see Figure 6).

Seven different indicators were considered for the evaluation of Goal 11 on Sustainable Cities, looking at topics such as affordable housing, park access, and urban sprawl. On this indicator, the highest-ranking MSA, Madison, WI, is achieving only 75% of the ideal for this goal, and the vast majority of MSAs are scoring in the 40 to 70 percent range, showing there is great potential for improvement on Goal 11 indicators. The indicator with the overall lowest average and median scores was sustainable transport, followed by park access. The two best overall scoring indicators for this goal were affordable housing and the percentage of overcrowded housing. Figure 7 shows overall progress on this goal across MSAs, according to the four dashboard categories.

Figure 6: MSA Dashboard Categories for SDG 9

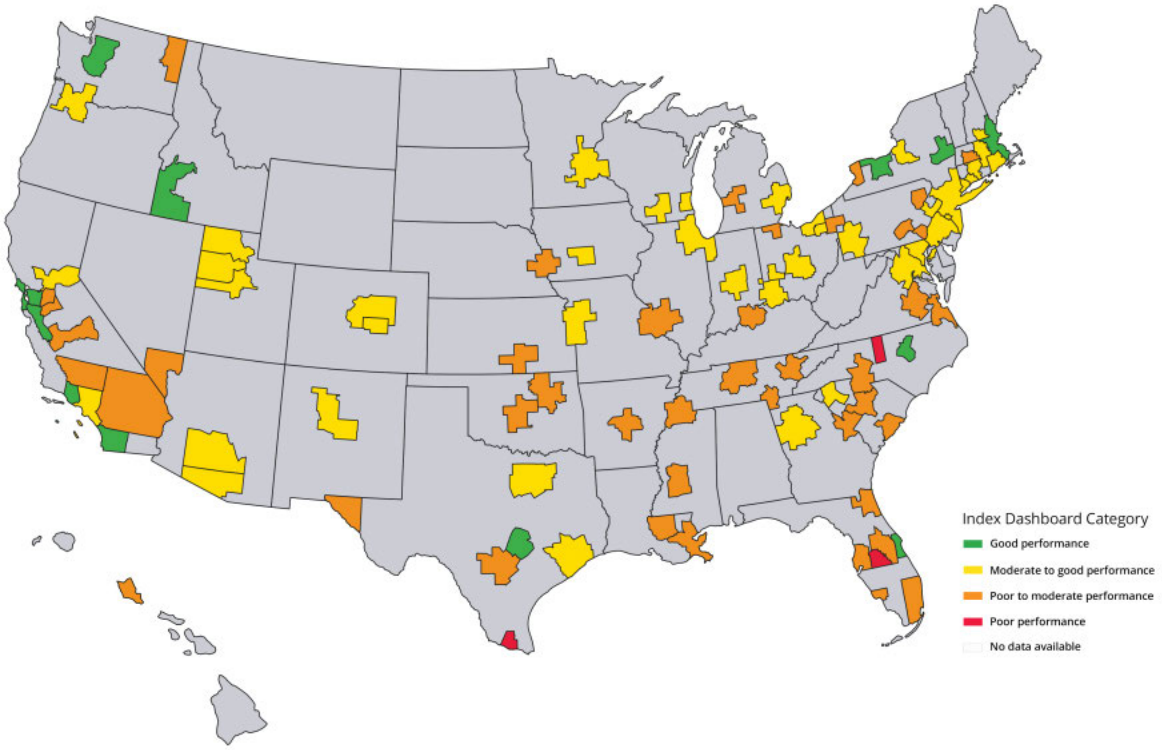
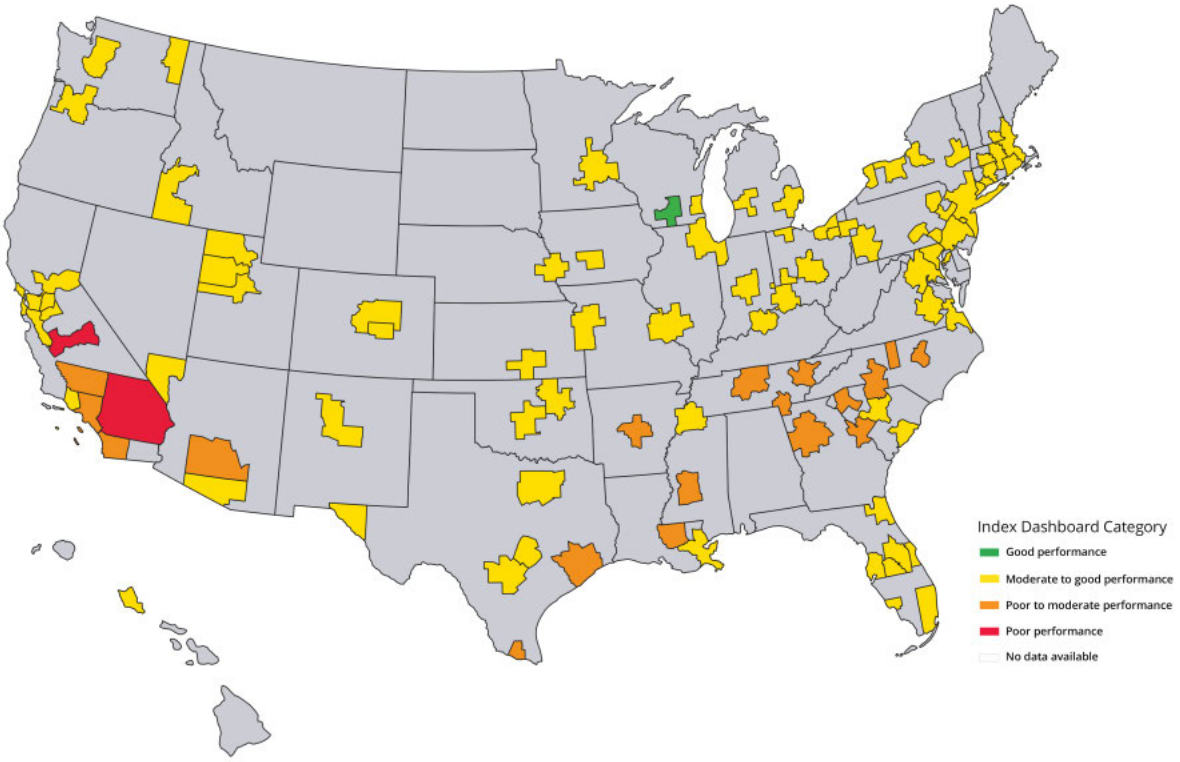


Figure 7: MSA Dashboard Categories for SDG 11



What are the Key Findings for Select Indicators?

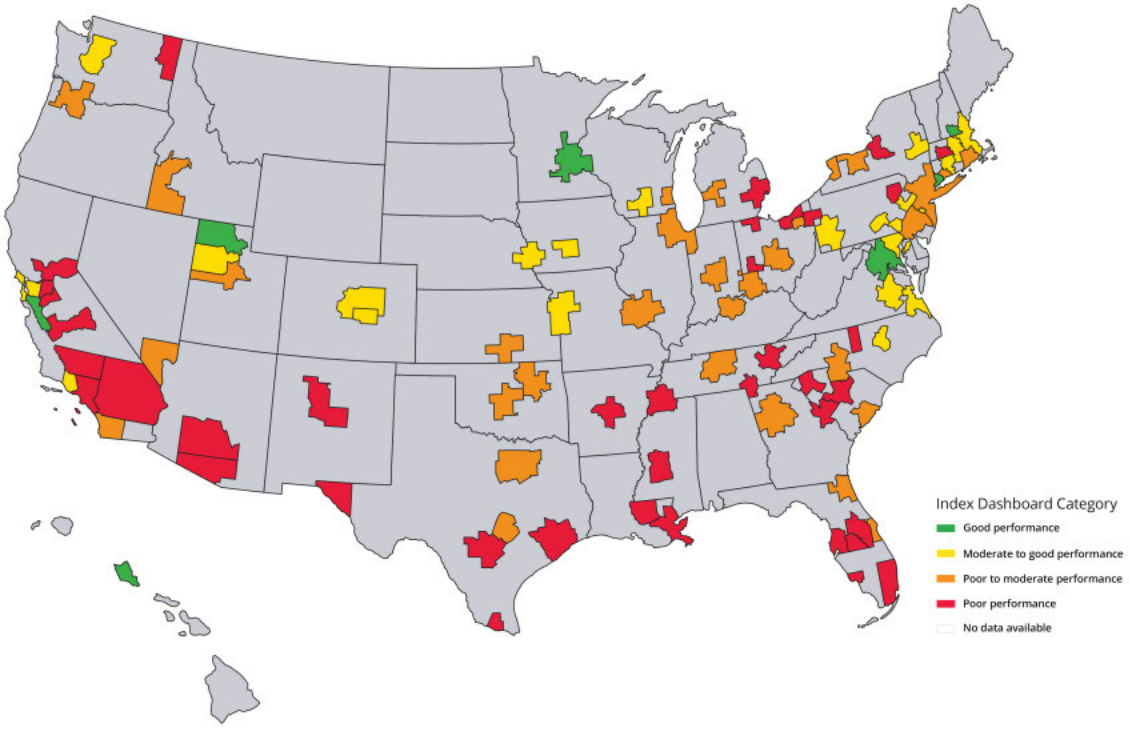
A review of the goals provides a good overview of priority issues and concerns but does not identify specific challenges. It also does not help to explain how federal and local governments should respond. The following section shines a spotlight on some of the patterns emerging from the measurement of specific indicators within goals such as relative poverty rates, personal income, energy, carbon emissions, and education.

POVERTY

As with the 2017 index, an alarming observation is the rates of poverty in MSAs across the country. Only seven MSAs have a poverty rate below 10%, as defined by the American Community Survey conducted by the U.S. Census Bureau. High poverty rates are more prevalent in the southern part of the country, and are concentrated in the southeast and southwest regions (see Figure 8.)

The highest poverty rate of 32.8% was observed in McAllen–Edinburg–Mission, TX, followed by Fresno, CA, at 26.9% and Bakersfield, CA, at 23.1%. Washington DC–Arlington–Alexandria, DC–VA–MD–WV, has the lowest poverty rate at 8.4%, closely followed by Manchester–Nashua, NH, at 8.6% and Bridgeport–Stamford–Norwalk, CT, at 8.8%.

Figure 8: MSA Dashboard Categories for SDG 1, Indicator 1: Poverty Rate.



Across the 100 MSAs analyzed in this Index, there are 29.3 million people living below the national poverty line, translating to an average MSA poverty rate of 14.2%. As highlighted above, most of the metros with the highest poverty rates are concentrated in the South. Southern states have some of the lowest minimum wages across the country, which contributes to their high poverty rates.

EDUCATION

Most of the best performers on the education goal are located in the northeast, with the top spot going to Bridgeport–Stamford–Norwalk, CT. The worst performers are generally located in the southern part of the country. Bakersfield, CA, ranked lowest on this goal (see Figure 9).

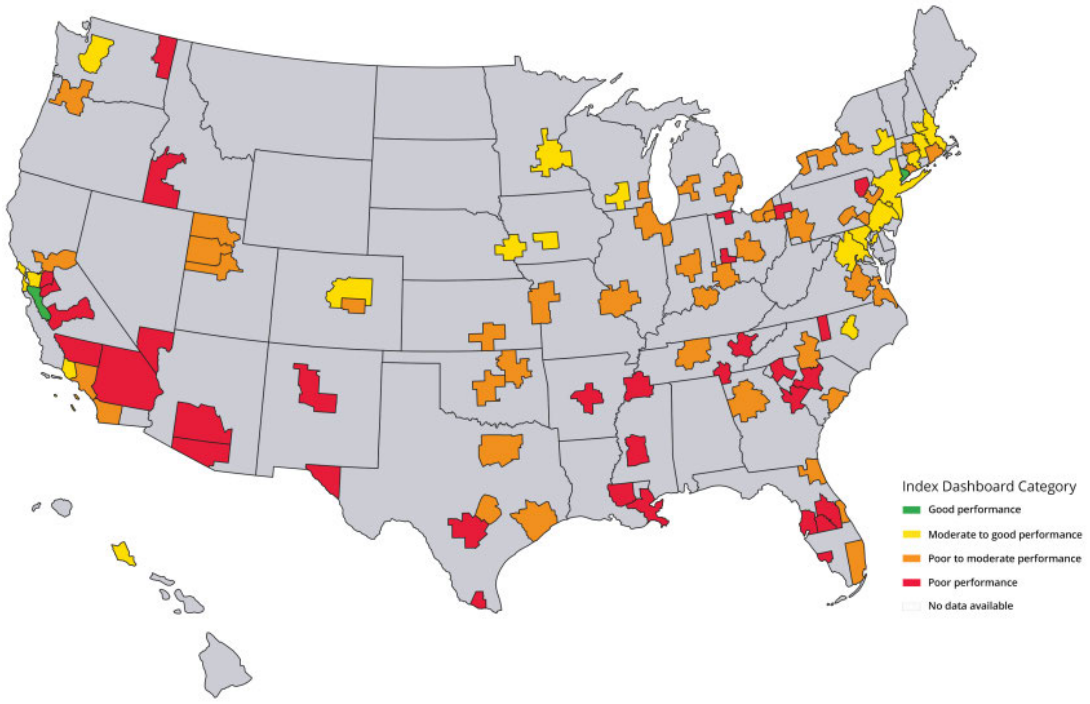
There are large differences in education indicator levels among MSAs, and this is true for all life stages. Enrollment in pre-school among 3 to 4-year olds ranges from 35.5 to 65.3 percent, an almost two-fold difference, and the percentage of students not finishing high school ranges from 6.9 to 24.7 percent. Finally, the portion of the population aged 25 and older with at least an undergraduate degree ranges from 17.4 to 47.2 percent.

PERSONAL INCOME

Personal income per capita refers to an individual's total earnings from wages, investment enterprises, and other ventures. It has been benchmarked to the average of the top five performers in the list of 100 MSAs.

Figure 9 shows how MSAs perform on this indicator. McAllen–Edinburg–Mission, TX, El Paso, TX, and Lakeland-Winter Haven, FL, were the lowest scoring MSAs. The distribution for this indicator is somewhat skewed by three MSAs that have a very high personal income level (San Jose–Sunnyvale–Santa Clara, CA, San Francisco–Oakland–Hayward, CA, and Bridgeport–Stamford–Norwalk, CT). As a result, more than 90% of the MSAs score at 50 or below. These findings are an indication of major differences in income levels across urban areas of the U.S.

Figure 9: MSA Dashboard Categories for Personal Income (per Capita)



ENERGY, CARBON EMISSIONS AND TRANSPORTATION

In addition to socio-economic indicators, interesting trends relating to clean energy access, carbon emissions and transportation can be observed.

As an indicator of affordable and clean energy, under Goal 7, a measure representing the share of energy generated within the MSA's primary state that comes from wind, solar, geothermal, biomass, hydroelectric and nuclear—all low-carbon energy sources—was used. The findings show that the least advanced regions in this regard are the Midwest and the Southwest, with the state of Florida also rating very low. The leaders are mostly located in the Pacific Northwest, with Manchester–Nashua, NH, also ranking high.

A related indicator—an MSA's average household carbon footprint in metric tons of CO2 equivalent—was also examined. Generally speaking, the east and west coast areas are performing better on this metric than the central part of the country. The difference in the range of values is striking, varying from 14.5 to 42.6 tons of CO2e per capita.

Not surprisingly, the east and west coasts are also among those regions with the highest sustainable transport scores, measuring the percentage of people commuting to work using public transport, bicycles or by walk. These coastal regions ranked high, as well as some MSAs in the upper Midwest. However, about 90% of all MSAs scored below 50 on this particular indicator, clearly signaling it as an area where vast improvement is needed.

On the affordable housing indicator, close to 80% of MSAs scored at 70 or above. Six of the eight worst performing MSAs on this indicator, all with scores below 50, are located in California, including the top ranked city of San Jose–Sunnyvale–Santa Clara.

4. GOAL BY GOAL RANKINGS

What follows are the city rankings by goal (Table 2). The top 10 cities in the overall Index have been colored in different shades of blue so it is possible to see their performance within each goal area. San Jose-Sunnyvale-Santa Clara, Provo-Orem and Seattle-Tacoma-Belleveue are clearly discernable as high scorers on multiple dimensions, suggesting that progress on one dimension can have positive spillover effects for progress in other areas.

The Top 10 U.S. City Regions

1 San Jose–Sunnyvale–Santa Clara, CA
2 Seattle–Tacoma–Bellevue, WA
3 Boston–Cambridge–Newton, MA–NH
4 San Francisco–Oakland–Hayward, CA
5 Madison, WI
6 Manchester–Nashua, NH
7 Albany–Schenectady–Troy, NY
8 Bridgeport–Stamford–Norwalk, CT
9 Oxnard–Thousand Oaks–Ventura, CA
10 Provo–Orem, UT

Table 2 | Top 10 Cities by Goal

Table 2 provides a ranked list of the ten highest scoring MSAs in descending order of Index score for each SDG.

1 NO POVERTY

RANK	METROPOLITAN STATISTICAL AREA	INDEX
1	Bridgeport–Stamford–Norwalk, CT	82.79
2	San Jose–Sunnyvale–Santa Clara, CA	82.09
3	San Francisco–Oakland–Hayward, CA	77.37
4	Washington–Arlington–Alexandria, DC–VA–MD–WV	74.87
5	Boston–Cambridge–Newton, MA–NH	71.22
6	Manchester–Nashua, NH	64.24
7	Seattle–Tacoma–Bellevue, WA	62.83
8	Hartford–West Hartford–East Hartford, CT	61.15
9	Trenton, NJ	60.07
10	Minneapolis–St. Paul–Bloomington, MN–WI	60.02

2 ZERO HUNGER

RANK	METROPOLITAN STATISTICAL AREA	INDEX
1	Oxnard–Thousand Oaks–Ventura, CA	48.55
2	San Jose–Sunnyvale–Santa Clara, CA	43.73
3	Washington–Arlington–Alexandria, DC–VA–MD–WV	42.63
4	Bridgeport–Stamford–Norwalk, CT	41.86
5	Denver–Aurora–Lakewood, CO	40.96
6	Boston–Cambridge–Newton, MA–NH	39.37
7	San Diego–Carlsbad, CA	39.07
8	Los Angeles–Long Beach–Anaheim, CA	37.74
9	Minneapolis–St. Paul–Bloomington, MN–WI	35.95
10	El Paso, TX	35.94

3 GOOD HEALTH AND WELL-BEING

RANK	METROPOLITAN STATISTICAL AREA	INDEX
1	Boston–Cambridge–Newton, MA–NH	72.55
2	San Jose–Sunnyvale–Santa Clara, CA	69.59
3	Madison, WI	68.63
4	Bridgeport–Stamford–Norwalk, CT	66.86
5	San Francisco–Oakland–Hayward, CA	66.64
6	Minneapolis–St. Paul–Bloomington, MN–WI	64.23
7	Oxnard–Thousand Oaks–Ventura, CA	63.41
8	Seattle–Tacoma–Bellevue, WA	63.39
9	Worcester, MA–CT	62.94
10	Manchester–Nashua, NH	62.62

4 QUALITY EDUCATION

RANK	METROPOLITAN STATISTICAL AREA	INDEX
1	Bridgeport–Stamford–Norwalk, CT	63.73
2	Boston–Cambridge–Newton, MA–NH	59.52
3	San Francisco–Oakland–Hayward, CA	59.18
4	Madison, WI	58.29
5	San Jose–Sunnyvale–Santa Clara, CA	57.84
6	Washington–Arlington–Alexandria, DC–VA–MD–WV	56.39
7	Raleigh, NC	54.06
8	Hartford–West Hartford–East Hartford, CT	53.84
9	Trenton, NJ	53.23
10	Minneapolis–St. Paul–Bloomington, MN–WI	49.88

6 CLEAN WATER AND SANITATION

RANK	METROPOLITAN STATISTICAL AREA	INDEX
1	Manchester–Nashua, NH	100.00
2	Palm Bay–Melbourne–Titusville, FL	100.00
3	Charleston–North Charleston, SC	100.00
4	Seattle–Tacoma–Bellevue, WA	100.00
5	Springfield, MA	100.00
6	Orlando–Kissimmee–Sanford, FL	99.99
7	Bridgeport–Stamford–Norwalk, CT	99.99
8	Tucson, AZ	99.99
9	New Haven–Milford, CT	99.98
10	Cape Coral–Fort Myers, FL	99.98

5 GENDER EQUALITY

RANK	METROPOLITAN STATISTICAL AREA	INDEX
1	Atlanta–Sandy Springs–Roswell, GA	61.54
2	Miami–Fort Lauderdale–West Palm Beach, FL	60.32
3	Tampa–St. Petersburg–Clearwater, FL	56.39
4	Fresno, CA	55.74
5	Washington–Arlington–Alexandria, DC–VA–MD–WV	55.07
6	New York–Newark–Jersey City, NY–NJ–PA	53.62
7	Los Angeles–Long Beach–Anaheim, CA	52.70
8	Riverside–San Bernardino–Ontario, CA	52.15
9	Baltimore–Columbia–Towson, MD	52.00
10	Memphis, TN–MS–AR	51.76

7 AFFORDABLE AND CLEAN ENERGY

RANK	METROPOLITAN STATISTICAL AREA	INDEX
1	Seattle–Tacoma–Bellevue, WA	100.00
2	Spokane–Spokane Valley, WA	100.00
3	Boise City, ID	98.70
4	Manchester–Nashua, NH	91.80
5	Portland–Vancouver–Hillsboro, OR–WA	89.42
6	Washington–Arlington–Alexandria, DC–VA–MD–WV	86.61
7	Charleston–North Charleston, SC	77.34
8	Greenville–Anderson–Mauldin, SC	77.34
9	Columbia, SC	77.34
10	Chicago–Naperville–Elgin, IL–IN–WI	72.26

8 DECENT WORK AND ECONOMIC GROWTH

RANK	METROPOLITAN STATISTICAL AREA	INDEX
1	San Jose–Sunnyvale–Santa Clara, CA	97.15
2	San Francisco–Oakland–Hayward, CA	87.30
3	Raleigh, NC	85.03
4	Austin–Round Rock, TX	84.57
5	Madison, WI	81.40
6	Provo–Orem, UT	81.40
7	Boston–Cambridge–Newton, MA–NH	80.89
8	Seattle–Tacoma–Bellevue, WA	78.06
9	Des Moines–West Des Moines, IA	72.38
10	Nashville–Davidson–Murfreesboro–Franklin, TN	71.14

10 REDUCED INEQUALITIES

RANK	METROPOLITAN STATISTICAL AREA	INDEX
1	Ogden–Clearfield, UT	78.98
2	Provo–Orem, UT	78.54
3	Salt Lake City, UT	66.42
4	Urban Honolulu, HI	66.18
5	El Paso, TX	64.13
6	Oxnard–Thousand Oaks–Ventura, CA	60.19
7	Boise City, ID	60.16
8	San Jose–Sunnyvale–Santa Clara, CA	60.13
9	Allentown–Bethlehem–Easton, PA–NJ	58.14
10	Modesto, CA	57.46

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

RANK	METROPOLITAN STATISTICAL AREA	INDEX
1	San Jose–Sunnyvale–Santa Clara, CA	82.56
2	San Francisco–Oakland–Hayward, CA	67.15
3	San Diego–Carlsbad, CA	62.55
4	Austin–Round Rock, TX	55.28
5	Seattle–Tacoma–Bellevue, WA	54.21
6	Raleigh, NC	53.19
7	Rochester, NY	45.78
8	Manchester–Nashua, NH	45.57
9	Boston–Cambridge–Newton, MA–NH	45.16
10	Portland–Vancouver–Hillsboro, OR–WA	44.93

11 SUSTAINABLE CITIES AND COMMUNITIES

RANK	METROPOLITAN STATISTICAL AREA	INDEX
1	Madison, WI	74.62
2	Spokane–Spokane Valley, WA	69.61
3	Seattle–Tacoma–Bellevue, WA	69.23
4	Boston–Cambridge–Newton, MA–NH	68.26
5	Portland–Vancouver–Hillsboro, OR–WA	68.01
6	Washington–Arlington–Alexandria, DC–VA–MD–WV	66.52
7	Trenton, NJ	66.30
8	San Francisco–Oakland–Hayward, CA	65.92
9	Milwaukee–Waukesha–West Allis, WI	65.75
10	Colorado Springs, CO	65.70

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

RANK	METROPOLITAN STATISTICAL AREA	INDEX
1	Albuquerque, NM	100.00
2	McAllen–Edinburg–Mission, TX	100.00
3	Fresno, CA	99.98
4	Manchester–Nashua, NH	99.94
5	Oxnard–Thousand Oaks–Ventura, CA	99.91
6	Stockton–Lodi, CA	99.81
7	San Jose–Sunnyvale–Santa Clara, CA	99.79
8	Trenton, NJ	99.72
9	Oklahoma City, OK	99.71
10	Scranton–Wilkes–Barre–Hazleton, PA	99.68

15 LIFE ON LAND

RANK	METROPOLITAN STATISTICAL AREA	INDEX
1	Provo–Orem, UT	100.00
2	McAllen–Edinburg–Mission, TX	98.99
3	Augusta–Richmond County, GA–SC	97.42
4	Greensboro–High Point, NC	91.21
5	Youngstown–Warren–Boardman, OH–PA	89.64
6	Houston–The Woodlands–Sugar Land, TX	87.49
7	Riverside–San Bernardino–Ontario, CA	85.59
8	Greenville–Anderson–Mauldin, SC	85.25
9	Spokane–Spokane Valley, WA	83.84
10	Palm Bay–Melbourne–Titusville, FL	82.94

13 CLIMATE ACTION

RANK	METROPOLITAN STATISTICAL AREA	INDEX
1	Akron, OH	73.22
2	Fresno, CA	68.04
3	Los Angeles–Long Beach–Anaheim, CA	66.32
4	Stockton–Lodi, CA	65.90
5	Modesto, CA	65.82
6	Bakersfield, CA	65.81
7	McAllen–Edinburg–Mission, TX	65.12
8	El Paso, TX	64.16
9	Provo–Orem, UT	63.93
10	San Diego–Carlsbad, CA	63.26

16 PEACE, JUSTICE AND STRONG INSTITUTIONS

RANK	METROPOLITAN STATISTICAL AREA	INDEX
1	Boston–Cambridge–Newton, MA–NH	99.69
2	Worcester, MA–CT	98.68
3	Provo–Orem, UT	87.57
4	Bridgeport–Stamford–Norwalk, CT	86.38
5	Lancaster, PA	84.62
6	Madison, WI	84.34
7	Urban Honolulu, HI	83.68
8	San Jose–Sunnyvale–Santa Clara, CA	83.62
9	Providence–Warwick, RI–MA	83.06
10	Hartford–West Hartford–East Hartford, CT	82.45

5. LEAVING NO ONE BEHIND

The U.S. SDG Cities Index considers the unequal distribution of opportunities and life experiences across metropolitan regions as well as within each city. In particular, inequalities based on gender, age, race, and income are considered. Disaggregation of indicators (including poverty, unemployment, health insurance and education) along these lines shows stark differences between city residents' experiences. High inequalities in U.S. cities mean that these cities are far from realizing the ambition to leave no person behind.

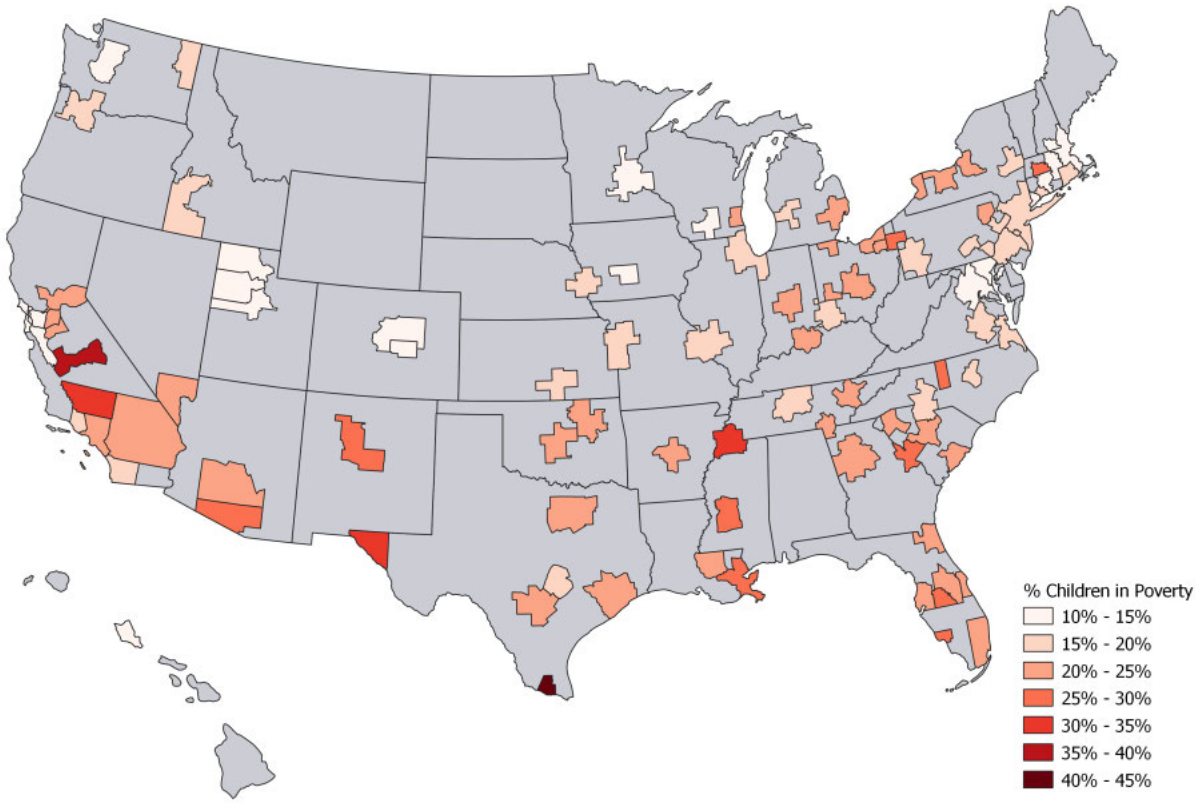
To track inequalities within cities, key indicators were disaggregated and basic correlations were performed with other disaggregated variables and outcomes described in the Index, including health and education. Such simple analyses highlight the multidimensional nature of poverty and deprivation. Women, children and non-whites[xi] living in U.S. cities experience disproportionate levels of poverty, with vulnerable communities also having reduced access to healthcare, education and employment opportunities. Wider literature demonstrates how intersecting deprivations feed a cycle of poverty, so U.S. cities face difficulties in creating prosperity for all.[xii]

AGE

Age is a crucial determinant of a person's socio-economic status; all around the world children and youth experience higher rates of poverty and deprivation,[xiii] and the United States is no exception.

In all but Provo–Orem, UT, child poverty rates are consistently greater than poverty rates for the entire MSA population. From the sample, 9 MSAs have child poverty rates that are more than 50% greater than the overall local poverty rate, and Cape Coral–Fort Myers, FL, in particular has a child poverty rate 67% greater than the overall local poverty rate. Even though poverty varies by geography, children are consistently exposed to greater levels of poverty (See Figure 10).

Figure 10: Map of child poverty rates by MSA



The lifelong effects of child poverty can be devastating. For example, early nutritional deficiencies can affect education attainment levels, which in turn impacts long-term employment and earnings.[xiv]

A simple correlation analysis of child poverty and disconnected youth (ages 16 to 24 not in school and not working) highlights the potential consequences of early poverty (see Figure 11 below). Child poverty is correlated with youth being out of education or employment ($r=0.69$, $p<0.01$), with inevitable knock-on effects for young people's ability to gain profitable employment later in life and ultimately escape poverty. The child poverty rate also has a negative relationship with the percentage of children that have health insurance ($r= -0.37$, $p=0.0001$). This connection is not as strong as the correlation between overall poverty rate and health insurance ($r= -0.62$, $p<0.001$), though, and with the exception of Lancaster PA, insurance rates among children are greater than rates for the overall population. Children in poverty still face an intersection of challenges, but this suggests that targeted public health programs go part way to reducing his burden.

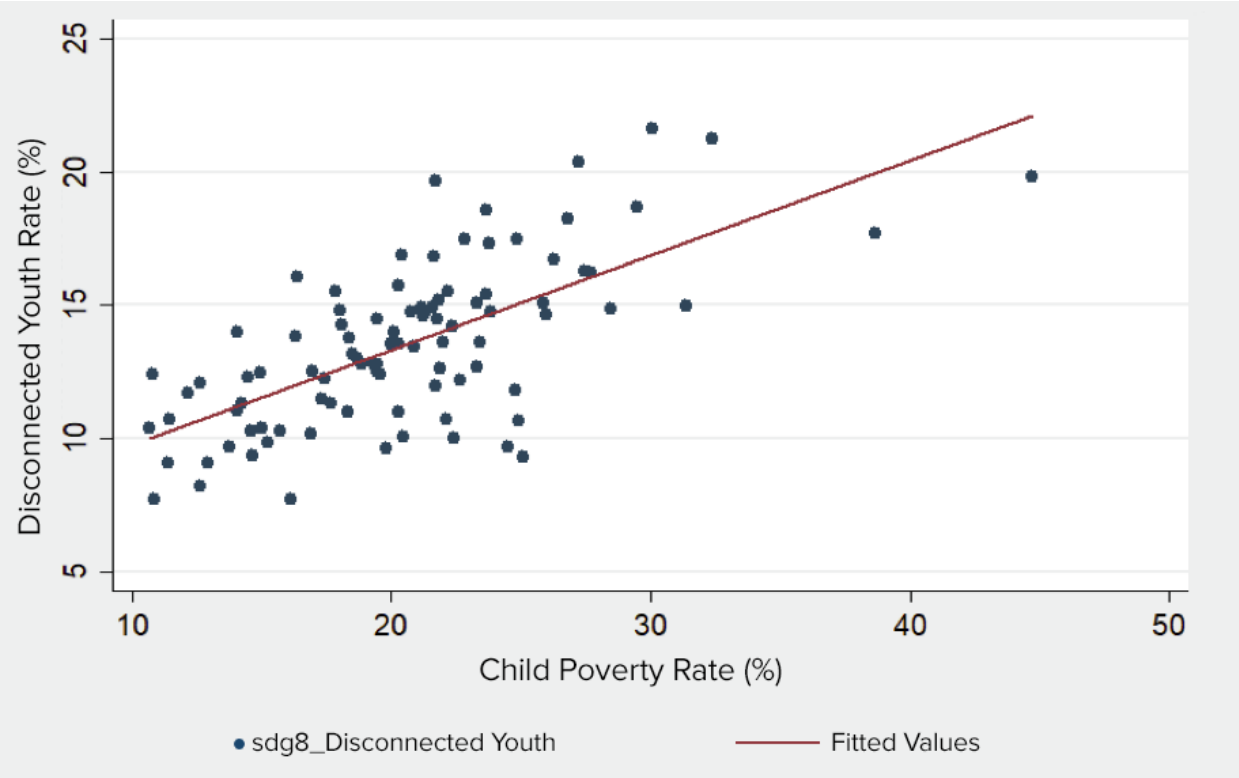
All 100 MSAs had a senior (over 65 years of age) poverty rate that is lower than the overall poverty rate, reinforcing existing evidence on the positive effect of Social Security and Supplemental Security Income,[xv] and suggesting that such interventions may be warranted to tackle child and youth poverty.

RACE

Within the U.S. Index, racial disparities were tracked by including a segregation index, which measures disparities between white and African-American populations. As with the 2017 Index Report, the highest levels of segregation are shown to be in the Northeast, Midwest, and the South, except for Florida. But to further examine racial differentials across the Index, a number of key indicators across all MSAs, including poverty and unemployment were disaggregated.

With the exception of Oxnard–Thousand Oaks–Ventura, CA, whites have poverty rates lower than the overall rate and non-whites have poverty rates that are sometimes extremely high. In 57 MSAs, the poverty rate among non-whites is at least twice that of whites, and in six MSAs,

Figure 11. Correlation of child poverty and disconnected youth in U.S. cities



it is over three times the rate for whites (the ratio of white to non-white poverty is displayed in Figure 12). Similarly, non-white unemployment rates are at least 50% greater than that for whites in 73 MSAs and more than twice that for whites in 34 MSAs.

A simple correlation of the poverty rate with the ratio of non-white poverty over white poverty shows a negative correlation ($r=-0.54$, $p<0.001$), meaning that MSAs with lower poverty rates among whites still tend to have higher racial disparities. This suggests that broad poverty reduction programs, which are not targeted to non-white groups in particular, can only address a modest part of the problem. To achieve SDG 1 in all U.S. cities, disaggregated poverty data and subsequent targeted poverty interventions will be essential.

In addition to exploring racial dimensions of poverty, the relationship between poverty, race and other social wellbeing outcomes including health and food security were examined. Within the 100 MSAs, poverty for non-whites is closely correlated with infant mortality ($r=0.43$, $p<0.01$) (see Figure 13), and with other acute health concerns such as food insecurity ($r=0.39$, $p<0.01$), obesity ($r=0.62$, $p<0.01$) (see Figure 14), and deaths from heart attack ($r=0.27$, $p<0.01$). Conversely, poverty among whites does not have a statistically significant correlation with any of these phenomena. This possibly suggests that targeted maternal and child health programs, and improving food quality and access via nutrition assistance programs, should be of paramount concern for city-governments.

Figure 12: Ratio of White to Non-White Poverty in all MSAs

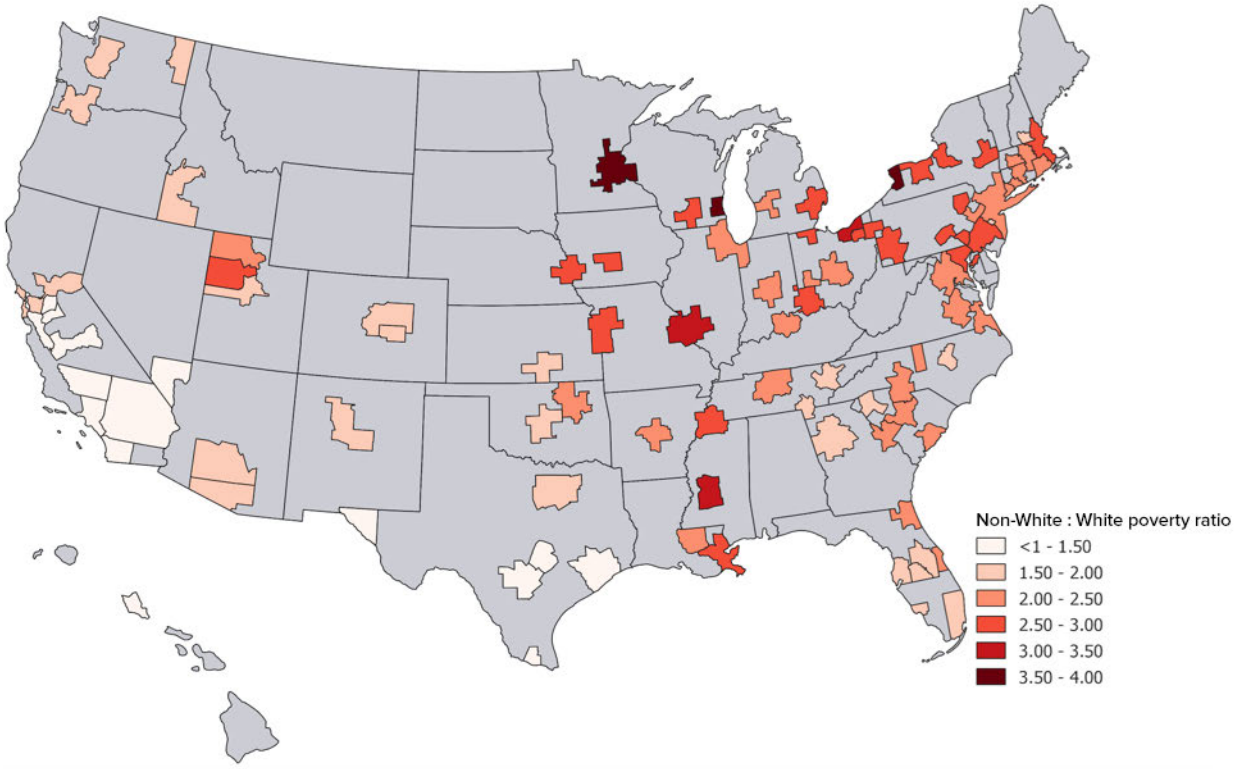


Figure 13: Correlation between infant mortality and poverty, by white and non-white

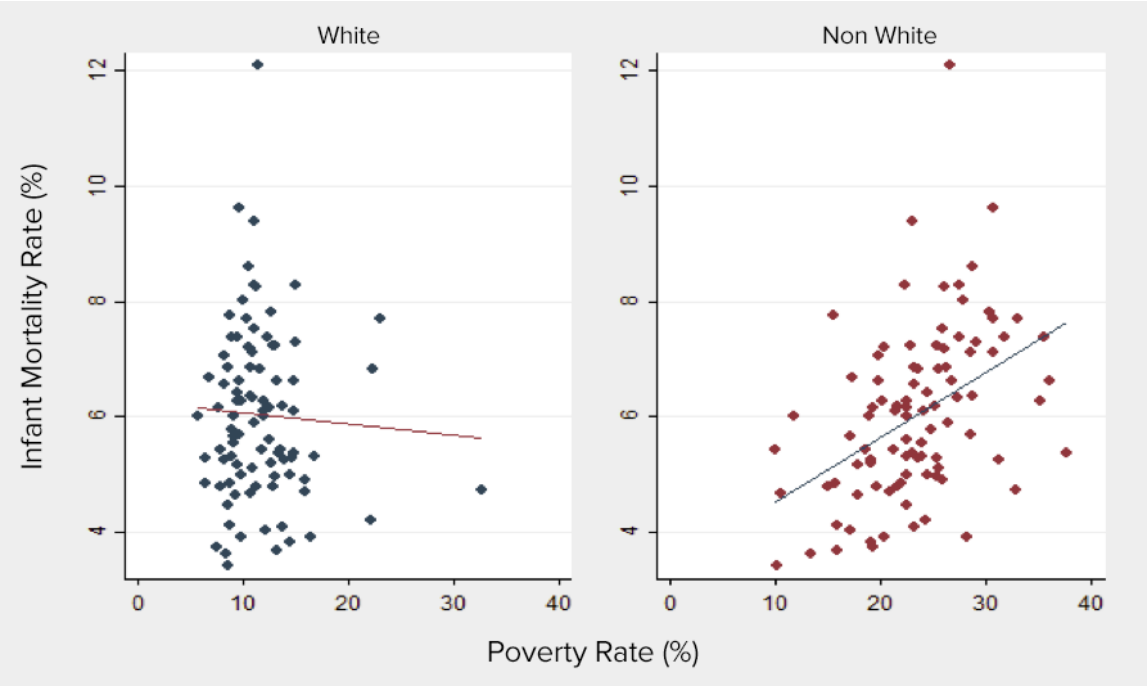
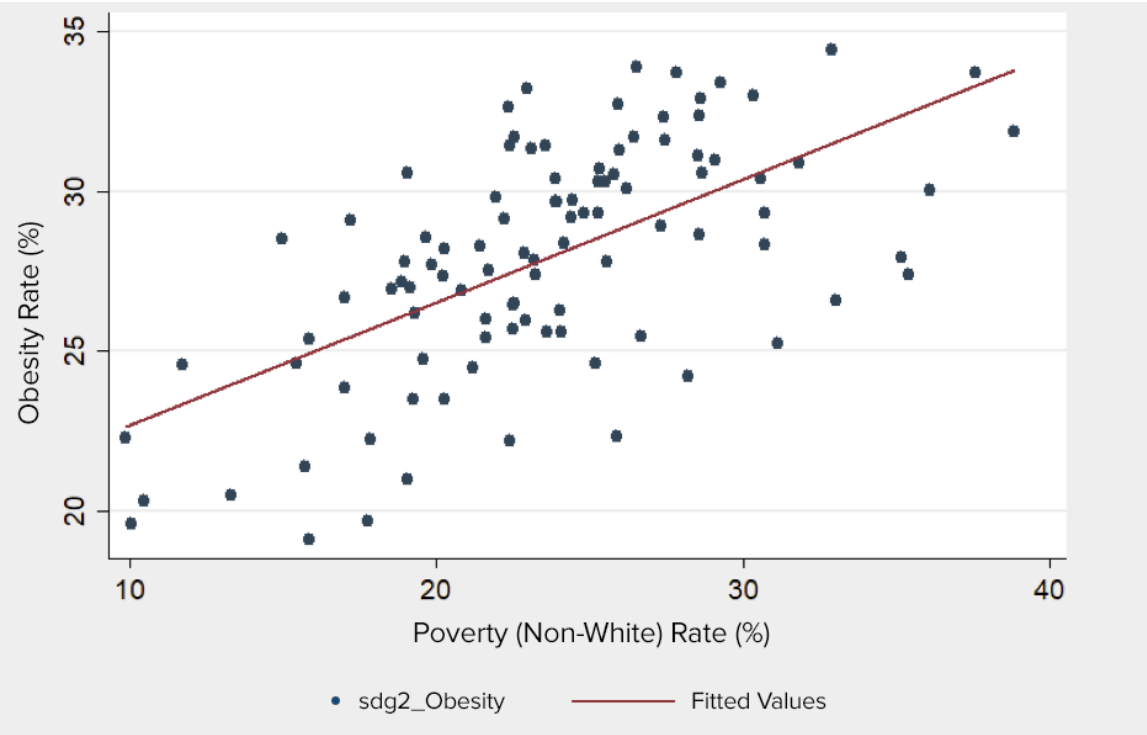


Figure 14: Correlation of poverty amongst non-whites and obesity



It should be noted that fully understanding the apparent connections described in these correlations requires greater disaggregation and analysis. Yet, available data do show that minority communities in U.S. cities are disproportionately exposed to multiple forms of deprivation.

GENDER

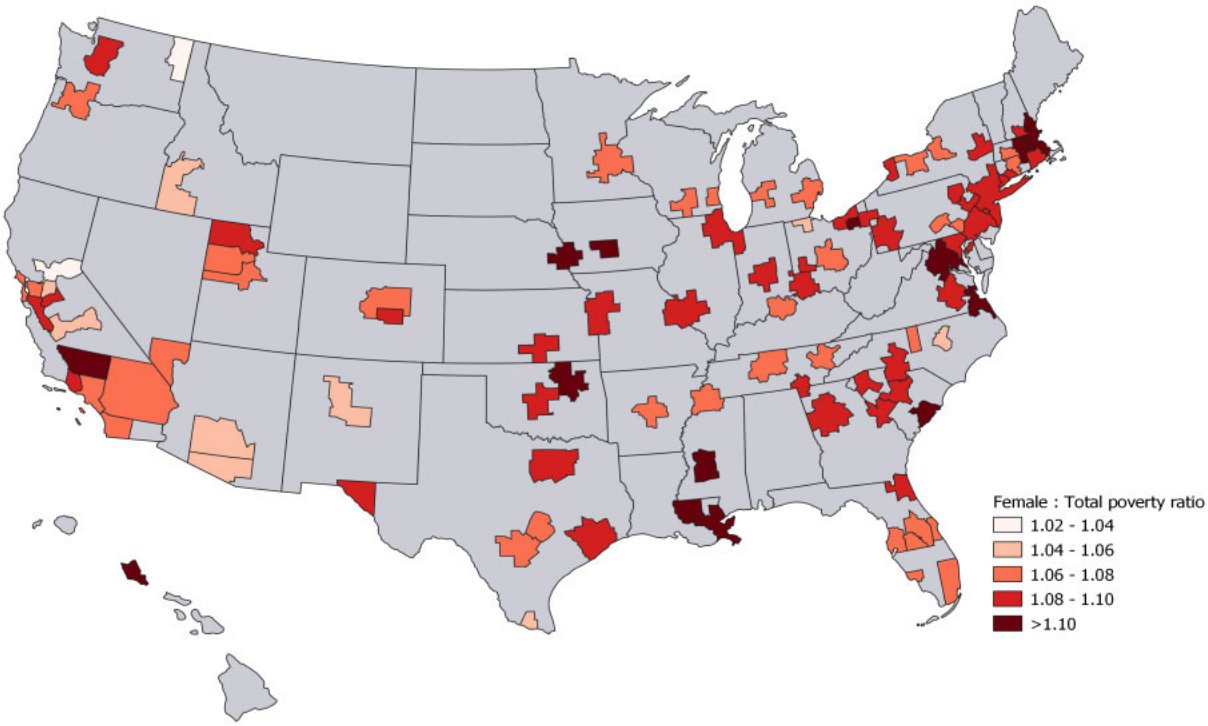
Good, consistent gender data were difficult to find at the MSA level. This was one of the biggest obstacles in compiling the Index (see Chapter 6). In 2018, one new indicator was incorporated: percentage of businesses owned by women, which is considered to be a good proxy for women's economic empowerment. This indicator complements the retained 2017 indicators on gender gap in earnings and sexual violence.

A number of indicators were also disaggregated by sex (as opposed to gender). It was found that without exception, poverty rates among women are higher than among men. Spokane–Spokane Valley, WA, has a female poverty rate only 5% greater than its male poverty rate, but female poverty is at least 10% greater than male poverty in 98 MSAs. Further, in 34 MSAs, female poverty is more than 20% greater than male poverty. In Charleston–North Charleston, SC, female poverty is more than 25% greater than male poverty (see Figure 15).

Although poverty has a clear gender dynamic, unemployment does not. In 55 MSAs, male unemployment is greater than female unemployment, but in 34 MSAs, female unemployment is greater than male unemployment. There are 11 MSAs where the two are equal. Consistent with the measurement of gender wage gap showing that women are paid less, this suggests that although women systematically experience greater poverty rates, this is not necessarily due to greater difficulty in finding general employment.

The statistics and correlations provided above are illustrative, but they point to a range of acute social inequalities affecting cities across the U.S. In future issues of this Index report, an attempt will be made to perform additional statistical analyses to further test these assumptions.

Figure 15: Map of poverty amongst women, as a ratio of total poverty in all MSAs



Overall, the findings suggest that deliberate, targeted interventions are required at the city level (as well as federal and state levels) to tackle child and youth poverty, gender and systematic race discrimination. Examples would include targeted maternal and child health programs, and tackling obesity and malnutrition through nutritional assistance programs. In order to design and deliver effective targeted interventions, improvements in the quantity and quality of disaggregated data is crucial.

6. DATA GAPS AND MONITORING CHALLENGES

As was the case in 2017, data availability was a significant challenge when seeking to compile a U.S. SDG Cities Index. U.S. city-level data are often not standardized and are not universally available. It was therefore necessary to use data at the level of the broader metropolitan statistical area, which opened up data sources like the Census and its associated American Communities Survey. Positively, MSAs provide a more holistic picture of local sustainable development as they typically represent a central large city and adjacent areas of regional influence, providing a better representation of an urban settlement.

However, even at the level of the MSA data availability was limited. For example, to provide an indicator for Goal 7: Ensure access to affordable, reliable, sustainable and modern energy for all, state-level data had to be drawn upon and values assigned to the MSA. This means the data lacks a certain specificity, as data on the source of energy at the city level was unavailable. Other indicators such as number of homes with rooftop solar panels or local investments in renewable energy were explored but no consistent or standard metric was available. Similarly, carbon emissions per capita is the only indicator under Goal 13: Take urgent action to combat climate change and its impacts. This variable comes from a non-governmental source—Berkeley University's Cool Climate Institute.[xvi] Indicators that measured urban disaster risk management and resiliency planning were pursued but no standard measures across enough MSAs were available.

Other crucial areas for which data were severely limited, if not entirely unavailable, include infant and maternal health, including teenage births, mental health, drug usage and gender. Only seven of the 100 MSAs had accessible data from the CDC on maternal mortality, while more than half of the teenage birth data provided at the MSA level have poor population coverage. A similar problem was experienced with regards to infant mortality data; although 97 MSAs have some available data on infant mortality, only 61 MSAs have data covering 75% or more of the population. Given the recognized severity of infant mortality in the U.S., an exception was made from our usual data coverage standard for this indicator, and rates were included for the 93 MSAs with data covering 51% or more of the population. It was believed that the importance of this measure justified a unique standard of 51% population coverage as opposed to the standard 75% used otherwise. A sensitivity analysis compared Index calculations with and without infant mortality. Including infant mortality does impact Goal 3 scores, but only a few overall MSA rankings were shifted by one or two positions.

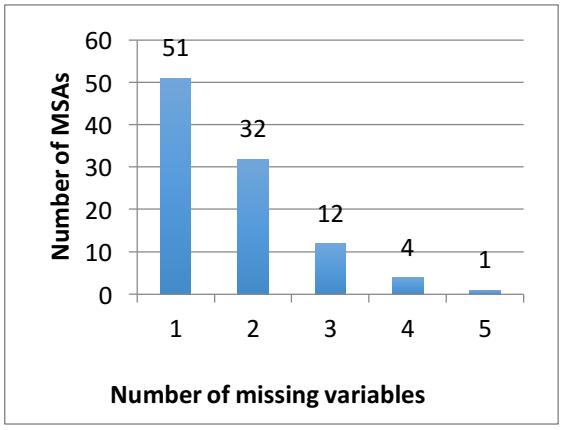
As with the 2017 Index, Goal 5: Achieve gender equality and empower all women and girls continues to prove very difficult to measure in the U.S. at the city level. Indicators such as 'number of women in local government' are monitored on an ad-hoc basis, with comparable data only available for a very small number of MSAs. Furthermore, measures of violence or domestic abuse are particularly hard to gather as they rely upon self-reporting, and—counter-intuitively—the better-supported women who experience abuse are, the higher the numbers may appear due to better reporting. However, given the urgent and pressing nature of this issue, a measure of sexual violence as reported to the FBI, was included. Fortunately, one additional indicator was included this year (percentage of businesses owned by women) and some disaggregation of other available indicators by sex (unfortunately not by gender) was undertaken, as described in Chapter 5 above.

Indicators for Goal 17: Strengthen the means of SDG implementation also proved problematic. Last year one indicator was included under this goal—broadband penetration. Upon further reflection, it was decided that broadband penetration better reflected infrastructure access (Goal 9) and should therefore be moved. However, It was difficult to identify other relevant indicators for this goal. Indicators that measure self-sufficiency and financial capacity of local governments such as 'local revenue generation as percentage of city budget' could not be found and other proxies identified by the Urban Institute in their SDG Data Inventory for US Cities[xvii] did not have the basic minimum coverage of MSAs required. Goal 17 has therefore been excluded from the 2018 Index.

Despite best efforts to minimize the number of missing values including using previous year data, there are still data gaps

at the metropolitan level. The chart (Figure 16) below shows the number of MSAs in the final dataset for which indicators could not be found.

Figure 16: Missing Data Points by MSA



The range of missing variables identified by this exercise suggests sizeable lack of investment in local data systems, both at the city and the MSA level. It also indicates an underinvestment by the U.S. government in some crucial measures of equity, including gender-disaggregated data, and race. As the sustainable development challenge becomes broader and more complex, a data-driven approach to policy-making will be crucial. Investments in basic operational data on sustainable development should be a founding principle of effective governance, within the U.S. and around the world.

In future iterations of the Index, SDSN hopes to be able to integrate more data, from a broader range of non-governmental sources, to complement what has already been compiled from the Census and other federal-level sources. It is also hoped to include trends analysis so that some of the key indicators (that remain unchanged in the Index) can be tracked over time to assess how policies and investments are affecting city performance. As local data quality improves, it is hoped that more MSAs can be included, which may capture the experience of the total U.S. urban population. Sadly, as of now, there are severe data gaps for the remaining 250+ MSAs monitored by the Census, which meant that they were ineligible for this Index. As mentioned above, only MSAs which have data coverage for 90%+ of the 44 indicators have been included.

7. CONCLUSION

In 2015 the U.S. Government committed to pursuing an ambitious sustainable development agenda that would tackle climate devastation, stop rising inequalities, and provide opportunities for all via Agenda 2030 and The Paris Declaration. However, its commitment to sustainable development has since stalled. To ensure that the U.S. makes progress towards the SDGs' ambitious 2030 deadline, local government leaders need to step up. 85% of Americans live in cities and metropolitan areas showing the huge potential for mayors and other local government leaders to affect change. This 2018 U.S. Cities SDG Index aims to pique interest in the sustainable development agenda, galvanize local commitment, and spur on nationwide progress.

This index of the 100 most populous MSAs, home to 66% of the population of the U.S., provides a portrait of sustainable development across the country. It highlights positive overall trends, such as strong progress on managing water stress and the containment of industrial waste, as well as persistent challenges for U.S. cities such as access to healthcare, obesity, income inequality and violent crime.

Providing a framework to articulate positive progress and share common challenges is facilitating peer-to-peer learning across cities. San Jose (part of the highest ranking MSA in this Index), is already collaborating with New York, Baltimore, Orlando and various other cities through networks such as SDSN and the U.S. Conference of Mayors, sharing their experiences and using the common metrics provided by the SDGs to discuss progress.

But even San Jose–Sunnyvale–Santa Clara is only 68.57% of the way to fully achieving the SDGs, while the lowest scoring city regions are only 30% of the way there. To dramatically accelerate progress, all U.S. cities and local government leaders will need to do five things:

1. Use data: U.S. city leaders need to take a data-based approach to planning and implementation, systemically tracking annual progress on sustainable development via this U.S. Cities SDG Index, but more importantly, through robust local data, which can provide a much more nuanced view of local challenges. Improving the quality of comparable city-level data and collecting it in such a way that it can be systematically disaggregated, will require investment at all levels of government.

2. Shine a spotlight on group-based inequalities so they may be addressed: This index has served to highlight acute inequalities in all of the 100 MSAs in the sample. Putting in place long-term policies and programs to address pernicious group-based inequalities within cities is vital to level the playing field and ensure that every child, irrespective of where they live, their race, or gender, has equal opportunity in life.

3. Promote peer to peer learning: The exchange of knowledge and learning between U.S. cities will be crucial to catalyze change. Cities should utilize existing forums, such as the U.S. Conference of Mayors, to share their experiences and forge new partnerships across regions based on common challenges.

4. Encourage collaboration: The scale of the sustainable development challenge is immense and city-level resources are finite. Local government leaders should therefore look to non-governmental actors such as local universities, civil society and technical agencies, like SDSN, to provide technical support, collect data, design data-informed programs and strategies, and support implementation. San Jose and Baltimore provide excellent examples of the utility of local university partnerships for SDG-related data collection and analysis. As new strategies are defined, other partners, such as the private sector, can be called upon to support their implementation.

5. Push the federal government: Increased pressure is needed for the U.S. to uphold its commitments to Agenda 2030 and The Paris Declaration. This can be done by demonstrating local support for sustainable development (through campaigns like We Are Still In and public endorsement of the SDGs) and by laying out practical, replicable strategies by which sustainable development can be pursued —within cities but also across the country.

ANNEX A: METHODOLOGY

The U.S. Cities SDG Index evaluates and ranks cities according to their level of sustainable development using the internationally agreed Sustainable Development Goals as the analytical framework. It is a composite index drawing on data collected from a variety of reputable sources. The Index provides a useful benchmark of key sustainability indicators and a single measure of which U.S. cities have better or worse urban environments, socio-economic integration, and service access.

The Index ranks 100 of the most populous U.S. Metropolitan Statistical Areas (MSAs). MSAs are geographic entities defined by the U.S. Office of Management and Budget (OMB) for use by federal statistical agencies in collecting, tabulating, and publishing federal statistics. Each of the 100 MSAs contains one or more counties, including a core urban area with a population of 50,000 or greater, and any adjacent counties that have a high degree of social and economic integration with the core urban area. For the purposes of the report we use the terms MSAs and cities interchangeably.

The methodology follows four steps: indicator and data selection, rescaling source data, normalizing the rescaled data and then aggregating in a composite index measure.

A1: Indicator and Data Selection

The Index considers 44 indicators related to a range of sustainability issues, including income, health care, educational resources, gender, economic opportunities, and air quality. These indicators correspond closely to the official set of global SDG monitoring indicators proposed by the UN Inter-Agency and Expert Group on SDG (IAEG-SDGs) indicators[xviii]. SDG 14 “Conserve and sustainably use the oceans, seas and marine resources for sustainable development” is not measured by this Index as it is only applicable to coastal cities and the data are insufficient. SDG 17 “Strengthen the means of implementation and revitalize the global partnership for sustainable development” is also excluded, because it was difficult to identify local data that corresponds to the global indicator recommendations.

While compiling our database, we used the most recent data available. We gave preference to those indicators that have data available for the past two years. However, some indicators that did not have up-to-date data, and were considered important for inclusion, were also included. Each source was verified for the validity of its methods of data collection. Data used in this report were gathered from a variety of federal statistical sources such as the Census Bureau, Bureau of Labor Statistics, and Center for Disease Control, databases collected by university research groups like Columbia University, Harvard University and University of California Berkeley, and geospatial data obtained by processing data such as satellite imagery etc. For a detailed list of indicators, definitions, calculation methodology and their sources, please refer to Annex D. “Sources and Definitions”.

A2: Preparing Source Data

To make valid comparisons of levels and scores across cities, we must have timely, high quality data derived from trusted sources. Unfortunately, a number of key indicators (e.g. maternal and infant mortality) were found to have limited data coverage at the MSA level. Our strategy for handling missing values resulted in a trade-off between maximizing consistency and expanding Index coverage. We do not impute missing values and, therefore, narrowed the dataset to 100 MSAs that have no more than 5 missing data entries. Where availability allows, we have included the most up to date data. The prepared datasets were also standardized to percentage or per capita units for improved comparability. In cases where raw data were only available for a different geographic boundary than the MSA, we used geospatial tools to translate all variables to the MSA level. Latest official U.S. Census shapefiles were layered to define spatial concordance tables that mapped ZIP code and county data onto the MSA level. Data were weighted by population or land area as appropriate to define an MSA wide figure.

A3: Normalizing the Prepared Data

Each indicator was then normalized for aggregation into the U.S. Cities SDG Index. The indicators are normalized by calculating relative position to established best and worst values, where zero is equivalent to the worst value and 100 is equivalent to the best. Calculations on

descending indicators, for which a higher level actually corresponds to a worse value, were necessarily reversed. This means that an MSA would score 100 if its indicator value is equivalent to or better than the established best value and 0 if its indicator value is equivalent to or worse than the established worst value. Indicator values between the best and worst values are linearly mapped onto scores between 0 and 100.

A five-step decision tree was used to select bounds of normalization for each indicator:

1. Where possible, use absolute, quantitative best and worst values outlined in the SDG targets,
2. Where no explicit SDG target is available, set the best value to describe universal access or zero deprivation for indicators such as public service coverage and access to basic infrastructure,
3. When available, use science-based targets (that must be achieved by 2030 or later) to set the best value,
4. If none of the above are available but OECD data exists, use the greater of the average of top five OECD countries or the average of top five performing U.S. cities as the best value,
5. For all other indicators, use the average of top five performing U.S. cities as the best value.

Knowing that in some cases, US cities may be performing well enough already, the worst value was set using the following decision tree:

1. Where OECD data exists, use the lower of the 2.5th percentile of OECD countries and the 2.5th percentile of U.S. cities,
2. Where OECD data does not exist, use the 2.5th percentile of U.S. cities.

This method allows us to limit the presence of extreme values that might skew our comparisons.

A4: Aggregating into a Composite Index

To obtain the overall Index score for each city, we first calculated the arithmetic mean of indicators within each Goal and then aggregated the index by taking the arithmetic mean across all 15 considered Goals. The arithmetic mean provides a straightforward interpretation: An Index score between 0 and 100 reflects the average starting point of the city across 15 of the 17 goals. An MSA with an Index score of 50 is, on average, 50% of the way towards reaching the SDGs.

ANNEX B: LIMITATIONS

As with all composite measures, the U.S. Cities SDG Index has some limitations. The following points highlight the major limitations to consider while interpreting the Index.

The MSA-level data is based on the most recent available sources. In some cases, however, these data are from 2009-10 (e.g. Urban Sprawl Index and Water Stress). These outdated sources may no longer adequately represent contemporary conditions.

Additionally, we were only able to track 22 of the indicators directly at the MSA level. For all other indicators, some or all of the data had to be transferred to the MSA level from State level statistics or by mapping county or ZIP code data using GIS. Some MSAs are comprised of multiple smaller counties, leading to estimates with high standard errors. Furthermore, microdata are sensitive to identity disclosure. In particular, mortality data do not identify counties with populations less than 100,000 people. As a result, some estimations are based on incomplete data and might not reflect MSA wide conditions.

The results of the rankings should be interpreted with caution and only after reviewing Appendix D: Sources and Definitions, which contains important information about the methods used to obtain the estimates.

ANNEX C: CITIES DASHBOARD

The US Cities SDG Dashboard uses the same data as the index, but we introduced additional quantitative thresholds for each indicator to group cities in a “traffic-light” table format. All indicators were normalized according to color band thresholds and then averaged across each goal, providing a label of red, orange, yellow or green to every goal by MSA. If, for example, the average of the normalized indicators for a given Goal and MSA fell in the orange band, then the corresponding traffic light was set to orange. The top and bottom values of an indicator’s color spectrum are the same as the upper and

lower bounds of the index. The three interim thresholds (green/yellow, yellow/orange and orange/red) were set by using the following decision tree:

1. Where the same indicator exists in the Global SDG Index 2017[xix], use same threshold values,
2. Where possible, use science or expert backed intermediate targets,
3. Where neither exist, use the Jenks Natural Breaks method to determine intermediate thresholds.

C1: Jenks Natural Breaks

The Jenks Natural Breaks method is a variance minimization and distance between means maximization technique to distribute the data into desired class intervals. For our data, this method clusters cities based on relative performance into 4 distinct groups. The hypothesis behind its adoption is that various groups of cities are already delivering at certain levels for indicators, which is a reasonable distance for other cities to cover in order to join the higher performing cluster. To prevent outliers from skewing the dashboard, the Jenks analysis was performed after removing extreme observations beyond the 2.5th and 97.5th percentiles.

The validity of this method of determining intermediate thresholds was tested for the 2017 Index by comparing science backed thresholds, thresholds of best judgment, and the results from the Jenks algorithm. The results were not found to be extremely different.

ANNEX D: SOURCES AND DEFINITIONS

The tables below provide the list of 44 indicators that were used to develop the U.S. Cities SDG Index, along with the best and worst values that were set for each indicator, and a brief description. In cases where an indicator was developed in-house, a brief methodology is also provided.

1 NO POVERTY

% of population living below the federal poverty level

Year: **2016** Units: **%** Formula: **Descending**
Source: **U.S Census Bureau, American Community Survey**
Geographic Level of Source: **MSA**

Description: The % of the MSA population living below the national poverty line, as defined by the American Community Survey 2016.

Minimum Value: **8.4**
Best Value: **4.2**
Worst Value: **22.815**
Maximum Value: **32.8**

Green/Yellow Threshold: **10**
Yellow/Orange Threshold: **12.5**
Orange/Red Threshold: **15**

Rationales: Best value set according to SDG mandate to halve poverty; half of minimum value. Worst value set according to 2.5th Percentile. Dashboard set according to The Global SDG Index.

Changes from 2017 Index: **Data updated to 2016**

Per Capita Personal Income

Year: **2016** Units: **$ per capita** Formula: **Ascending**
Source: **Bureau of Economic Analysis**
Geographic Level of Source: **County**

Description: The per Capita Personal Income as calculated by the Bureau of Economic Analysis.

Minimum Value: **24805**
Best Value: **83025.40981**
Worst Value: **35078.34205**
Maximum Value: **106666**

Green/Yellow Threshold: **60000**
Yellow/Orange Threshold: **51000**
Orange/Red Threshold: **44000**

Rationales: Best value set according to Average of top 5. Worst value set according to 2.5th Percentile. Dashboard set according to Jenks Natural Break.

Changes from 2017 Index: **Data updated to 2016 and now weighting by County Population**

% of children living Below Twice the poverty Line

Year: **2016** Units: **%** Formula: **Descending**
Source: **U.S Census Bureau, American Community Survey**
Geographic Level of Source: **MSA**

Description: The % of children that are living below twice the national poverty line, as defined by the American Community Survey.

Minimum Value: **24805**
Best Value: **83025.40981**
Worst Value: **35078.34205**
Maximum Value: **106666**

Green/Yellow Threshold: **60000**
Yellow/Orange Threshold: **51000**
Orange/Red Threshold: **44000**

Rationales: Best value set according to SDG mandate to halve child poverty; half of minimum value. Worst value set according to 2.5th Percentile. Dashboard set according to Expert guided calculations: Orange/Yellow - Half of Worst Value: Yellow/Green - 150% of Best Value:
Red/Orange - Midpoint between worst and Orange/Yellow.

Changes from 2017 Index: **Data updated to 2016**

2 ZERO HUNGER

Food insecurity rate

Year: **2014** Units: **%** Formula: **Descending**
Source: **Feeding America**
Geographic Level of Source: **County**

Description: The % of the population estimated to be food insecure. Food insecurity is defined by the USDA as a "socioeconomic condition of limited or uncertain access to enough food to support a healthy life.[xx]

Minimum Value: **7.905767526**
Best Value: **0**
Worst Value: **17.84767574**
Maximum Value: **20.56422964**

Green/Yellow Threshold: **10.9**
Yellow/Orange Threshold: **12.9**
Orange/Red Threshold: **14.8**

Rationales: Best value set according to SDG Mandate to end hunger/malnutrition. Worst value set according to 2.5th Percentile. Dashboard set according to Jenks Natural Break.

Changes from 2017 Index: **New**

Percent of population that is obese

Year: **2013** Units: **%** Formula: **Descending**
Source: **CDC**
Geographic Level of Source: **County**

Description: Percentage of individuals with a Body Mass Index (BMI) of 30.0 or higher.

Minimum Value: **19.1**
Best Value: **2.8**
Worst Value: **33.67968482**
Maximum Value: **34.4**

Green/Yellow Threshold: **10**
Yellow/Orange Threshold: **17.5**
Orange/Red Threshold: **25**

Rationales: Best value set according to The Global SDG Index. Worst value set according to 2.5th Percentile. Dashboard set according to the Global SDG Index.

Changes from 2017 Index: **Now weighting by County Population**

ANNEX D: SOURCES AND DEFINITIONS (Contd.)

3 GOOD HEALTH AND WELL-BEING

Infant mortality rate

Year: **2015** Units: **Cases per 1000 Births**
Formula: **Descending**
Source: **CDC**
Geographic Level of Source: **County**

Description: Number of infant deaths per 1000 live births. County data converted to MSA by combining births and deaths from available counties.

Minimum Value: **3.797**
Best Value: **2.1**
Worst Value: **11.1**
Maximum Value: **9.5725**
Green/Yellow Threshold: **4.5**
Yellow/Orange Threshold: **5.75**
Orange/Red Threshold: **7**

Rationales: Best value set according to Average of top 5 OECD. Worst value set according to 2.5th Percentile of OECD. Dashboard set according to Jenks Natural Break.

Changes from 2017 Index: **Data updated to 2015 and now weighting by county births; population coverage standard reduced to 51% for this indicator alone.**

Percentage of low birth weight babies

Year: **2016** Units: **%** Formula: **Descending**
Source: **CDC**
Geographic Level of Source: **County**

Description: Percent of infants born with a low birth weight, defined as those weighing <2,500 g.

Minimum Value: **5.504491331**
Best Value: **4.34**
Worst Value: **9.776067046**
Maximum Value: **11.20470127**
Green/Yellow Threshold: **7.4**
Yellow/Orange Threshold: **8.3**
Orange/Red Threshold: **9**

Rationales: Best value set according to Average of top 5 OECD. Worst value set according to 2.5th Percentile. Dashboard set according to Jenks Natural Break.

Changes from 2017 Index: **Data updated to 2015 and now weighting by county births**

Number of new Syphilis, Chlamydia and Gonorrhea cases diagnosed per 100,000 population.

Year: **2015** Units: **Cases per 100000 people**
Formula: **Descending**
Source: **CDC**
Geographic Level of Source: **County**

Description: Number of new Syphilis, Chlamydia and Gonorrhea cases diagnosed per 100,000 population.

Minimum Value: **195.8142302**
Best Value: **261.7186195**
Worst Value: **964.3329269**
Maximum Value: **1051.443022**
Green/Yellow Threshold: **490**
Yellow/Orange Threshold: **630**
Orange/Red Threshold: **750**

Rationales: Best value set according to Average of top 5. Worst value set according to 2.5th Percentile. Dashboard set according to Jenks Natural Break.

Changes from 2017 Index: **Data updated to 2015 and now weighting by county population.**

3 GOOD HEALTH AND WELL-BEING

Number of diagnosed incidences of all types of diabetes per 1,000 people.

Year: **2013** Units: **Cases per 1000 people**
Formula: **Descending**
Source: **CDC**
Geographic Level of Source: **County**

Description: Number of diagnosed incidences of all types of diabetes per 1,000 people.

Minimum Value: **55.86758828**
Best Value: **64.9606627**
Worst Value: **126.4922982**
Maximum Value: **143**
Green/Yellow Threshold: **86**
Yellow/Orange Threshold: **99**
Orange/Red Threshold: **112**

Rationales: Best value set according to Average of top 5. Worst value set according to 2.5th Percentile. Dashboard set according to Jenks Natural Break.

Changes from 2017 Index: **Now weighting by County Population**

Deaths due to heart attack

Year: **2013-2015** Units: **Cases per 100000 people over 35**
Formula: **Descending**
Source: **CDC**
Geographic Level of Source: **County**

Description: Number of deaths from heart attacks for people over 35 per 100,000 population.

Minimum Value: **59.1**
Best Value: **31.036**
Worst Value: **231.3730922**
Maximum Value: **257.7921645**
Green/Yellow Threshold: **133**
Yellow/Orange Threshold: **163**
Orange/Red Threshold: **191**

Rationales: Best value set according to Average of top 5 OECD. Worst value set according to 2.5th Percentile. Dashboard set according to Jenks Natural Break.

Changes from 2017 Index: **Data updated to 2015 and now weighting by County Population over 35**

Death due to traffic accidents

Year: **2008-2014** Units: **Cases per 100000 people**
Formula: **Descending**
Source: **CDC**
Geographic Level of Source: **County**

Description: Cumulative traffic deaths per 100,000 population between 2008 and 2014.

Minimum Value: **5.115884235**
Best Value: **3.18**
Worst Value: **16.96664628**
Maximum Value: **17.77583554**
Green/Yellow Threshold: **4.77**
Yellow/Orange Threshold: **8.48**
Orange/Red Threshold: **12.72**

Rationales: Best value set according to The Global SDG Index. Worst value set according to 2.5th Percentile. Dashboard set according to Expert guided calculations: Orange/Yellow - Half of Worst Value Yellow/Green - 150% of Best Value Red/Orange - Midpoint between worst and Orange/Yellow.

Changes from 2017 Index: **Data updated to 2015 and now weighting by County Population**

ANNEX D: SOURCES AND DEFINITIONS (Contd.)

3 GOOD HEALTH AND WELL-BEING

Percent of persons with health insurance coverage

Year: **2016** Units: **%** Formula: **Ascending**
Source: **U.S Census Bureau, American Community Survey**
Geographic Level of Source: **MSA**

Description: Percentage of non-institutionalized population, as identified by the U.S. Census, to have some form of health insurance.

Minimum Value: **67.1**
Best Value: **100**
Worst Value: **80.1475**
Maximum Value: **96.6**

Green/Yellow Threshold: **98**
Yellow/Orange Threshold: **92.65**
Orange/Red Threshold: **87.3**

Rationales: Best value set according to Aspirational. Worst value set according to 2.5th Percentile. Dashboard set according to Expert guidance.

Changes from 2017 Index: **Data updated to 2016.**

Primary Care Physicians Per 100000 People

Year: **2015** Units: **Count per 100000 people** Formula: **Ascending**
Source: **County Health Rankings & Roadmaps**
Geographic Level of Source: **County**

Description: The number of primary physicians per 100000 residents.

Minimum Value: **43.87622274**
Best Value: **109.642812**
Worst Value: **47.18543542**
Maximum Value: **115.654834**

Green/Yellow Threshold: **89**
Yellow/Orange Threshold: **78**
Orange/Red Threshold: **65**

Rationales: Best value set according to Average of top 5. Worst value set according to 2.5th Percentile. Dashboard set according to Jenks Natural Break.

Changes from 2017 Index: **Data source changed and updated to 2018, an now weighting by population.**

4 QUALITY EDUCATION

School enrollment

Year: **2016** Units: **%** Formula: **Ascending**
Source: **U.S Census Bureau, American Community Survey**
Geographic Level of Source: **MSA**

Description: The percentage of school age individuals that are in school, defined as 5-19 years of age.

Minimum Value: **89.68382012**
Best Value: **100**
Worst Value: **91.97602396**
Maximum Value: **96.23814776**

Green/Yellow Threshold: **98**
Yellow/Orange Threshold: **89**
Orange/Red Threshold: **80**

Rationales: Best value set according to Aspirational. Worst value set according to 2.5th Percentile. Dashboard set according to Global SDG Index.

Changes from 2017 Index: **Data updated to 2016 and school age restricted to 5-19, rather than 3 and above, as used last year.**

% of Population Without High School Degree

Year: **2016** Units: **%** Formula: **Descending**
Source: **U.S Census Bureau, American Community Survey**
Geographic Level of Source: **MSA**

Description: The percentage of individuals ages 25 and above without a High School Deploma.

Minimum Value: **5.241862374**
Best Value: **0**
Worst Value: **25.00612764**
Maximum Value: **36.72410777**

Green/Yellow Threshold: **2**
Yellow/Orange Threshold: **7.35**
Orange/Red Threshold: **12.7**

Rationales: Best value set according to SDG mandate of universal secondary education. Worst value set according to 2.5th Percentile. Dashboard set according to Expert guidance.

Changes from 2017 Index: **Data updated to 2016**

% of 3-4 year olds enrolled in school (nursery, pre-k, kindergarden)

Year: **2016** Units: **%** Formula: **Ascending**
Source: **U.S Census Bureau, American Community Survey**
Geographic Level of Source: **MSA**

Description: The % of 3-4 year-olds who are in some form of school.

Minimum Value: **31.2**
Best Value: **100**
Worst Value: **35.785**
Maximum Value: **70.5**

Green/Yellow Threshold: **56**
Yellow/Orange Threshold: **48**
Orange/Red Threshold: **42**

Rationales: Best value set according to Aspirational. Worst value set according to 2.5th Percentile. Dashboard set according to Jenks Natural Break.

Changes from 2017 Index: **New**

ANNEX D: SOURCES AND DEFINITIONS (Contd.)

4 QUALITY EDUCATION

% of Population with an Undergraduate Degree

Year: **2016** Units: **%** Formula: **Ascending**
Source: **U.S Census Bureau, American Community Survey**
Geographic Level of Source: **MSA**

Description: The percentage of population above 25 years of age with an undergraduate degree or higher.

Minimum Value: **15.66468262**
Best Value: **48.73200226**
Worst Value: **17.77111854**
Maximum Value: **49.35820364**

Green/Yellow Threshold: **25**
Yellow/Orange Threshold: **20**
Orange/Red Threshold: **15**

Rationales: Best value set according to Average of top 5 OECD. Worst value set according to 2.5th Percentile. Dashboard set according to Global SDG Index.

Changes from 2017 Index: **Data updated to 2016**

5 GENDER EQUALITY

Median earnings gap

Year: **2016** Units: **%** Formula: **Descending**
Source: **U.S Census Bureau, American Community Survey**
Geographic Level of Source: **MSA**

Description: The gender wage gap is unadjusted and is defined as the percentage difference between median earnings of men and women relative to median earnings of men. Data refer to full-time employees and to self-employed.

Minimum Value: **16.1**
Best Value: **0**
Worst Value: **39.74**
Maximum Value: **56**

Green/Yellow Threshold: **7.5**
Yellow/Orange Threshold: **11.25**
Orange/Red Threshold: **15**

Rationales: Best value set according to Aspirational. Worst value set according to 2.5th Percentile. Dashboard set according to Global SDG Index.

Changes from 2017 Index: **Data updated to 2016**

Rapes known to law enforcement

Year: **2016** Units: **Cases per 100000 people**
Formula: **Descending**
Source: **FBI Uniform Crime Report**
Geographic Level of Source: **MSA + County**

Description: Number of rape cases reported per 100,000 population, as defined by FBI's revised definition of rape. For 9 MSAs missing data we have aggregated available counties to extrapolate MSA figures.

Minimum Value: **7.241067669**
Best Value: **17.56821353**
Worst Value: **76.46**
Maximum Value: **123.7796219**

Green/Yellow Threshold: **31**
Yellow/Orange Threshold: **41.5**
Orange/Red Threshold: **54**

Rationales: Best value set according to Average of top 5. Worst value set according to 2.5th Percentile. Dashboard set according to Jenks Natural Break.

Changes from 2017 Index: **Data updated to 2016**

% of businesses owned by women

Year: **2012** Units: **%** Formula: **Ascending**
Source: **U.S Census Bureau Survey of Business Owners**
Geographic Level of Source: **MSA**

Description: The % of businesses owned by women, not counting businesses with ownership split between men and women.

Minimum Value: **29.86343834**
Best Value: **50**
Worst Value: **31.02528587**
Maximum Value: **46.26321077**

Green/Yellow Threshold: **38**
Yellow/Orange Threshold: **35.5**
Orange/Red Threshold: **33.5**

Rationales: Best value set according to Aspirational. Worst value set according to 2.5th Percentile. Dashboard set according to Jenks Natural Break.

Changes from 2017 Index: **New**

ANNEX D: SOURCES AND DEFINITIONS (Contd.)

6 CLEAN WATER AND SANITATION

Normalized Deficit (Water Stress)

Year: **2009** Units: **Index** Formula: **Descending**
Source: **Columbia Water Center, Columbia University**
Geographic Level of Source: **County**

Description: Normalized Deficit Index (NDC) is the normalized cumulative water stress index for a county. It is a fraction indicating the amount of annual average rainfall needed to remove the stress. NDC county values were averaged by county land area to estimate an MSA level value.

Minimum Value: **0.003384196**
Best Value: **0.004395614**
Worst Value: **37.38216766**
Maximum Value: **79.89933198**
Green/Yellow Threshold: **3.5**
Yellow/Orange Threshold: **10**
Orange/Red Threshold: **25**

Rationales: Best value set according to Average of top 5. Worst value set according to 2.5th Percentile. Dashboard set according to Jenks Natural Break.

Changes from 2017 Index: **Now weighted by county land area.**

7 AFFORDABLE AND CLEAN ENERGY

Share of Low Carbon Energy Generated in the State

Year: **2016** Units: **%** Formula: **Ascending**
Source: **Energy Information Agency**
Geographic Level of Source: **State**

Description: Percentage of energy generated within the state from Wind, Solar, Geothermal, Biomass, Hydroelectric and nuclear. Value of the leading State was applied to all MSAs within the State.

Minimum Value: **3.779182727**
Best Value: **78.66966067**
Worst Value: **6.475005787**
Maximum Value: **85.9185763**
Green/Yellow Threshold: **55**
Yellow/Orange Threshold: **35**
Orange/Red Threshold: **18**

Rationales: Best value set according to Average of top 5. Worst value set according to 2.5th Percentile. Dashboard set according to Jenks Natural Break.

Changes from 2017 Index: **Data updated to 2016 and now including nuclear**

8 DECENT WORK AND ECONOMIC GROWTH

GDP Growth

Year: **2011-2016** Units: **%** Formula: **Ascending**
Source: **Bureau of Economic Analysis**
Geographic Level of Source: **MSA**

Description: Running 5 year average of Annual real GDP Growth Rates.

Minimum Value: **-0.731448882**
Best Value: **5.777288579**
Worst Value: **-0.259817154**
Maximum Value: **6.566527612**
Green/Yellow Threshold: **4**
Yellow/Orange Threshold: **3**
Orange/Red Threshold: **2**

Rationales: Best value set according to Average of top 5. Worst value set according to 2.5th Percentile. Dashboard set according to Global SDG Index.

Changes from 2017 Index: **Data updated to 2016 and now using real GDP, instead of nominal GDP**

Percent of jobs in STEM fields

Year: **2016** Units: **%** Formula: **Ascending**
Source: **U.S Census Bureau, American Community Survey**
Geographic Level of Source: **MSA**

Description: The % of workers 16 and older in computer, science, engineering, Healthcare practitioner and technical occupations.

Minimum Value: **5.937390754**
Best Value: **17.25836996**
Worst Value: **7.692841258**
Maximum Value: **22.05853404**
Green/Yellow Threshold: **14.5**
Yellow/Orange Threshold: **12**
Orange/Red Threshold: **9**

Rationales: Best value set according to Average of top 5. Worst value set according to 2.5th Percentile. Dashboard set according to Jenks Natural Break.

Changes from 2017 Index: **New Data source and updated to 2016**

Unemployment rate

Year: **2017** Units: **%** Formula: **Descending**
Source: **Bureau of Labor Statistics**
Geographic Level of Source: **MSA**

Description: The average monthly unemployment rate, defined as the percentage of the total labor force that is unemployed but actively seeking employment.

Minimum Value: **2.341666667**
Best Value: **3.72**
Worst Value: **20.12**
Maximum Value: **9.275**
Green/Yellow Threshold: **5**
Yellow/Orange Threshold: **7.5**
Orange/Red Threshold: **10**

Rationales: Best value set according to Average of top 5 OECD. Worst value set according to 2.5th Percentile of OECD. Dashboard set according to Global SDG Index.

Changes from 2017 Index: **Data updated to 2017.**

ANNEX D: SOURCES AND DEFINITIONS (Contd.)

8 DECENT WORK AND ECONOMIC GROWTH

Disconnected youth (ages 16 to 24 not in school and not working)

Year: **2015** Units: **Index** Formula: **Descending**
Source: **U.S. Census Bureau, American Community Survey**
Geographic Level of Source: **MSA**

Description: The percentage of youth (ages 16-24) who are not in Education, Employment, or Training (NEET).

Minimum Value: **7.70019**
Best Value: **8.352478**
Worst Value: **20.18884725**
Maximum Value: **21.61424**
Green/Yellow Threshold: **10**
Yellow/Orange Threshold: **12.5**
Orange/Red Threshold: **15**

Rationales: Best value set according to Average of top 5. Worst value set according to 2.5th Percentile. Dashboard set according to Global SDG Index.

Changes from 2017 Index: **Data updated to 2015.**

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

Number of utility patent grants

Year: **2012-2015** Units: **Count per 1000 workers**
Formula: **Ascending**
Source: **U.S. Patent and Trademark Office's**
Geographic Level of Source: **MSA**

Description: Patent applications per thousand workers in the MSA cumulated over 4 years.

Minimum Value: **0.255533906**
Best Value: **22.79470212**
Worst Value: **0.679520273**
Maximum Value: **53.34282916**
Green/Yellow Threshold: **10**
Yellow/Orange Threshold: **6**
Orange/Red Threshold: **3**

Rationales: Best value set according to Average of top 5. Worst value set according to 2.5th Percentile. Dashboard set according to Jenks Natural Break.

Changes from 2017 Index: **Data updated to 2012-2015.**

Broadband penetration

Year: **2016 (1-year estimate)** Units: **%** Formula: **Ascending**
Source: **U.S Census Bureau, American Community Survey**
Geographic Level of Source: **MSA**

Description: Percentage of households with a broadband connection.

Minimum Value: **64.6**
Best Value: **100**
Worst Value: **73.63**
Maximum Value: **90.8**
Green/Yellow Threshold: **80**
Yellow/Orange Threshold: **65**
Orange/Red Threshold: **50**

Rationales: Best value set according to Aspirational. Worst value set according to 2.5th Percentile ((previously taken from OECD, but OECD is per capita, and they specificly say it's not comperable to per household). Dashboard set according to Global SDG Index.

Changes from 2017 Index: **Data updated to 2016.**

10 REDUCED INEQUALITIES

Gini coefficient

Year: **2016** Units: **Index** Formula: **Descending**
Source: **U.S Census Bureau, American Community Survey**
Geographic Level of Source: **MSA**

Description: GINI is a measure of statistical dispersion intended to represent the income distribution of a nation's residents and is the most commonly used measure of inequality.

Minimum Value: **0.3949**
Best Value: **0.2536**
Worst Value: **0.50586**
Maximum Value: **0.5444**
Green/Yellow Threshold: **0.3**
Yellow/Orange Threshold: **0.35**
Orange/Red Threshold: **0.4**

Rationales: Best value set according to Global SDG Index. Worst value set according to 2.5th Percentile. Dashboard set according to Global SDG Index.

Changes from 2017 Index: **Data updated to 2016**

Racial Segregation

Year: **2010** Units: **Index** Formula: **Descending**
Source: **Population Studies Center, University of Michigan**
Geographic Level of Source: **MSA**

Description: This measure considers the degree to which African Americans are distributed differently to white caucasians across geographic census tracts. It ranges from 0 (complete integration) to 100 (complete segregation).

Minimum Value: **21.91**
Best Value: **29.13**
Worst Value: **75.958**
Maximum Value: **81.52**
Green/Yellow Threshold: **45**
Yellow/Orange Threshold: **55**
Orange/Red Threshold: **63**

Rationales: Best value set according to Average of top 5. Worst value set according to 2.5th Percentile. Dashboard set according to Jenks Natural Break.

Changes from 2017 Index: **The 2017 Index took an average of three ethnic comparrisons, but only one ethnic comparison is applied here, because an average is less accurate**

Absolute Upward Mobility

Year: **2016** Units: **Index** Formula: **Ascending**
Source: **Equal Opportunity Project, Harvard University**
Geographic Level of Source: **MSA**

Description: This is a measure of inter-generational upward mobility, which is based on inter-generational household income differentials.

Minimum Value: **33.72775**
Best Value: **46.5663**
Worst Value: **36.11799375**
Maximum Value: **49.16025**
Green/Yellow Threshold: **43.2**
Yellow/Orange Threshold: **40.8**
Orange/Red Threshold: **38.7**

Rationales: Best value set according to Average of top 5. Worst value set according to 2.5th Percentile. Dashboard set according to Jenks Natural Break.

Changes from 2017 Index: **None.**

ANNEX D: SOURCES AND DEFINITIONS (Contd.)

11 SUSTAINABLE CITIES AND COMMUNITIES

Housing Affordability

Year: **2016** Units: **$/$** Formula: **Descending**
Source: **U.S Census Bureau, American Community Survey**
Geographic Level of Source: **MSA**

Description: The median MSA property value divided by the MSA median household income as a relative measure of housing affordability.

Minimum Value: **2.255222475**
Best Value: **2.367127194**
Worst Value: **7.539978006**
Maximum Value: **7.938472419**
Green/Yellow Threshold: **3.2**
Yellow/Orange Threshold: **4.1**
Orange/Red Threshold: **5.8**

Rationales: Best value set according to Average of top 5. Worst value set according to 2.5th Percentile. Dashboard set according to Jenks Natural Break.

Changes from 2017 Index: **Updated method and data**

Percent of households living in overcrowded housing

Year: **2016** Units: **%** Formula: **Descending**
Source: **U.S Census Bureau, American Community Survey**
Geographic Level of Source: **County**

Description: The percentage of households living in overcrowded housing, as defined by the American Community Survey.

Minimum Value: **0.74010837**
Best Value: **0.912528149**
Worst Value: **9.332637628**
Maximum Value: **12.78239119**
Green/Yellow Threshold: **2.15**
Yellow/Orange Threshold: **3.7**
Orange/Red Threshold: **6**

Rationales: Best value set according to Average of top 5. Worst value set according to 2.5th Percentile. Dashboard set according to Jenks Natural Break.

Changes from 2017 Index: **New.**

Use of sustainable Transportation

Year: **2016** Units: **%** Formula: **Ascending**
Source: **U.S Census Bureau, American Community Survey**
Geographic Level of Source: **MSA**

Description: The percentage of workers 16 and older using public transport, bicycles or walking to commute to work.

Minimum Value: **1.4**
Best Value: **22.7**
Worst Value: **1.9**
Maximum Value: **37.6**
Green/Yellow Threshold: **11**
Yellow/Orange Threshold: **6**
Orange/Red Threshold: **3.5**

Rationales: Best value set according to Average of top 5. Worst value set according to 2.5th Percentile. Dashboard set according to Jenks Natural Break.

Changes from 2017 Index: **Data updated to 2016 and combining previously separate indicators.**

11 SUSTAINABLE CITIES AND COMMUNITIES

Smart Growth America's Sprawl Index

Year: **2010** Units: **Index** Formula: **Ascending**
Source: **Smart Growth America**
Geographic Level of Source: **MSA**

Description: A composite index score reflecting "residential and employment density; neighborhood mix of homes, jobs and services; strength of activity centers and downtowns; and accessibility of the street network".[xxi]

Minimum Value: **40.991912**
Best Value: **136.6164908**
Worst Value: **55.82362665**
Maximum Value: **144.706687**
Green/Yellow Threshold: **110**
Yellow/Orange Threshold: **91.5**
Orange/Red Threshold: **74**

Rationales: Best value set according to Average of top 5. Worst value set according to 2.5th Percentile. Dashboard set according to Jenks Natural Break.

Changes from 2017 Index: **New.**

Access to Parks

Year: **2013-2015** Units: **%** Formula: **Ascending**
Source: **CDC**
Geographic Level of Source: **County**

Description: The percentage of the population living within 15 minutes of pedestrian travel to a public park and recreational space.

Minimum Value: **8**
Best Value: **76.50798541**
Worst Value: **10.80944909**
Maximum Value: **81.48820639**
Green/Yellow Threshold: **55**
Yellow/Orange Threshold: **41**
Orange/Red Threshold: **28**

Rationales: Best value set according to Average of top 5. Worst value set according to 2.5th Percentile. Dashboard set according to Jenks Natural Break.

Changes from 2017 Index: **Data updated to 2015 and now weighting by County Population.**

PM 2.5 Average Levels (Population Weighted)

Year: **2013-2015** Units: **Micrograms per cubic meter**
Formula: **Descending**
Source: **CDC**
Geographic Level of Source: **County**

Description: Annualized PM2.5 mass concentrations (in µg/m3), weighted by county population.

Minimum Value: **6.5**
Best Value: **6.3**
Worst Value: **13.75190906**
Maximum Value: **14.82776311**
Green/Yellow Threshold: **10**
Yellow/Orange Threshold: **17.5**
Orange/Red Threshold: **25**

Rationales: Best value set according to Global SDG Index. Worst value set according to 2.5th Percentile. Dashboard set according to Global SDG Index.

Changes from 2017 Index: **Now weighted by county population**

ANNEX D: SOURCES AND DEFINITIONS (Contd.)

11 SUSTAINABLE CITIES AND COMMUNITIES

Ozone Levels (8-Hr)

Year: **2016** Units: **ppm** Formula: **Descending**
Source: **EPA**
Geographic Level of Source: **County**

Description: The maximum O3 (ppm) reading, weighted by county population.

Minimum Value: **0.048**
Best Value: **0.05**
Worst Value: **0.093**
Maximum Value: **0.106034422**

Green/Yellow Threshold: **0.064**
Yellow/Orange Threshold: **0.072**
Orange/Red Threshold: **0.084**

Rationales: Best value set according to WHO Standard. Worst value set according to 2.5th Percentile. Dashboard set according to Jenks Natural Break.

Changes from 2017 Index: **Now weighting by population**

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

Toxic release of air, water and land per square mile (lbs)

Year: **2016** Units: **lb/square mile** Formula: **Descending**
Source: **EPA**
Geographic Level of Source: **MSA**

Description: Toxic industrial waste released into the Air, Water or Land per square mile of the MSA.

Minimum Value: **3.485274968**
Best Value: **13.4575163**
Worst Value: **9899.402899**
Maximum Value: **33728.91914**

Green/Yellow Threshold: **900**
Yellow/Orange Threshold: **2400**
Orange/Red Threshold: **6000**

Rationales: Best value set according to Average of top 5. Worst value set according to 2.5th Percentile. Dashboard set according to Jenks Natural Break.

Changes from 2017 Index: **Data updated to 2016.**

13 CLIMATE ACTION

Average annual household carbon footprint

Year: **2013 (but might represent 2011)** Units: **TCO2e per capita**
Formula: **Descending**
Source: **CoolClimate Network (UC Berkeley)**
Geographic Level of Source: **County**

Description: Carbon emissions per capita based on detailed econommetric household calculations.

Minimum Value: **12.37338614**
Best Value: **1.7**
Worst Value: **41.55976799**
Maximum Value: **51.43656629**

Green/Yellow Threshold: **2**
Yellow/Orange Threshold: **3**
Orange/Red Threshold: **4**

Rationales: Best value set according to SDSN's Deep Decarbonization Pathways Project Target. Worst value set according to 2.5th Percentile. Dashboard set according to Global SDG Index.

Changes from 2017 Index: **Now weighting by county population.**

15 LIFE ON LAND

Green open space

Year: **2016** Units: **sq-meters per capita6**
Formula: **Ascending**
Source: **Open Street Maps**
Geographic Level of Source: **Map Layer**

Description: Total amount of square meters of green open space available per person in the MSA. Recreational/Open Space polygons from the OSM database were used to calculate the area of public open space in each MSA. This was divided by population to get a per capita figure.

Minimum Value: **14.89131479**
Best Value: **186.8824257**
Worst Value: **16.34886452**
Maximum Value: **225.9801791**

Green/Yellow Threshold: **125**
Yellow/Orange Threshold: **87**
Orange/Red Threshold: **54**

Rationales: Best value set according to Average of top 5. Worst value set according to 2.5th Percentile. Dashboard set according to Jenks Natural Break.

Changes from 2017 Index: **None**

Number of brownfield and superfund sites

Year: **2018** Units: **Sites per square-mile**
Formula: **Ascending**
Source: **EPA**
Geographic Level of Source: **Site address**

Description: The number of all EPA cleanup sites per square mile of MSA area. This measures the density of brownfield, superfund and other EPA sites in the MSA.

Minimum Value: **0.002409313**
Best Value: **0.004564694**
Worst Value: **0.283700652**
Maximum Value: **0.458674742**

Green/Yellow Threshold: **0.059**
Yellow/Orange Threshold: **0.1**
Orange/Red Threshold: **0.18**

Rationales: Best value set according to Average of top 5. Worst value set according to 2.5th Percentile. Dashboard set according to Jenks Natural Break.

Changes from 2017 Index: **Data updated to 2018.**

ANNEX D: SOURCES AND DEFINITIONS (Contd.)

16 PEACE, JUSTICE AND STRONG INSTITUTIONS

Violent crime Offences known to law enforcement

Year: **2016** Units: **Count per 100000 people**
Formula: **Descending**
Source: **FBI Uniform Crime Report**
Geographic Level of Source: **MSA + County**

Description: Number of offenses which involved force or threat of force per 100,000 population, as defined by the FBI's Uniform Crime Reporting Program. For 9 MSAs missing data we have aggregated available counties to extrapolate MSA figures.

Minimum Value: **8.505119262**
Best Value: **71.2968305**
Worst Value: **877.78**
Maximum Value: **1262.328908**

Green/Yellow Threshold: **330**
Yellow/Orange Threshold: **475**
Orange/Red Threshold: **650**

Rationales: Best value set according to Average of top 5. Worst value set according to 2.5th Percentile. Dashboard set according to Jenks Natural Break.

Changes from 2017 Index: **Data updated to 2016 and now calculated from MSA / county data.**

Deaths by firearms per 100,000 population

Year: **2008-2014** Units: **Count per 100000 people**
Formula: **Descending**
Source: **CDC**
Geographic Level of Source: **County**

Description: Deaths by firearm as reported in the National Vital Statistics System per 100,000 population.

Minimum Value: **2.08821571**
Best Value: **3.513175957**
Worst Value: **18.38979757**
Maximum Value: **25.61107442**

Green/Yellow Threshold: **7.8**
Yellow/Orange Threshold: **10.8**
Orange/Red Threshold: **13.9**

Rationales: Best value set according to Average of top 5. Worst value set according to 2.5th Percentile. Dashboard set according to Jenks Natural Break.

Changes from 2017 Index: **Now weighting by county population.**

REFERENCES

i Jones, C., and D. Kammen, (2014) Spatial Distribution of U.S. Household Carbon Footprints Reveals Suburbanization Undermines Greenhouse Gas Benefits of Urban Population Density, Environmental Science & Technology, Vol 48, Issue 2, Pages 895-902.

ii Several key indicators from the American Community Survey are disaggregated by racial group. For the purpose of this analysis, we have aggregated several racial groups into one category (non-white) to enable direct comparison with whites alone. Comparisons between whites and individual racial groups were considered, but were ruled out as ACS is a limited sample and sampling errors increase the smaller the sample size for any one comparison group.

iii US Bureau of Economic Analysis (2016), cited in http://www.visualcapitalist.com/map-economic- might-u-s-metro-area/ [Last accessed May 30, 2018].

iv https://www.imls.gov/research-evaluation/data-collection/museum-universe-data-file [Last accessed May 30, 2018].

v SDSN (2017) Achieving A Sustainable Urban America: U.S. Cities SDG Index 2017. New York: Sustainable Development Solutions Network (SDSN). Available at: https://undsdsn.org/[Last accessed May 11, 2018]; Cohen, D., (2015) Population Trends in Incorporated Places, Washington D.C: U.S. Census Bureau. Available at: https://www.census.gov/library/publications/2015/demo/p25-1142.html [Last accessed July 27, 2017].

vi See for example Bird, K. (2007) The intergenerational transmission of poverty: An overview. Working Paper 99. Manchester: IDPM/Chronic Poverty Research Centre (CPRC). Available at: https://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/885.pdf [Last accessed May 11, 2018].

vii Metropolitan Statistical Areas (MSAs), defined by the US Office of Management and Budget, are delineated regions consisting of an urban core and the surrounding communities that are highly integrated with that core. According to 2016 Census Bureau estimations, 85.5% of the 318.6 million U.S. population lives within an MSA. Due to data limitations, this analysis only considers 100 of the most populous 382 MSAs, but this covers 66.2% of the U.S. population and 77.4% of the combined MSA population.

viii SDSN (2016) Getting Started with the SDGs in Cities: A Guide for Stakeholders, New York: Sustainable Development Solutions Network. Available at https://sdgcities.guide/[Last accessed August 1, 2017]; SDG Academy (2017) Sustainable Cities – A Massive Open Online Course, Available at SDGAcademy.org [Last accessed August 1, 2017].

ix Goals 14 (Life under Water) and Goal 17 (Global Partnership) are excluded as they are not directly relevant for all US cities e.g. many cities are land-locked and others do not have strong international connections. In addition, only MSAs that have data missing for five or fewer indicators have been included.

x For more information on the IAEG-SDG and to view the official set of global SDG indicators visit: https://unstats.un.org/sdgs/iaeg-sdgs/ [Last accessed: May 11, 2018].

xi Several key indicators from the American Community Survey are disaggregated by racial group. For the purpose of this analysis, we have aggregated several racial groups into one category (non-white) to enable direct comparison with whites alone. Comparisons between whites and individual racial groups were considered, but were ruled out as ACS is a limited sample and sampling errors increase the smaller the sample size for any one comparison group.

xii Bird, K., (2007) The Intergenerational Transmission of Poverty: An Overview, ODI Working Paper 286, ODI: London.

xiii There is an extensive literature on this, but see, for example, Batana, Y., et al., (2013) Global extreme poverty rates for children, adults and the elderly, Economic Letters 120, Pages 405-407.

xiv This is an extensive literature on child poverty, nutrition and educational outcomes, for example Walker S., et al., (2007) Child development: risk factors for adverse outcomes in developing countries, The Lancet, Vol 369 Issue 9556, 13–19 January 2007, Pages 145-157.

xv See for example research by The National Bureau of Economic Research http://www.nber.org/aginghealth/summer04/w104 66.html[Last accessed May 11, 2018].

xvi For more information visit their website. Available at: http://coolclimate.berkeley.edu/index [Last accessed August 1, 2017].

xvii Urban Institute (2017) SDG Data Dashboard for US Cities, Urban Institute: Washington, D.C. Available at https://www.urban.org/research/publication/hacking-sustainable-development-goals [Last accessed May 30. 2018].

xviii UN (2016) Report of the Inter-Agency and Expert Group on SDG Indicators, E/CN.3/2017/2, Item 3 of the 48th Statistical Commission. Report available at: https://unstats.un.org/unsd/statcom/48th-session/documents/2017-2-IAEG-SDGs-E.pdf[Last accessed March 20, 2017.

xix Sachs, J., Schmidt-Traub, G., Kroll, C., Durand-Delacre, D and K. Teksoz, (2017): SDG Index and Dashboards Report 2017. New York: Bertelsmann Stiftung and Sustainable Development Solutions Network (SDSN). Available at: http://sdgindex.org/ [Last accessed May 30, 2018].

xx Feeding America,(2014) Map the Meal Gap 2014 Study Uncovers U.S. Food Insecurity Reaching Every County in the Nation. Available at: http://www.feedingamerica.org/ about-us/press-room/map-the-meal-gap-2014-study- uncovers-us-food-insecurity-reaching-every-county-in- the-nation.html [Last accessed May 29, 2018].

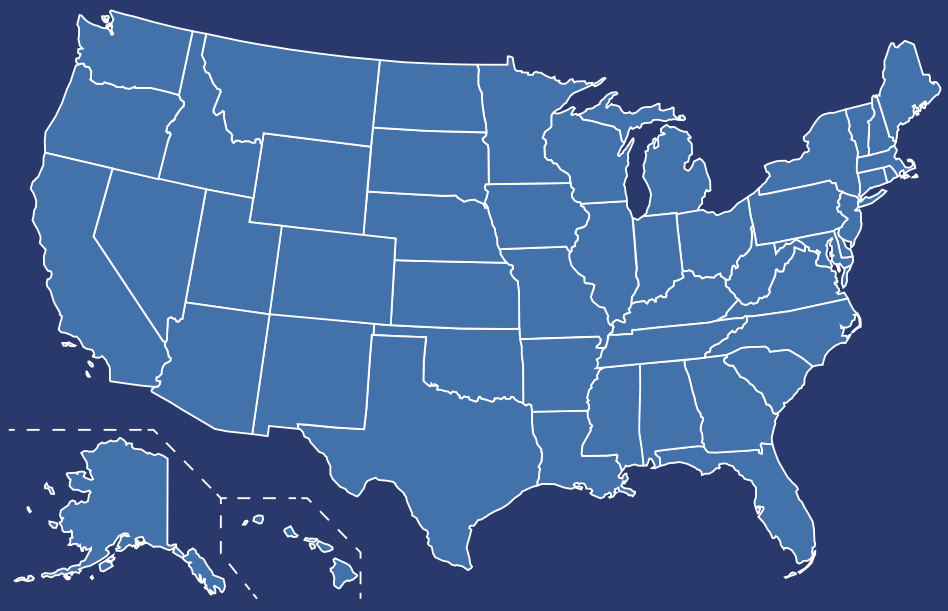
xxi Smart Growth America (2014) 'Measuring Sprawl 2014'. Available at https://smartgrowthamerica.org/resources/measuring-sprawl-2014/ [Last accessed May 29, 2018].

Leaving No U.S. City Behind

THE U.S. CITIES SUSTAINABLE DEVELOPMENT GOALS INDEX

ISSUE 2018

The United States of America (U.S.) is often referred to as the land of opportunity. It is the world's richest large economy, home to many of the world's leading technologies and institutions of higher learning. Yet, for many in the U.S. these opportunities are unattainable. Gender, age, race and income determine how easily a person can access education, healthcare and economic opportunities. And compounding all of these vulnerabilities is geography. Where a person is born can have a huge impact on their ability to access social and economic opportunities, while also affecting the sustainability of the environment in which they live. This problem is particularly apparent in American cities and urban areas, which are home to 85.5 percent of the domestic population. The Sustainable Development Goals (SDGs), universally adopted by the world's governments in 2015, aim to set a framework for action on economic development, social inclusion, and environmental sustainability. This second, improved edition of the U.S. Cities SDG Index aims to help urban leaders identify the many sustainable development challenges affecting their cities, including inequality of opportunity. The Index covers the 100 most populous cities (measured as Metropolitan Statistical Areas, or MSAs) in the U.S., accounting for 66 percent of the domestic population. It synthesizes data available today across 44 indicators spanning 15 of the 17 SDGs that apply to urban areas. The data provide a more holistic and comprehensive assessment of the sustainable development challenges faced by U.S. cities than is available through other metrics. Results show that all U.S. cities, even those at the top of the Index, have far to go to achieve the SDGs; as many as 62 cities are less than half way there. Common challenges for all cities include eradicating poverty (Goal 1), healthy food and diets (Goal 2), health and wellbeing for all (Goal 3), gender equality (Goal 5), providing affordable and clean energy for all (Goal 7), reducing inequality (Goal 10) and climate action (Goal 13). Progress on the social and economic dimensions of sustainable development will require local government leaders to examine inequality and disadvantage within their cities and communities. In nine MSAs in the sample of 100 MSAs studied, child poverty rates were 50 percent higher than that of the overall local poverty rate, while in more than half of the MSAs, the poverty rate amongst non-whites was twice that of whites. To tackle these systemic inequalities, local government leaders need to adopt long-term, targeted social policies and also invest in more disaggregated data to better identify specific areas for improvement.



SUSTAINABLE DEVELOPMENT SOLUTIONS NETWORK
A GLOBAL INITIATIVE FOR THE UNITED NATIONS