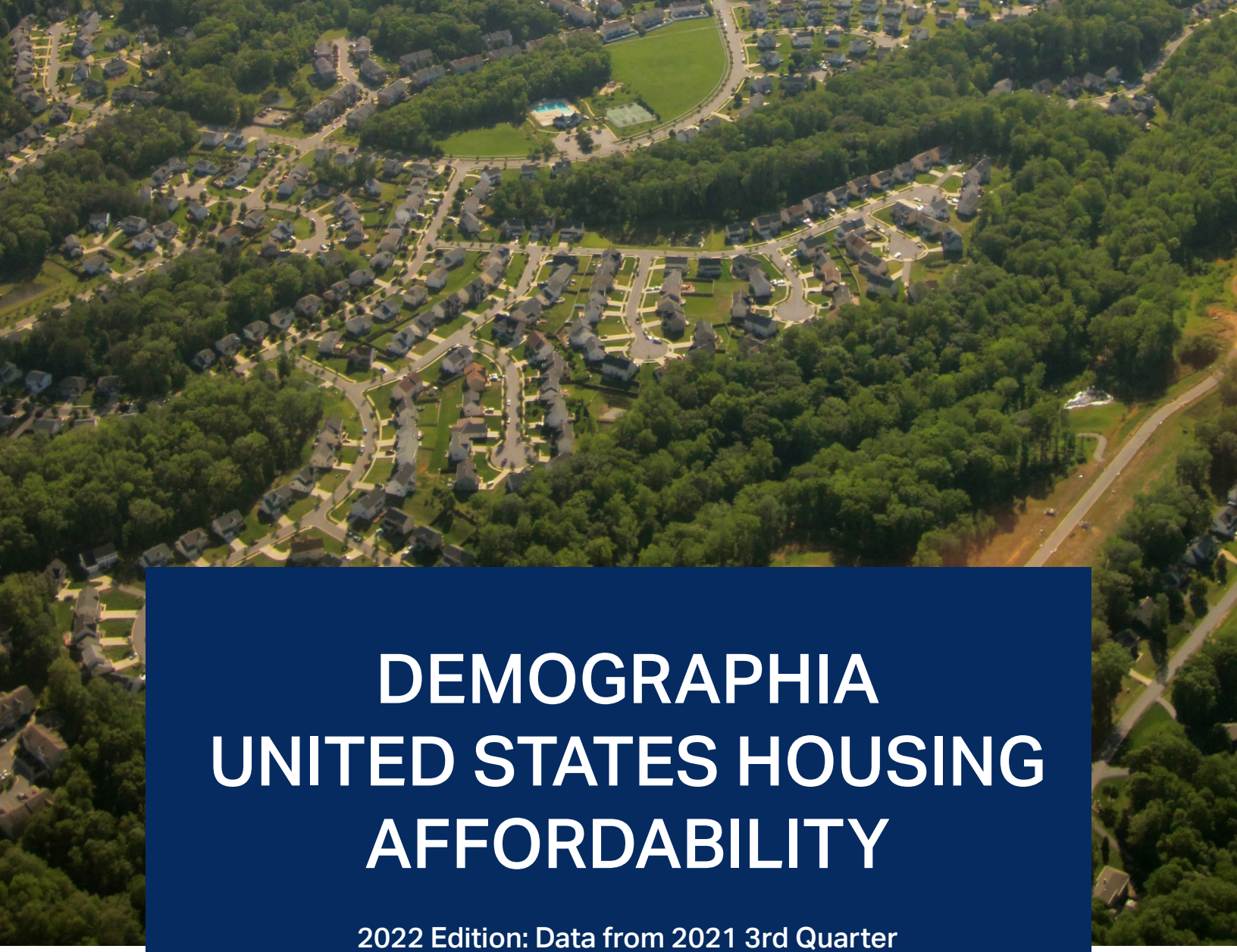


DEMOGRAPHIA UNITED STATES HOUSING AFFORDABILITY

2022 Edition: Data from 2021 3rd Quarter

Supplement to Demographia International Housing Affordability: 2022 Edition

June 2022

by Wendell Cox

Presented by the Urban Reform Institute

Urban Reform Institute
a center for
opportunity urbanism

Urban Reform Institute (URI)
is a 501(c)(3) national think tank.
URI focuses on the study of cities
as generators of upward mobility.

For a comprehensive collection of URI
publications and commentary, go to
urbanreforminstitute.org

TABLE OF CONTENTS

TABLES

FIGURES

Urban Reform Institute
a center for
opportunity urbanism

Introduction

The Urban Reform Institute is pleased to present the 2022 edition of ***Demographia United States Housing Affordability***. This report provides housing affordability ratings, using the median multiple, a measurement of income in relation to housing prices, or 189 major markets (metropolitan areas) for the third quarter of 2021.

It is not surprising that housing affordability — given the large influx of new buyers, particularly in suburban and outlying areas — has continued to deteriorate. As a result, many low income and middle-income households will see their standards of living further decline. The affordability issue is particularly critical and is accelerating the movement to more affordable places. It will likely also help flatten or even reduce prices in the highest cost housing markets as other households seek less costly housing elsewhere.

Wendell Cox is the author, having previously co-authored the annual ***Demographia International Housing Affordability Survey***, with Hugh Pavletich of Performance Urban Planning. Cox is a senior fellow at the Urban Reform Institute.

Charles Blain
President
Urban Reform Institute.
3900 Essex Lane, Suite 1200
Houston, Texas 77027

Executive Summary

Demographia United States Housing Affordability rates middle-income housing affordability in 189 US housing markets (metropolitan areas). This edition covers the third quarter (September quarter) of 2021.

Assessing Housing Affordability

Sometimes housing affordability is evaluated by simply comparing house prices. However, without consideration of incomes, housing affordability cannot be assessed with any real meaning for potential buyers. The very term "housing affordability" implies a relationship between housing costs and the ability to pay (or incomes).

Demographia United States Housing Affordability uses the "median multiple" to rate middle-income housing affordability. The median multiple is a price-to-income ratio, which is the median house price divided by the gross median household income (pre-tax).

Middle-income housing affordability is rated in four categories (Table ES-1)

Housing markets are metropolitan areas, which are also labor markets. In a well-functioning market, the median priced house should be affordable to a large portion of middle-income households, as was overwhelmingly the case a few decades ago.

Table ES-1
Demographia Housing Affordability Ratings

Housing Affordability Rating	Median Multiple
Affordable	3.0 & Under
Moderately Unaffordable	3.1 to 4.0
Seriously Unaffordable	4.1 to 5.0
Severely Unaffordable	5.1 & Over

Median multiple: Median house price divided by median household income

Housing affordability comparisons can be made, (1) between housing markets (such as comparison between Cincinnati and Pittsburgh) or (2) over time within the same housing market (such between years in Cincinnati).

The Pandemic Demand Shock

The pandemic has driven an unprecedented deterioration in housing affordability.

Many households have sought more living space (inside and outside) during the pandemic. This has resulted in a "demand shock" The demand for housing rose faster than could be readily supplied by developers and builders.

The number of severely unaffordable markets --- that is defined by median multiples over 5.0 --- in the United States rose 440% from 14 in 2019 (the last pre-pandemic year), to 76 in 2021.

US Housing Affordability in 2021

US housing affordability in 2021 is summarized by market in Table ES-2.

The number of markets rated "affordable" dropped to 9 in 2021, down 80 % from 44 last year. The most affordable markets were Peoria, IL (2.3), Davenport, IA (2.5), Rockford, IL and Pittsburgh, PA (2.7) --- the only "affordable" major markets, as well as Cedar Rapids, IA, McAllen, TX and Youngstown, OH-PA (2.9). Erie, PA and Utica-Roma had median multiples of 3.0.

The 76 severely unaffordable markets in 2021 represented a nearly 125% increase from the 34 in 2020 and up more than 440% from 14 in pre-pandemic 2019.

Table ES-2

Housing Affordability Ratings, United States: 3rd Quarter 2021

Rating	Median Multiple	# of Markets
Severely Unaffordable	5.1 & Over	76
Seriously Unaffordable	4.1 to 5.0	54
Moderately Unaffordable	3.1 to 4.0	50
Affordable	3.0 & Under	9
Median Market/Total Markets	4.6	189

Housing Affordability and Land Use Regulation

There is a broad view that declining housing affordability is driving higher costs of living that threaten the future of the middle-class.

In *Under Pressure: The Squeezed Middle-Class*, the OECD finds that the middle-class faces ever increasing costs of living and that rising owned house prices are the "main driver of rising middle-class expenditure."

In the United States more than 85% of cost of living differences between high cost and average cost metropolitan areas are due to housing costs.

Academic research associates the declining housing affordability over recent decades with stronger land use regulation. In particular, urban containment regulation can produce substantially higher costs. In Rethinking Urban Sprawl: Moving Toward Sustainable Cities, OECD concludes that urban containment strategies (such as urban growth boundaries and greenbelts) must be accompanied by sufficient land for urban expansion to maintain housing affordability. This land needs to be competitively priced to keep house prices from rising disproportionately to incomes. In housing markets with the least affordable housing, urban containment policy is typical.

Housing Affordability and Inequality

French economist Thomas Piketty's analysis has documented growing wealth inequality to the detriment of middle-income and lower income households. Other economists have found that much of this rising inequality is the result of inordinately increasing house values that have substantially retarded housing affordability. Reducing inequality requires material improvement in housing affordability . Policies should be adopted that restore the competitive market for land on the urban fringe and retain the competitive market where it remains robust.

DEMOGRAPHIA UNITED STATES HOUSING AFFORDABILITY: 2022 EDITION

(Data from 3rd Quarter 2021)
Supplement to Demographia International Housing Affordability: 2022 Edition — June 2022

1: Assessing Housing Affordability

Demographia United States Housing Affordability rates middle-income housing affordability in the third quarter 2021. The report is a supplement to Demographia International Housing Affordability[1], the 2022 edition, which covered 92 major housing markets (1,000,000 or more population) in 8 nations (Australia, Canada, China [Hong Kong only], Ireland, New Zealand, Singapore, the United Kingdom and the United States)[2]. Demographia United States Housing Affordability provides ratings in 189 markets, including the 56 major US metropolitan areas included in the international report.

1.1: Defining Housing Affordability

Housing affordability cannot be measured by house prices alone. The term "affordability" necessarily must be put into the context of ability to pay. Housing affordability is the relationship between house prices and incomes. Demographia uses the median multiple --- a price to income ratio --- to rate housing affordability.

Price-to-income ratios have been widely used, such as by the World Bank[3], the United Nations, the Organization for International Cooperation and Development (OECD), the Joint Center for Housing Studies at Harvard University and others. The median multiple is calculated by dividing the median house price by the gross median household income.

Housing affordability measures that use median house prices and median incomes are useful for evaluating middle-income housing affordability, because, unlike averages, higher incomes and luxury housing do not skew measures higher.

1.2: Rating Housing Affordability (The Median Multiple)

Demographia rates middle-income housing affordability in four categories, ranging from the most affordable ("affordable") to the least affordable ("severely unaffordable"), as is indicated in Table 1.

1 The 2020 edition the Demographia International Housing Affordability Survey (https://urbanreforminstitute.org/2021/02/demographia-international-housing-affordability-2021-edition/) was featured in the Global Housing Watch Newsletter (April 20, 2020), published by the International Monetary Fund (IMF).

2 *Demographia International Housing Affordability* provides analysis similar to the major market analysis in the 16 editions of the *Demographia International Housing Affordability Survey*, co-authored by Wendell Cox and Hugh Pavletich (2005 to 2020).

3 *The Housing Indicators Program,* http://siteresources.worldbank.org/INTURBANDEVELOPMENT/Resources/336387-1169578899171/rd-hs7.htm. Also see Shlomo Angel, *Housing Policy Matters: A Global Analysis.* Oxford University Press, 2000.

The "affordable" rating category is based on price to income ratios. As late as the 1990s, price-to-income ratios were at or below 3.0 in the United States, Australia, Ireland, New Zealand, the United Kingdom, and the United States.[4]

This was before the broad implementation and strengthening of restrictive land use policies (especially urban containment policy), which have been identified with deteriorating housing affordability (Section 4) Since then there have been large fluctuations in relative affordability, particularly at the individual housing market level.

Table 1
Demographia Housing Affordability Ratings

Housing Affordability Rating	Median Multiple
Affordable	3.0 & Under
Moderately Unaffordable	3.1 to 4.0
Seriously Unaffordable	4.1 to 5.0
Severely Unaffordable	5.1 & Over

Median multiple: Median house price divided by median household income

1.3: Evaluating Affordability in Metropolitan Housing Markets

Demographia International Housing Affordability focuses on the housing market level (metropolitan area)[5] because there are substantial affordability differences within the nation, which has often received insufficient attention among some analysts and the media. Demographia International Housing Affordability does not evaluate affordability within metropolitan areas, such as for individual municipalities or neighborhoods.

Housing affordability comparisons are made:

1. Between housing markets (such as comparison between the Chicago and Dallas-Fort Worth markets) or
2. Over time within the same housing market (such between years in the Chicago market).

2: U.S. Housing Affordability: Recent Historic Context

After a quarter century of widespread and stable housing affordability following World War II, housing affordability began to deteriorate in the 1970s, when much more stringent land use

4 See: Anthony Richards, *Some Observations on the Cost of Housing in Australia*, Address to 2008 Economic and Social Outlook Conference The Melbourne Institute, 27 March 2008 http://www.rba.gov.au/speeches/2008/sp-so-270308.html. This research included all nations covered in the *Demographia International Housing Affordability Survey* except for Ireland. The Richards research is also illustrated in the of the National Housing Council of Australia, http://www.fahcsia.gov.au/sa/housing/pubs/housing/national_housing_supply/Documents/default.htm (Figure 1.1).

5 "Housing markets" in this report refers to metropolitan areas (which are labor markets, defined by commuting patterns).

regulations were imposed over some housing markets (at the regional or metropolitan area level). This is in contrast to the longer standing local zoning regulations imposed by cities and towns (municipalities).

Median Multiples in the United States were virtually all "affordable" (3.0 or below) in today's major markets until 1969. This includes even California, where the most unaffordable housing in the nation is concentrated, but in 1969 all its markets were rated "affordable." More than 60% of US major housing markets still had "affordable" median multiples (3.0 or lower) as late as 2000.[6] By 2021, there was only one "affordable" major market (Pittsburgh). But even as other areas saw relative prices rise, California emerged as "ground zero" for the severity of its housing affordability, which has worsened than during the housing bubble (Figure 1).

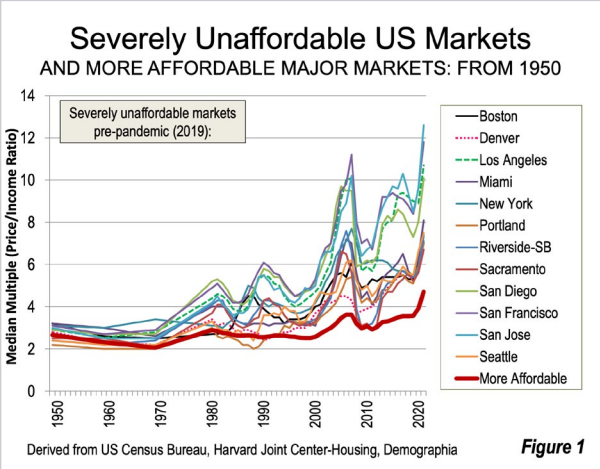


Figure 1

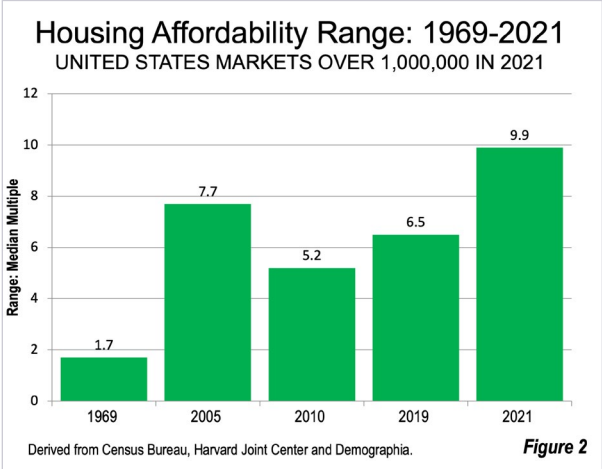


Figure 2

In 1969, the difference between the least affordable and most affordable major housing markets was 1.7 median multiple points (1.7 years of median household income). By 2021, this had risen to 9.9 points, an increase of almost 500% (Figure 2).

In 1995, only one of today's 56 major housing markets, Honolulu, was rated severely unaffordable (median multiple over 5.0). In 2000, San Francisco joined Honolulu as the second severely unaffordable major market. There was a temporary rise to 14 severely unaffordable markets in the housing bubble (2005), then a drop back to 6 during the Great Recession. Since then, things have worsened, starting in the years before the pandemic, as is indicated in Figure 3.

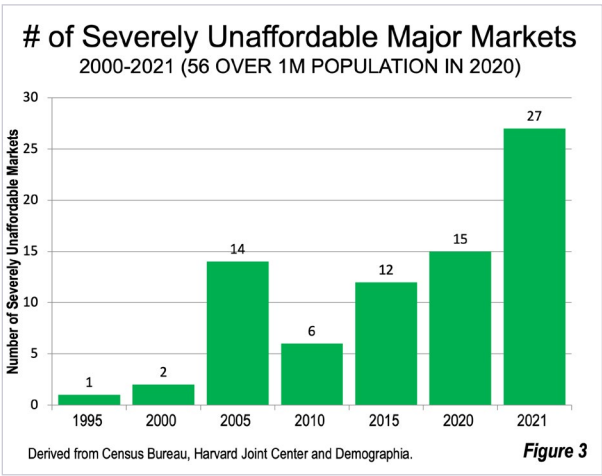


Figure 3

6 Derived from Harvard Joint Center for Housing Studies.

3: The Pandemic Demand Shock

During the pandemic, housing affordability further worsened, as many households have had their incomes decline, and house prices have escalated to unprecedented heights. Housing affordability, already a top public policy issue, has become even more important in this environment.

Many households have sought more living space (inside and outside) during the pandemic. This has resulted in a "demand shock" ("a sudden unexpected event that dramatically increases or decreases demand for a product or service, usually temporarily"). The demand for housing rose faster than could be readily supplied by developers and builders.

The number of severely unaffordable major markets had increased to 15 by the pre-pandemic year of 2019 and by 2021 had since risen to 27 (Figure 3, above).

The severity of the housing affordability deterioration is illustrated in Figure 4, which compares the change in housing affordability from 2000 to 2021 in major markets that had become severely unaffordable before the pandemic (2019). In the coastal California markets (San Francisco, San Jose, Los Angeles, and San Diego) and Honolulu, house prices more than doubled relative to household incomes, roughly as much as from 1970 to 2000.

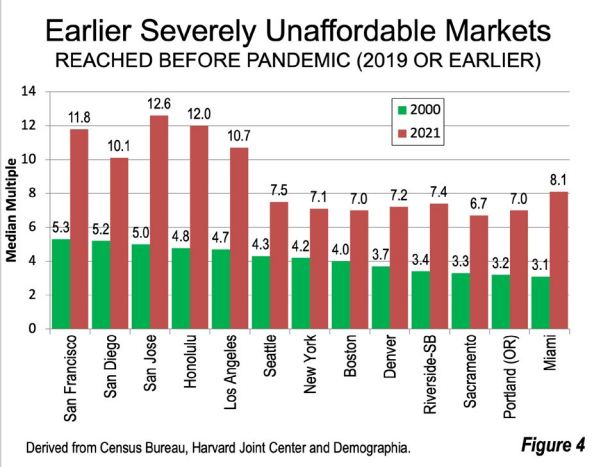


Figure 4

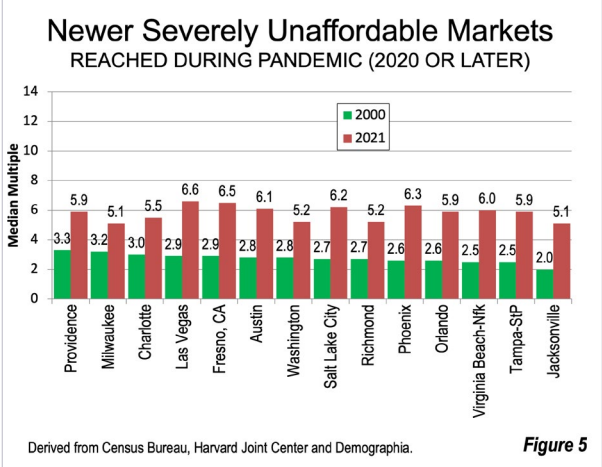


Figure 5

The major markets that became severely unaffordable during the pandemic (2020 or 2021) experienced median multiple increases from nearly 60% over the past two decades in Milwaukee to more than 150% in Jacksonville (Figure 5).

Overall Trend

There was also broad deterioration in housing affordability among all markets, including those with populations under 1,000,000. Over the past

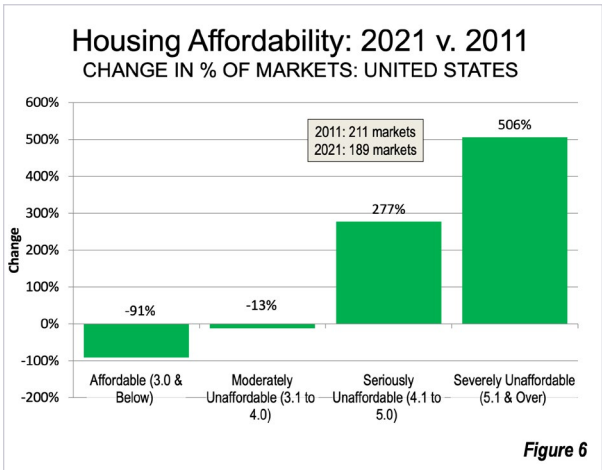


Figure 6

10 years, there has been a reduction of more than 90% in markets ranked "affordable" and a 13% reduction in markets rated "moderately unaffordable."[7]

In contrast, the share of markets rated "seriously unaffordable" has risen 277%. Severely unaffordable markets have risen more than 500% (Figure 6, above).

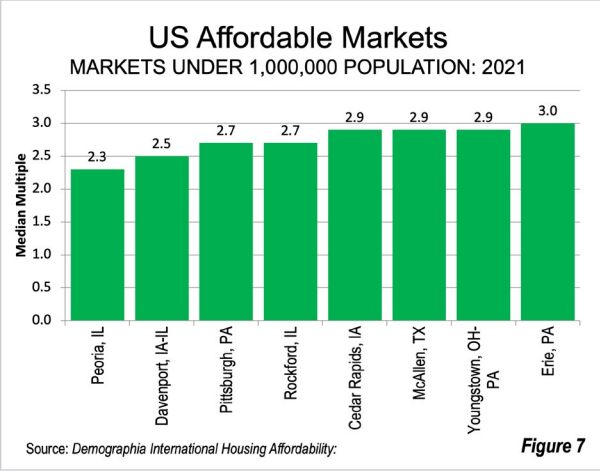
4: Housing Affordability in 2021

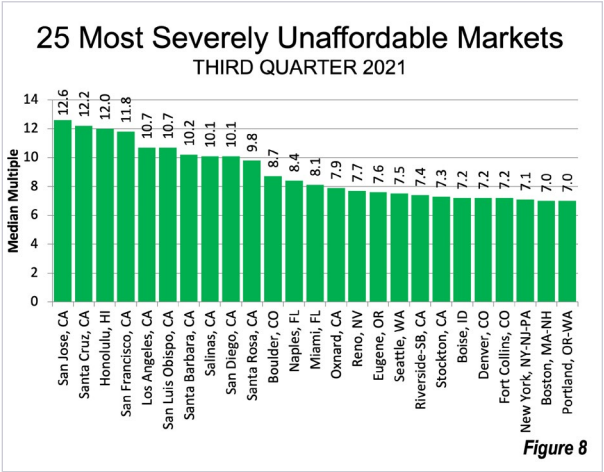
Overall, the United States has a moderately unaffordable Median Multiple of 4.6, deteriorating from last year's 3.9. Yet, remarkably the United States still has the best housing affordability among major countries in this year's edition of ***Demographia International Housing Affordability.*** Third quarter 2021 housing affordability ratings are summarized for US markets in Table 2.

Table 2
Housing Affordability Ratings, United States: 3rd Quarter 2021

Rating	Median Multiple	# of Markets
Severely Unaffordable	5.1 & Over	76
Seriously Unaffordable	4.1 to 5.0	54
Moderately Unaffordable	3.1 to 4.0	50
Affordable	3.0 & Under	9
Median Market/Total Markets	4.6	189

The number of markets rated "affordable" dropped to 9 in 2021, down 80 % from 44 last year. The most affordable markets were Peoria, IL (2.3), Davenport, IA (2.5), Rockford, IL and Pittsburgh, PA (2.7) --- the only "affordable" major market, as well as Cedar Rapids, IA, McAllen, TX and Youngstown, OH-PA (2.9). Erie, PA, and Utica-Roma had median multiples of 3.0 (Figure 7).





7 2021 third quarter compared to 2011 third quarter.

The 76 severely unaffordable markets in 2021 represented a nearly 125% increase from the 34 in 2020 and up more than 440% from 14 in pre-pandemic 2019. The most severely unaffordable markets were San Jose (12.6), Santa Cruz (12.2), Honolulu (12.0), San Francisco (11.8) and Los Angeles (10.7). Nine of the 10 least affordable markets were in California, and 11 of the least affordable 25. Colorado had three of the 25 least affordable markets, followed by Oregon with two (Figure 8, above).

There were 54 additional severely unaffordable markets, which are summarized in Table 3 (below), which is sorted first by the percentage of markets that are severely unaffordable and then by the number of severely unaffordable markets.

All 19 of the California markets are severely unaffordable, followed by all six in Washington, all five in Colorado, and all three in Oregon and Utah. Each of the two markets in Nevada and Arizona are severely unaffordable, along with the single markets in Hawaii, Idaho, Maine, Rhode Island, the District of Columbia,[8] and New Mexico.

Fifteen of Florida's 16 markets are severely unaffordable.

All markets are ranked by their housing affordability (median multiple) in "Table 4" on page 17 and "Table 5" on page 20 shows all markets in alphabetical order.

Table 3
Severely Unaffordable Markets by State/DC: 2021

State/DC	Severely Unaffordable Markets	# of Severely Unaffordable Markets	Metropolitan Area	Median Multiple
California	100%	19	San Jose, CA	12.6
			Santa Cruz, CA	12.2
			San Francisco, CA	11.8
			Los Angeles, CA	10.7
			San Luis Obispo, CA	10.7
			Santa Barbara, CA	10.2
			Salinas, CA	10.1
			San Diego, CA	10.1
			Santa Rosa, CA	9.8
			Oxnard, CA	7.9
			Riverside-San Bernardino, CA	7.4
			Stockton, CA	7.3
			Vallejo, CA	6.9
			Modesto, CA	6.7

8 The Washington DC-VA-MD-WV market, with its core in the District of Columbia is more than 90% outside DC. Most of this population is in Virginia and Maryland.

Table 3
Severely Unaffordable Markets by State/DC: 2021

State/DC	Severely Unaffordable Markets	# of Severely Unaffordable Markets	Metropolitan Area	Median Multiple
			Sacramento, CA	6.7
			Fresno, CA	6.5
			Merced, CA	6.1
			Bakersfield, CA	5.7
			Visalia, CA	5.5
Washington	100%	6	Seattle, WA	7.5
			Spokane, WA	6.7
			Bremerton, WA	6.2
			Yakima, WA	6.0
			Kennewick, WA	5.8
			Olympia, WA	5.5
Colorado	100%	5	Boulder, CO	8.7
			Denver, CO	7.2
			Fort Collins, CO	7.2
			Colorado Springs, CO	6.1
			Greeley, CO	5.7
Oregon	100%	3	Eugene, OR	7.6
			Portland, OR-WA	7.0
			Salem, OR	6.5
Utah	100%	3	Salt Lake City, UT	6.2
			Provo, UT	5.9
			Ogden, UT	5.5
Nevada	100%	2	Reno, NV	7.7
			Las Vegas, NV	6.6
Arizona	100%	2	Phoenix, AZ	6.3
			Tucson, AZ	6.0
Hawaii	100%	1	Honolulu, HI	12.0
Idaho	100%	1	Boise, ID	7.2
Maine	100%	1	Portland, ME	6.0
Rhode Island	100%	1	Providence, RI-MA	5.9
District of Columbia	100%	1	Washington, DC-VA-MD-WV	5.2
New Mexico	100%	1	Albuquerque, NM	5.1

Table 3
Severely Unaffordable Markets by State/DC: 2021

State/DC	Severely Unaffordable Markets	# of Severely Unaffordable Markets	Metropolitan Area	Median Multiple
Florida	94%	15	Naples, FL	8.4
			Miami, FL	8.1
			Gainesville, FL	6.5
			Sarasota, FL	6.3
			Fort Walton Beach, FL	6.0
			Orlando, FL	5.9
			Tampa-St. Petersburg, FL	5.9
			Cape Coral, FL	5.8
			Melbourne, FL	5.6
			Daytona Beach, FL	5.5
			Port St. Lucie, FL	5.5
			Lakeland, FL	5.4
			Tallahassee, FL	5.3
			Pensacola, FL	5.2
			Jacksonville, FL	5.1
Massachusetts	67%	2	Boston, MA-NH	7.0
			Worcester, MA-CT	5.1
North Carolina	44%	4	Asheville, NC	6.4
			Wilmington, NC	6.4
			Charlotte, NC-SC	5.5
			Durham, NC	5.4
South Carolina	40%	2	Myrtle Beach, SC-NC	5.4
			Charleston, SC	5.3
Maryland	33%	1	Salisbury, MD-DE	5.2
Wisconsin	33%	1	Milwaukee, WI	5.1
Connecticut	25%	1	Bridgeport-Stamford, CT	6.8
Virginia	25%	1	Richmond, VA	5.2
New York	17%	1	New York, NY-NJ-PA	7.1
Tennessee	17%	1	Knoxville, TN	5.1
Texas	7%	1	Austin, TX	6.1

5: Housing Affordability and Land Use Regulation

There is a broad view that deteriorating housing affordability is an existential threat to the middle-class.[9]

In *Under Pressure: The Squeezed Middle-Class*, the OECD: "finds that the middle-class faces ever rising costs relative to incomes and that its survival is threatened." Further that "…, the cost of essential parts of the middle-class lifestyle have increased faster than inflation; house prices have been growing three times faster than household median income over the last two decades." Further OECD found that "Housing has been the main driver of rising middle-class expenditure," with the largest increases in the costs of ownership (or housing affordability), rather than rents.

Urban Reform Institute Executive Director Joel Kotkin's book *The Coming of Neo-Feudalism: A Warning to the Global Middle Class* provides a similar perspective.

Housing and the Cost of Living

In the United States more than 85% of cost-of-living differences between metropolitan areas (Figure 9) are due to housing costs.[10] Similarly, Bloomberg[11] reports that nearly all of London's higher cost of living is associated with higher housing costs. Richard Florida[12] of the University of Toronto has noted "differences in living costs are basically all about housing."

A considerable body of research associates the deterioration of housing affordability of recent decades with stronger land use regulation.[13]

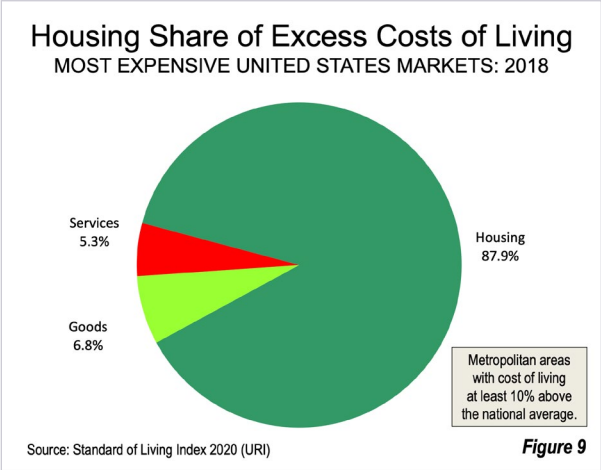


Figure 9

Many housing markets have adopted particularly stringent land use regulation, in urban containment strategies (See: Urban Containment, below), which are associated with substantially higher land costs.

9 This section is adapted from *Demographia International Housing Affordability,* 2022 edition.

10 Wendell Cox (May 2020), URI Standard of Living Index, Urban Reform Institute, https://urbanreformintitute.org/wp-content/uploads/2020/05/URI-2020-Standard-of-Living-Index.pdf

11 "Life after London covid era exodus is'nt just for the wealthy, "Bloomberg, December 29, 2020. https://www.bloomberg.com/news/articles/2020-12-29/life-after-london-covid-era-exodus-isn-t-just-for-the-wealthy

12 Richard Florida, Where Is the Best City to Live, Based on Salaries and Cost of Living? Bloomberg City Lab, September 5, 2019, https://www.citylab.com/life/2019/09/cost-of-living-best-worst-cities-housing-adjusted-salaries/597376

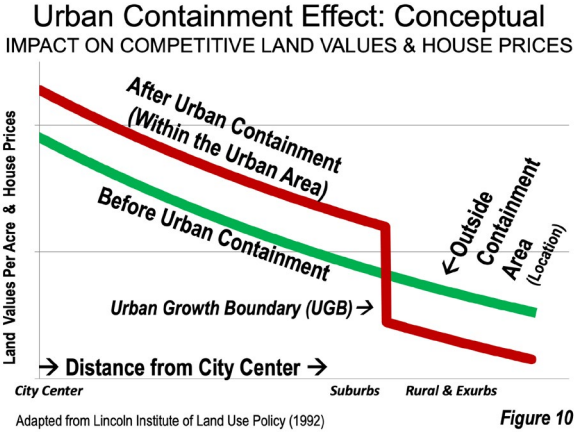
13 See, for example, K. Herkenhoff, L. Ohanian, and E. Prescott. 2018. "Tarnishing the Golden and Empire States: Land-Use Restrictions and the U.S. Economic Slowdown." Journal of Monetary Economics. https://www.nber.org/system/files/working_papers/w23790/w23790.pdf, Edward Glaeser and Joseph Gyourko. 2018. "The Economic Implications of Housing Supply." Journal of Economic Perspectives, https://www.aeaweb.org/articles?id=10.1257/jep.32.1.3, Chang-Tai Hsieh and Enrico Moretti. 2019. "Housing Constraints and Spatial Misallocation." American Economic Journal: Macroeconomics, https://www.aeaweb.org/articles?id=10.1257/mac.20170388, Wendell Cox, "A Question of Values: Middle-Income Housing Affordability and Urban Containment Policy," Frontier Centre for Public Policy, 2015. https://fcpp.org/sites/default/files/documents/Cox%20-%20A%20Question%20of%20Values.pdf.

Urban Containment

In *Rethinking Urban Sprawl: Moving Toward Sustainable Cities*, OECD concludes that urban containment policies, such as urban growth boundaries and greenbelts can lead to higher house prices, unless sufficient land is maintained for urban expansion (See: "Urban Containment" below). In housing markets with the least affordable housing, urban containment policy is typical.

The largest housing affordability differences are between major markets with costly urban fringe[14] restrictions on housing and more lightly regulated markets. These higher costs are largely the result of strongly escalating land costs. These measures are referred to as "urban containment" which includes related "growth management" and "compact city" policies. A principal purpose of urban containment is to curb the physical expansion of urban areas – that is, conversion of rural land to urban land ("urban sprawl"[15]). Whatever its advantages, urban containment has been associated with huge cost of living and housing cost escalation relative to incomes. This "urban containment effect" can impose an overbearing social cost in much higher prices for households and long subsidized housing waiting lists.

Urban containment's prototypical strategy is urban growth boundaries (or greenbelts) that encircle urban areas. Urban containment also includes other strategies such as so-called "growth areas," which are rationed allotments on the urban periphery where development is allowed, but banned in others and "infill" quotas, which limit peripheral development based on achievement of development goals in the already developed area. Urban containment makes it impossible to profitably build tracts of housing affordable to middle-income households due to much higher land prices. According to urban planning literature: "Urban development is steered to the area inside the line and discouraged (if not prevented) outside it." Urban containment is contrasted with "...traditional approaches to land use regulation by the presence of policies that are explicitly designed to limit the development of land outside a defined urban area..."[16]



Harvard University's William Alonso showed that the value of land tends to rise from the low agricultural values outside the built-up urban area to the center.[17] Normally, without urban containment, land values tend to rise gradually, as distances increase from the center. As noted above,

14 Where urbanization meets rural (such as agricultural) land.
15 Judge Glock, "Sprawl is Good: The Environmental Case for Suburbs," https://thebreakthrough.org/journal/no-15-winter-2022/sprawl-is-good-green
16 Arthur C. Nelson and Casey J. Dawkins (2004), "Urban Containment in the United States: History, Models and Techniques for Regional and Metropolitan Growth Management, "American Planning Association Planning Advisory Service
17 William Alonso (1964), *Location and Land Use: Toward a General Theory of Land Rent* (Cambridge, Massachusetts, Harvard University Press).

urban containment, leads to land value increases, pushing them up not just on the fringes but are higher throughout the entire area of urban containment (Figure 10[18]).

Indeed, higher land prices are both an expected and intended result.[19] Planners anticipated that the higher land prices would be counterbalanced by more dense development, which was expected to maintain housing affordability within the contained area. Yet, house prices have often risen at an unprecedented rate in markets with urban containment regulation.

The OECD described how this can happen. In ***Rethinking Urban Sprawl: Moving Toward Sustainable Cities***, the OECD cautions that housing affordability can deteriorate if sufficient developable land is not kept available within urban growth boundaries.[20] This urban expansion land must be large enough to retain the competitive market for land, a point stressed by Anthony Downs of the Brookings Institution.[21]

One of the world's leading urbanists, Professor Shlomo Angel, Director of the Urban Expansion Project at New York University[22] raises concerns about urban containment. Angel said: "I'm for making room. And the reason that I'm for making room is that I'm for keeping cities affordable. And if you don't make enough room, then cities are no longer affordable."[23] According to Angel, et al: "… the explicit containment of urban expansion— by greenbelts, as in Seoul, Korea or in English cities, by urban growth boundaries, as in Portland, Oregon, or by environmental restrictions as in California—has inevitably been associated with declines in housing affordability."[24]

Angel and his research team also note that the "compact city paradigm" (which includes urban containment) dominates the approach to exurban development around the world.[25] As a, result virtually any housing market can be threatened by the imposition of urban containment policy, or other strong land use policies that have the potential to increase middle-income housing prices relative to incomes. Moreover, compact city policies are generally inconsistent with the increasingly dispersed demography and the shift of jobs to the periphery. Policies designed to restrict peripheral growth tend to raise urban prices.

18 Figure is adapted from other works dealing with urban containment policy. Other graphical representations can be found in Gerrit Knaap and Arthur C. Nelson, The Regulated Landscape: Lessons on State Land Use Planning from Oregon, Cambridge, Massachusetts: Lincoln Institute of Land Policy, 1992; William A. Fischel, Zoning Rules! The Economics of Land-use Regulation, Lincoln Institute of Land Policy, 2015; Gerard Mildner, "Public Policy & Portland's Real Estate Market," Quarterly and Urban Development Journal, 4th Quarterly 2009: 1-16, and others. Without urban containment, the land value gradient is smooth (the green line labeled "Before Urban Containment"). With urban containment an abrupt increase occurs at and within the urban containment boundary (the red line labeled "After Urban Containment").

19 Arthur C. Nelson and Casey J. Dawkins, Urban Containment in the United States: History, Models and Techniques for Regional and Metropolitan Growth Management, American Planning Association Planning Advisory Service. https://www.researchgate.net/publication/288101674_Urban_containment

20 Organization for Economic Cooperation and Development (OEDC), Rethinking Urban Sprawl: Moving Towards Sustainable Cities. 2018, https://www.oecd.org/publications/rethinking-urban-sprawl-9789264189881-en.htm

21 Anthony Downs, *New Visions for Metropolitan America*, (1994), https://www.brookings.edu/book/new-visions-for-metropolitan-america/

22 Angel has advised the United Nations, the World Bank, and the Inter-American Development Bank.

23 NYU Marron Newsletter, March 3, 2021. Transcript extract from https://marroninstitute.nyu.edu/blog/solly-angel-discusses-complex-challenges-of-the-development-and-expansion-of-cities (podcast in English).:

24 Shlomo Angel, Patrick Lamson-Hall, Alejandro Blei, Sharad Shingade and Suman Kumar (2021), "Densify and Expand: A Global Analysis of Urban Growth, Sustainability, https://www.mdpi.com/2071-1050/13/7/3835.

25 Shlomo Angel, Patrick Lamson-Hall, Alejandro Blei, Sharad Shingade and Suman Kumar (2021), "Densify and Expand: A Global Analysis of Urban Growth, Sustainability, https://www.mdpi.com/2071-1050/13/7/3835.

As Alain Bertaud, former principal urban planner at the World Bank notes, urban growth boundaries and greenbelts put "arbitrary limits on city expansion" and that "the result is predictably higher prices."[26]

The largest housing affordability losses have been in markets with urban containment. Before the current demand shock (2019), all severely unaffordable markets had urban containment.

Long-time Reserve Bank of New Zealand Governor Donald Brash[27] commented on the continuing failure of public policy to restore housing affordability, despite political promises to the contrary: "One thing I can say with confidence, however, is that house prices will not return to more affordable levels until land becomes available at more reasonable prices."

Low-Income Housing

Further, excessive regulation is also associated with higher costs for both low-income owned and rental housing. Eligibility for subsidized housing generally depends on housing costs exceeding a housing cost threshold (such as 30% of household income) As the market price of housing increases, more households are unable to afford market rate housing and seek subsidies.[28]

Unlike market rate housing, subsidized housing is often not readily available. Many such households are placed on waiting lists, because there is not enough subsidized housing to serve the legally defined need. Yet households in need of subsidized housing need readily available and adequate housing.

6: Housing Affordability and Inequality

There is considerable concern about rising income and wealth inequality in the United States and beyond. French economist Thomas Piketty's analysis showed significantly increasing inequality around the world.[29] Much of greater inequality Piketty described is attributable to owned house values, which have risen strongly above household incomes, according to research by Matthew Rognlie, now at Northwestern University.[30] In a Bank for International Settlements (Berne) paper, Reserve Bank of Australia economist Gianni La Cava found that rising inequality in the United States was largely associated with increased housing values in markets with more severe housing supply constraints.[31]

26 Bertaud, *Order Without Design*.
27 Governor Brash contributed the Introduction to the 4th Annual Demographia International Housing Affordability Survey (2008).
28 For example, see US Department of Housing and Urban Development, "HUD's housing subsidy program," https://www.hud.gov/topics/rental_assistance/phprog.
29 Thomas Piketty, (2014). Capital in the Twenty-First Century.
30 Matthew Rognlie, "A note on Piketty and diminishing returns to capital," June 15, 2014. Available online at http://mattrognlie.com/piketty_diminishing_returns.pdf.
31 Gianni La Cava, Housing Prices, "Mortgage Interest Rates and the Rising Share of Capital Income in the United States," *BIS Working Paper No. 572*. https://www.bis.org/publ/work572.pdf

Rognlie suggests that "A natural first step to combat the increasing role of housing wealth would be to reexamine these regulations and expand the housing supply."[32] Undoing the increasing inequality of recent decades depends, in large measure, on restoring housing affordability. This requires:

1. Restoring an affordable and competitive land market on the urban fringe where housing has become severely unaffordable, and
2. Avoiding policies that lead to a less affordable market for land in the many markets where housing affordability has not been lost

Ultimately, the future trajectory of housing prices will shape our society. If prices can be brought closer in alignment to incomes, the middle and working class can aspire reasonably for home ownership. Failure to do so all but guarantees ever greater inequality and shrinkage of the middle class across the country.

32 Matthew Rognlie, "A note on Piketty and diminishing returns to capital," June 15, 2014. Available online at http://mattrognlie.com/piketty_diminishing_returns.pdf.

Table 4
United States Housing Affordability Ratings: From Most Affordable to Least Affordable
2021: Third Quarter

Intl. Rank	US Rank	Market (Metropolitan Area)	Median Multiple	Intl. Rank	US Rank	Market (Metropolitan Area)	Median Multiple
	1	Peoria, IL	2.3		31	Lubbock, TX	3.6
	2	Davenport, IA-IL	2.5		31	Omaha, NE-IA	3.6
1	3	Pittsburgh, PA	2.7	4	31	St. Louis,, MO-IL	3.6
	3	Rockford, IL	2.7		37	Albany, NY	3.7
	5	Cedar Rapids, IA	2.9	5	37	Cleveland, OH	3.7
	5	McAllen, TX	2.9		37	Des Moines, IA	3.7
	5	Youngstown, OH-PA	2.9		37	Hickory, NC	3.7
	8	Erie, PA	3.0		37	Montgomery, AL	3.7
	8	Utica-Rome, NY	3.0		42	Augusta, GA-SC	3.8
	10	Canton, OH	3.1	6	42	Cincinnati, OH-KY-IN	3.8
	10	Duluth, MN-WI	3.1		42	Lancaster, PA	3.8
	10	Syracuse, NY	3.1		42	Lexington-Fayette, KY	3.8
	10	Toledo, OH	3.1		46	Amarillo, TX	3.9
	14	Akron, OH	3.3	7	46	Buffalo, NY	3.9
	14	Little Rock, AR	3.3		46	Clarksville, TN-KY	3.9
2	14	Oklahoma City, OK	3.3		46	Columbus, GA-AL	3.9
	14	Reading, PA	3.3		46	Gulfport, MS	3.9
2	14	Rochester, NY	3.3		46	Laredo, TX	3.9
	14	Wichita, KS	3.3		46	Lynchburg, VA	3.9
	20	Dayton, OH	3.4		53	Allentown, PA-NJ	4.0
	20	Evansville, IN-KY	3.4	8	53	Kansas City, MO-KS	4.0
	20	Fort Wayne, IN	3.4		53	Kingsport, TN-VA	4.0
	20	Harrisburg, PA	3.4		53	Lafayette, LA	4.0
	20	Lansing, MI	3.4	8	53	Louisville, KY-IN	4.0
	20	Scranton, PA	3.4		53	Shreveport, LA	4.0
	20	York, PA	3.4	8	53	Tulsa, OK	4.0
	27	Beaumont, TX	3.5	11	60	Detroit, MI	4.1
	27	Flint, MI	3.5		60	Fayetteville, NC	4.1
	27	Huntington, WV-KY-OH	3.5	11	60	Hartford, CT	4.1
	27	South Bend, IN-MI	3.5		60	Lincoln, NE	4.1
	31	Fort Smith, AR-OK	3.6		60	Mobile, AL	4.1
	31	Green Bay, WI	3.6		60	New London, CT	4.1
	31	Kalamazoo, MI	3.6		60	Roanoke, VA	4.1

International ranking for major markets from *Demographia International Housing Affordability*

Table 4
United States Housing Affordability Ratings: From Most Affordable to Least Affordable
2021: Third Quarter

Intl. Rank	US Rank	Market (Metropolitan Area)	Median Multiple	Intl. Rank	US Rank	Market (Metropolitan Area)	Median Multiple
	60	Waco, TX	4.1		98	Atlantic City, NJ	4.7
	68	Baton Rouge, LA	4.2	24	98	Birmingham, AL	4.7
13	68	Grand Rapids, MI	4.2		98	Chattanooga, TN-GA	4.7
	68	Hagerstown, MD-WV	4.2		98	College Station, TX	4.7
	68	Jackson, MS	4.2		98	Trenton, NJ	4.7
	68	Killeen, TX	4.2	25	104	Dallas-Fort Worth, TX	4.8
13	68	Virginia Beach-Norfolk, VA-NC	4.2		104	Greenville, SC	4.8
	74	Columbia, SC	4.3		104	Madison, WI	4.8
15	74	Columbus, OH	4.3		104	Ocala, FL	4.8
	74	El Paso, TX	4.3	25	104	San Antonio, TX	4.8
	74	Huntsville, AL	4.3		104	Springfield, MA	4.8
15	74	Indianapolis. IN	4.3	27	110	New Orleans. LA	4.9
15	74	Minneapolis-St. Paul, MN-WI	4.3		111	Manchester, NH	5.0
	74	Savannah, GA	4.3	28	111	Nashville, TN	5.0
	74	Sioux Falls, SD	4.3	28	111	Raleigh, NC	5.0
	74	Spartanburg, SC	4.3		114	Albuquerque, NM	5.1
	83	Anchorage, AK	4.4	30	114	Jacksonville, FL	5.1
18	83	Baltimore, MD	4.4		114	Knoxville, TN	5.1
	83	Corpus Christi, TX	4.4	30	114	Milwaukee,WI	5.1
18	83	Philadelphia, PA-NJ-DE-MD	4.4		114	Worcester, MA-CT	5.1
	83	Springfield, MO	4.4		119	Pensacola, FL	5.2
20	88	Atlanta, GA	4.5	32	119	Richmond, VA	5.2
20	88	Chicago, IL-IN-WI	4.5		119	Salisbury, MD-DE	5.2
20	88	Houston, TX	4.5	32	119	Washington, DC-VA-MD-WV	5.2
	88	New Haven CT	4.5		123	Charleston, SC	5.3
	92	Brownsville, TX	4.6		123	Tallahassee, FL	5.3
	92	Fargo, ND-MN	4.6		125	Durham, NC	5.4
	92	Fayetteville, AR	4.6		125	Lakeland, FL	5.4
	92	Greensboro, NC	4.6		125	Myrtle Beach, SC-NC	5.4
23	92	Memphis, TN-MS-AR	4.6	34	128	Charlotte, NC-SC	5.5
	92	Winston-Salem, NC	4.6		128	Daytona Beach, FL	5.5

International ranking for major markets from *Demographia International Housing Affordability*

Table 4
United States Housing Affordability Ratings: From Most Affordable to Least Affordable
2021: Third Quarter

Intl. Rank	US Rank	Market (Metropolitan Area)	Median Multiple	Intl. Rank	US Rank	Market (Metropolitan Area)	Median Multiple
	98	Ann Arbor, MI	4.7	44	160	Sacramento, CA	6.7
	128	Olympia, WA	5.5		128	Ogden, UT	5.5
	128	Port St. Lucie, FL	5.5		160	Spokane, WA	6.7
	128	Visalia, CA	5.5		163	Bridgeport-Stamford, CT	6.8
	134	Melbourne, FL	5.6		164	Vallejo, CA	6.9
	135	Bakersfield, CA	5.7	45	165	Boston, MA-NH	7.0
	135	Greeley, CO	5.7	45	165	Portland, OR-WA	7.0
	137	Cape Coral, FL	5.8	47	167	New York, NY-NJ-PA	7.1
	137	Kennewick, WA	5.8		168	Boise, ID	7.2
35	139	Orlando, FL	5.9	48	168	Denver, CO	7.2
35	139	Providence, RI-MA	5.9		168	Fort Collins, CO	7.2
	139	Provo, UT	5.9		171	Stockton, CA	7.3
35	139	Tampa-St. Petersburg, FL	5.9	49	172	Riverside-San Bernardino, CA	7.4
	143	Fort Walton Beach, FL	6.0	50	173	Seattle, WA	7.5
	143	Portland, ME	6.0		174	Eugene, OR	7.6
38	143	Tucson, AZ	6.0		175	Reno, NV	7.7
	143	Yakima, WA	6.0		176	Oxnard, CA	7.9
39	147	Austin, TX	6.1	51	177	Miami, FL	8.1
	147	Colorado Springs, CO	6.1		178	Naples, FL	8.4
	147	Merced, CA	6.1		179	Boulder, CO	8.7
	150	Bremerton, WA	6.2		180	Santa Rosa, CA	9.8
40	150	Salt Lake City, UT	6.2		181	Salinas, CA	10.1
41	152	Phoenix, AZ	6.3	52	181	San Diego, CA	10.1
	152	Sarasota, FL	6.3		183	Santa Barbara, CA	10.2
	154	Asheville, NC	6.4	53	184	Los Angeles, CA	10.7
	154	Wilmington, NC	6.4		184	San Luis Obispo, CA	10.7
42	156	Fresno, CA	6.5	54	186	San Francisco, CA	11.8
	156	Gainesville, FL	6.5	55	187	Honolulu, HI	12.0
	156	Salem, OR	6.5		188	Santa Cruz, CA	12.2
43	159	Las Vegas, NV	6.6	56	189	San Jose, CA	12.6
	160	Modesto, CA	6.7				

International ranking for major markets from *Demographia International Housing Affordability*

Table 5
United States Housing Affordability Ratings: Alphabetical
2021: Third Quarter

Intl. Rank	US Rank	Market (Metropolitan Area)	Median Multiple	Intl. Rank	US Rank	Market (Metropolitan Area)	Median Multiple
	14	Akron, OH	3.3	5	37	Cleveland, OH	3.7
	37	Albany, NY	3.7		98	College Station, TX	4.7
	114	Albuquerque, NM	5.1		147	Colorado Springs, CO	6.1
	53	Allentown, PA-NJ	4.0		74	Columbia, SC	4.3
	46	Amarillo, TX	3.9		46	Columbus, GA-AL	3.9
	83	Anchorage, AK	4.4	15	74	Columbus, OH	4.3
	98	Ann Arbor, MI	4.7		83	Corpus Christi, TX	4.4
	154	Asheville, NC	6.4	25	104	Dallas-Fort Worth, TX	4.8
20	88	Atlanta, GA	4.5		2	Davenport, IA-IL	2.5
	98	Atlantic City, NJ	4.7		20	Dayton, OH	3.4
	42	Augusta, GA-SC	3.8		128	Daytona Beach, FL	5.5
39	147	Austin, TX	6.1	48	168	Denver, CO	7.2
	135	Bakersfield, CA	5.7		37	Des Moines, IA	3.7
18	83	Baltimore, MD	4.4	11	60	Detroit, MI	4.1
	68	Baton Rouge, LA	4.2		10	Duluth, MN-WI	3.1
	27	Beaumont, TX	3.5		125	Durham, NC	5.4
24	98	Birmingham, AL	4.7		74	El Paso, TX	4.3
	168	Boise, ID	7.2		8	Erie, PA	3.0
45	165	Boston, MA-NH	7.0		174	Eugene, OR	7.6
	179	Boulder, CO	8.7		20	Evansville, IN-KY	3.4
	150	Bremerton, WA	6.2		92	Fargo, ND-MN	4.6
	163	Bridgeport-Stamford, CT	6.8		92	Fayetteville, AR	4.6
	92	Brownsville, TX	4.6		60	Fayetteville, NC	4.1
7	46	Buffalo, NY	3.9		27	Flint, MI	3.5
	10	Canton, OH	3.1		168	Fort Collins, CO	7.2
	137	Cape Coral, FL	5.8		31	Fort Smith, AR-OK	3.6
	5	Cedar Rapids, IA	2.9		143	Fort Walton Beach, FL	6.0
	123	Charleston, SC	5.3		20	Fort Wayne, IN	3.4
34	128	Charlotte, NC-SC	5.5	42	156	Fresno, CA	6.5
	98	Chattanooga, TN-GA	4.7		156	Gainesville, FL	6.5
20	88	Chicago, IL-IN-WI	4.5	13	68	Grand Rapids, MI	4.2
6	42	Cincinnati, OH-KY-IN	3.8		135	Greeley, CO	5.7
	46	Clarksville, TN-KY	3.9		31	Green Bay, WI	3.6
	92	Greensboro, NC	4.6		31	Lubbock, TX	3.6

International ranking for major markets from *Demographia International Housing Affordability*

Table 5
United States Housing Affordability Ratings: Alphabetical
2021: Third Quarter

Intl. Rank	US Rank	Market (Metropolitan Area)	Median Multiple	Intl. Rank	US Rank	Market (Metropolitan Area)	Median Multiple
	104	Greenville, SC	4.8		46	Lynchburg, VA	3.9
	46	Gulfport, MS	3.9		104	Madison, WI	4.8
	68	Hagerstown, MD-WV	4.2		111	Manchester, NH	5.0
	20	Harrisburg, PA	3.4		5	McAllen, TX	2.9
11	60	Hartford, CT	4.1		134	Melbourne, FL	5.6
	37	Hickory, NC	3.7	23	92	Memphis, TN-MS-AR	4.6
55	187	Honolulu, HI	12.0		147	Merced, CA	6.1
20	88	Houston, TX	4.5	51	177	Miami, FL	8.1
	27	Huntington, WV-KY-OH	3.5	30	114	Milwaukee,WI	5.1
	74	Huntsville, AL	4.3	15	74	Minneapolis-St. Paul, MN-WI	4.3
15	74	Indianapolis. IN	4.3		60	Mobile, AL	4.1
	68	Jackson, MS	4.2		160	Modesto, CA	6.7
30	114	Jacksonville, FL	5.1		37	Montgomery, AL	3.7
	31	Kalamazoo, MI	3.6		125	Myrtle Beach, SC-NC	5.4
8	53	Kansas City, MO-KS	4.0		178	Naples, FL	8.4
	137	Kennewick, WA	5.8	28	111	Nashville, TN	5.0
	68	Killeen, TX	4.2		88	New Haven CT	4.5
	53	Kingsport, TN-VA	4.0		60	New London, CT	4.1
	114	Knoxville, TN	5.1	27	110	New Orleans. LA	4.9
	53	Lafayette, LA	4.0	47	167	New York, NY-NJ-PA	7.1
	125	Lakeland, FL	5.4		104	Ocala, FL	4.8
	42	Lancaster, PA	3.8		128	Ogden, UT	5.5
	20	Lansing, MI	3.4	2	14	Oklahoma City, OK	3.3
	46	Laredo, TX	3.9		128	Olympia, WA	5.5
43	159	Las Vegas, NV	6.6		31	Omaha, NE-IA	3.6
	42	Lexington-Fayette, KY	3.8	35	139	Orlando, FL	5.9
	60	Lincoln, NE	4.1		176	Oxnard, CA	7.9
	14	Little Rock, AR	3.3		119	Pensacola, FL	5.2
53	184	Los Angeles, CA	10.7		1	Peoria, IL	2.3
	53	Louisville, KY-IN	4.0	18	83	Philadelphia, PA-NJ-DE-MD	4.4
41	152	Phoenix, AZ	6.3	50	173	Seattle, WA	7.5

International ranking for major markets from *Demographia International Housing Affordability*

Table 5
United States Housing Affordability Ratings: Alphabetical
2021: Third Quarter

Intl. Rank	US Rank	Market (Metropolitan Area)	Median Multiple	Intl. Rank	US Rank	Market (Metropolitan Area)	Median Multiple
1	3	Pittsburgh, PA	2.7		53	Shreveport, LA	4.0
	128	Port St. Lucie, FL	5.5		74	Sioux Falls, SD	4.3
	143	Portland, ME	6.0		27	South Bend, IN-MI	3.5
45	165	Portland, OR-WA	7.0		74	Spartanburg, SC	4.3
35	139	Providence, RI-MA	5.9		160	Spokane, WA	6.7
	139	Provo, UT	5.9		104	Springfield, MA	4.8
28	111	Raleigh, NC	5.0		83	Springfield, MO	4.4
	14	Reading, PA	3.3	4	31	St. Louis,, MO-IL	3.6
	175	Reno, NV	7.7		171	Stockton, CA	7.3
32	119	Richmond, VA	5.2		10	Syracuse, NY	3.1
49	172	Riverside-San Bernardino, CA	7.4		123	Tallahassee, FL	5.3
	60	Roanoke, VA	4.1	35	139	Tampa-St. Petersburg, FL	5.9
2	14	Rochester, NY	3.3		10	Toledo, OH	3.1
	3	Rockford, IL	2.7		98	Trenton, NJ	4.7
44	160	Sacramento, CA	6.7	38	143	Tucson, AZ	6.0
	156	Salem, OR	6.5	8	53	Tulsa, OK	4.0
	181	Salinas, CA	10.1		8	Utica-Rome, NY	3.0
	119	Salisbury, MD-DE	5.2		164	Vallejo, CA	6.9
40	150	Salt Lake City, UT	6.2	13	68	Virginia Beach-Norfolk, VA-NC	4.2
25	104	San Antonio, TX	4.8		128	Visalia, CA	5.5
52	181	San Diego, CA	10.1		60	Waco, TX	4.1
54	186	San Francisco, CA	11.8	32	119	Washington, DC-VA-MD-WV	5.2
56	189	San Jose, CA	12.6		14	Wichita, KS	3.3
	184	San Luis Obispo, CA	10.7		154	Wilmington, NC	6.4
	183	Santa Barbara, CA	10.2		92	Winston-Salem, NC	4.6
	188	Santa Cruz, CA	12.2		114	Worcester, MA-CT	5.1
	180	Santa Rosa, CA	9.8		143	Yakima, WA	6.0
	152	Sarasota, FL	6.3		20	York, PA	3.4
	74	Savannah, GA	4.3		5	Youngstown, OH-PA	2.9
	20	Scranton, PA	3.4				

International ranking for major markets from *Demographia International Housing Affordability*

Appendices

Sources and Methods

House price data is estimated from published government and real estate industry sources reporting on housing sectors representing the majority of existing dwellings.

Median incomes are estimated from official government sources, and updated by more general economic data as necessary to develop a figure for the year reported upon. Because metropolitan area median income indicators are generally unavailable for the first pandemic year (2020), 2019 income estimates are used and adjusted to reflect the ***national*** change in median incomes. More reliable data should be available for next year, with new metropolitan area estimates from the American Community Survey.

Contacts:

Urban Reform Institute
Wendell Cox, Senior Fellow
demographia@gmx.com
+1 618-616-1363

Biographical Note:

Author **Wendell Cox** is a Senior Fellow at the Urban Reform Institute (Houston). He is principal of Demographia.com, author of ***Demographia World Urban Areas*** and was co-author (with Hugh Pavletich) of the ***Demographia International Housing Affordability Surveys*** (17 annual editions). He was appointed by Los Angeles mayor Tom Bradley to three terms on the Los Angeles County Transportation Commission and by US Speaker of the House of Representatives Newt Gingrich to fill the unexpired term of New Jersey Governor Christine Todd Whitman. He earned a BA in Government from California State University, Los Angeles and an MBA from Pepperdine University. He served as a visiting professor at the Conservatoire des Arts et Metiers in Paris (a national university).