

Data on Families With Low Incomes Across America Can Inform Two-Generation Approaches

Elizabeth Wildsmith and Marta Alvira-Hammond *in Partnership with* Ascend at the Aspen Institute





Table of Contents

Overview	1
10 Key Findings	1
What's in this report	3
A Two-Generation (2Gen) Approach to Supporting Families	4
Findings	5
Families in poverty, near poverty, and low-income households	5
Characteristics of families in households with low incomes	7
Family demographics	8
Education and employment	13
Use of human services and health insurance coverage	16
Community characteristics	18
Discussion	20
Data, Sample, and Measures	22
Data sources	22
2021 and 2011 CPS ASEC	22
2016-2020 ACS	22
County-level data	22
Samples	22
CPS family samples	22
CPS family type subgroups	23
ACS family sample	23
Measures	24
Family demographics	24
Education and employment	25
Human services	26
Community characteristics	26
Acknowledgements	29
About the authors	
References	29

Overview

Recent research documents substantial declines in the United States' poverty rate over the past several decades, including among children. This is very good news that showcases the success of many poverty prevention efforts. However, too many families continue to struggle to meet their basic needs, a challenge that may be exacerbated by increased costs of living, widening income inequality, and ongoing economic uncertainty. Moreover, upward economic mobility across generations remains limited: Children who grow up in the United States today are much less likely than children born in the 1940s to earn more income than their parents. As a broad prescription, it is critical that we continue anti-poverty efforts to ensure that poverty rates for families continue to decline and that opportunities for economic mobility improve.

A broad set of economic and social conditions are linked to a family's ability to achieve economic security and mobility. In the United States, employment, most often achieved through education and training, is key to many families' economic well-being. However, families with low incomes are overrepresented in communities that offer fewer well-paying, stable jobs and in which high-quality education is less available. And some populations—for example, certain racial and ethnic groups and people with disabilities—face additional barriers to economic stability that result from both structural-level discrimination (e.g., inequitable policies and practices in housing, education, hiring, and the criminal justice system) and individual-level discrimination (e.g., harassment).

Research suggests that two-generation (2Gen) approaches can help interrupt the economic and social barriers to many families' economic mobility and increased well-being and carry long-term benefits. (For more information on 2Gen approaches, see the text box on page 4.) Child Trends conducted new analyses for this report, which provides a current data snapshot of some of the families in the United States who may be eligible for and benefit from 2Gen supports and services. Policymakers, researchers, and program evaluators should pay attention to these same data points in efforts to assess families' needs and identify supports to help them thrive.

10 Key Findings

- Fewer families with children lived in poverty or in low-income households in 2021 than in 2011. The
 percentage of families living in households with low incomes declined from 2011 to 2021, from 36
 percent to 29 percent.
 - These declines occurred for all family types examined in this report—families with a single parent, families with young children, families with young parents, and multigenerational families.
- 2. In 2021, families with a single parent (51%) and a young parent (45%) were the most likely family types examined to live in households with low incomes.
- 3. Gender gaps remain in families headed by single parents. Families headed by a single mother were much more likely to have low household incomes (55%) than those headed by single fathers (34%).
- 4. Families in households with low incomes are diverse. In 2021, among these families:
 - Just over half (51%) were two-parent families, either married (43%) or cohabiting (8%).
 - Most (80%) lived on their own. However, 12 percent lived with a grandparent and 8 percent with someone other than a grandparent.

- White families made up 34 percent of the total but were underrepresented relative to their overall population size. Hispanic and Black families, and families of other racial and ethnic identities, were overrepresented.
- **5.** Families living in low-income households continue to face barriers to economic mobility. In 2021, among these families:
 - Most (60%) lived in rented housing, and renting was particularly common among young parents (76%). Home ownership is an important vehicle for economic mobility in the United States because of its ability to generate wealth for families.^{vii}
 - More than half (53%) had obtained only a high school diploma, or fewer years of formal education.
 - 71 percent had at least one employed parent. Although employment can help provide economic security, it does not ensure that families have incomes that meet their basic needs.
 - Eighteen percent of parents who had not worked in the previous year did not work due to illness or a disability, while two thirds did not work to care for their home or a family member.
 - Seventeen percent had at least one parent reporting fair or poor health (as opposed to good, very good, or excellent).
 - One in five (21%) reported that no parent had health insurance.
- 6. More than half of families with low incomes reported not receiving support from some of the most common safety net programs. Roughly one fifth of families reported receiving a housing subsidy and support from the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) in the prior year. A substantial minority (44%) reported receiving support from the Supplemental Nutrition Assistance Program (SNAP).
- 7. The economic challenges faced by families in households with low incomes are particularly pronounced for families headed by a single parent, families with young children, families with young parents, and multigenerational families.
- 8. Family households with low incomes tend to live in counties that have worse scores across several of the community health indicators we examined—such as higher child poverty rates, higher violent crime rates, worse air quality, and less access to healthy food.
- 9. Family households with low incomes also reside in counties with a slightly higher child care cost burden, relative to other families—in other words, they tend to live in counties in which a higher proportion of the average household income goes to child care.
- **10.** Researchers, policymakers, and practitioners building out two-generation supports for families should know that:
 - Data from multiple sources are needed to gain a full accounting of what families look like across the six key domains highlighted in two-generation approaches.
 - A deeper consideration of the life circumstances of some populations—including, for example, Black, Hispanic, American Indian and Alaska Native families; families in rural areas; and families with a member who has a disability—can be limited by small sample sizes in many data sources or by a limited number of relevant measures.
 - Attention to factors both inside and outside of households will improve our understanding of the challenges that families may face and of the resources to which they may have access, including their social connections.

What's in this report

Using national data from 2011 and 2021, we first detail levels of household poverty and low-income status among families that include at least one parent and one child under age 18 and show how those rates changed over the last decade. We also look at these data separately for families headed by a single parent, families with young children, families with young parents, and multigenerational families. These family types, which can overlap (for example, many single-parent families live in multigenerational households), often face additional barriers to achieving economic security and stability, and thus represent a priority population for many human service programming efforts.

Using the 2021 data, we then look more closely at families in households with low incomes and document some of their demographic and family characteristics, including those typically prioritized in 2Gen approaches—for example, health status, education, employment, housing status, and economic supports from human service programs. These data do not allow us to look directly at two of the domains highlighted in 2Gen approaches—early care and education (ECE) and social capital. However, we can touch on these topics indirectly using community-level data from the County Health Rankings & Roadmaps program of the University of Wisconsin Population Health Institute. These data allow us to describe aspects of community health for places where family households with low incomes¹ live, and across a range of characteristics, including access to child care. Viii,ix Some of these measures of community health may help foster the important social connections between people that can support economic mobility.

We end the report with a brief discussion of our findings and a description of the data sources, analytic samples, and measures included in this analysis. For more information on two-generation approaches, trends in U.S. marriages and family formation, and our definitions of poverty and low income, see the boxes below. The report's full findings begin on page 5.



¹ Estimates based on Current Population Survey data presented in this report describe families (which may live with other families in the same household), but their income status is based on their total household income. In descriptions of community health measures from American Community Survey data, we use the term "householder families" or "family households" because income status is based on family income but the sample is restricted to the householder family (i.e., without additional families in the household).

A Two-Generation (2Gen) Approach to Supporting Families

Decades of rigorous, high-quality research demonstrates that growing up with economic hardship is linked to an increased risk of adverse outcomes for people across their life course, including outcomes related to their health, academic success, social-emotional functioning, and overall well-being. Xi,Xii,Xiiii For children and their parents, the psychological toll of economic hardship can be heavy as well. For example, qualitative research finds that many children living in poverty spend substantial time and energy worrying about material deprivation, living in unsafe neighborhoods, and their parents' well-being. Xiv They also feel stigma associated with being poor. Parents are weighed down by worry about meeting their children's needs and often feel that poverty impacts their parenting abilities.

A key goal of many human service programs is to provide important supports to families with low incomes to help them on their path to economic security. Most programs, however, take a child- or parent/caregiver-focused approach rather than a family-based approach. A program providing workforce training for a parent, for example, may not provide the child care necessary to allow the parent to be able to attend the training or to work a job once the training is complete. This barrier—the need for child care—will limit the effectiveness of the workforce program in helping a parent secure employment. The desire to improve the effectiveness and efficiency of efforts to support families has brought increased interest in two-generation (2Gen) approaches to programming. A 2Gen approach explicitly recognizes the interlinked nature of parents' and their children's lives and that a family will be most likely to thrive when programs can simultaneously support the needs of both parents (or caregivers) and their children. Recent research suggests that 2Gen approaches to human service programming can have positive long-term benefits.

The 2Gen lens does not just apply to programming. It also provides a roadmap for the types of characteristics policymakers, researchers, and program evaluators should pay attention to if they want to assess whether families have what they need to thrive. Two-generation approaches generally focus on six domains that, combined, can help families achieve economic stability: (1) physical and mental health, (2) early childhood education, (3) postsecondary and employment pathways, (4) economic assets, (5) K-12 education, and (6) social capital.^{xvi,xviii,xviii}



Changing Trends in U.S. Marriages and Family Formation Patterns

The family unit is a core part of our society. But what U.S. families look like, and how and when they form, has changed substantially over the last several decades—alongside other large-scale economic, social, and cultural changes. These changes to families have occurred across all income categories, for all races and ethnicities, and in both rural and urban communities. Families are diverse: Currently, there is no single dominant family form in the United States. XiX Policymakers and human service professionals need to be aware of this diversity as they design and implement programs intended to meet all families' needs.

Although marriage remains a key aspiration for many men and women, marriages are happening later in life than they used to for more and more people. ** Five decades ago, people in the United States would often begin their adult lives with marriage; moving in together, becoming workers or homemakers, and having children were generally considered subsequent milestones. **Today, if a legal marriage does occur, it is less likely to happen until couples feel economically secure—often *after* many of those other life events have occurred.

- The average age at first marriage is now nearly age 28 for women and age 30 for men.xx
- Cohabitation—the act of living together with an unmarried romantic partner—has also increased. Roughly three quarters of marriages began as a cohabiting union, xxii and the percentage of adults who live in a cohabiting union is now actually greater than the percentage who are married. xxiii
- The U.S. has seen important shifts in childbearing as well. The mean age at first birth for women has increased by over 4 years in just the past four decades, from 22.7 in 1980 to 27.1 in 2020. xxiv,xxv Currently, roughly 40 percent of births occur to unmarried parents; however, many of these births occur to cohabiting couples, who are in unmarried but otherwise committed relationships. xxvi
- In 2017, one quarter of all parents of children from birth to age 18 were unmarried. Of those, more than one third were cohabiting, while the remainder were single parents. VII Notably, almost 60 percent of surveyed adults say that cohabiting couples can raise children as well as married couples. XXXVI

Findings

Families in poverty, near poverty, and low-income households

Table 1 shows the percentage of families living in poverty, near poverty, and all low-income households for 2011 and 2021. We show these estimates for all families and for the specific priority family types highlighted in this report: families with a single parent in the household, families with young children, families with young parents, and multigenerational families.

In 2021, 11.3 percent of families lived in poverty (Table 1), which is about 5 percentage points lower than 2011, when 16.4 percent of families lived in poverty. An additional 17.3 percent of families were in near-poverty households in 2021, meaning that combined, 28.6 percent of families were in low-income households in 2021, compared to 36.4 percent of families who lived in low-income households in 2011.

Table 1. Household income status by family type, 2011 and 2021

	Poverty		Near Poverty		Low Income	
Family Type	2011	2021	2011	2021	2011	2021
All Families	16.4%	11.3%	20.0%	17.3%	36.4%	28.6%
Single	33.1%	24.3%	27.1%	26.5%	60.2%	50.8%
Mother-headed	35.9%	27.3%	27.5%	27.6%	63.4%	54.8%
Father-headed	16.7%	11.8%	24.7%	21.7%	41.4%	33.5%
Young child	20.2%	13.4%	21.7%	18.5%	41.9%	31.9%
Young parent	29.1%	19.3%	27.7%	25.5%	56.8%	44.7%
Multigen	17.9%	11.4%	23.5%	21.8%	41.4%	33.2%

Data source: Integrated Public Use Microdata Series (IPUMS) 2011 and 2021 Annual Social and Economic Supplement of the Current Population Survey.

Note: "Poverty" refers to incomes below the official poverty threshold. "Near poverty" refers to incomes above the poverty threshold but below 200% of the poverty threshold. "Low income" refers to incomes below 200% of the poverty threshold, including both poverty and near poverty.

In 2011 and 2021, the percentage of families in households with low income was higher among families headed by a single parent, families with young children, young parent families, and multigenerational families compared to all families overall. In 2021:

- Almost one-quarter of single parent families (24.3%) and one-fifth of young parent families (19.3%) were in poverty. More than twice as many mother-headed families are classified as in poverty (27.3 percent) than father-headed families (11.8%).
- Single-parent (50.8 percent) and young-parent (44.7%) families were the most likely of the family types examined in this analysis to live in low-income households.

Between 2011 and 2021, there were no large shifts in the percentage of families in near-poverty households. Conversely, the percentage of families in households classified as in poverty declined substantially across all the family types examined. For example, the percentage of single-parent families classified as in poverty declined by roughly one-quarter, from 33.1 percent in 2011 to 24.3 percent in 2021. The magnitude of the decline was similar for mother-headed and father-headed families, though in 2021, mother-headed single parent families remained the most likely of the family types examined to be in a household classified as in poverty (27.3%).

Defining Poverty, Near Poverty, and Low Income

The official poverty measure (OPM) was developed in the mid-1960s and set the poverty threshold (also referred to as the poverty line) at "the cost of a minimum food diet multiplied by three to account for other family expenses,"xxvii and where "family" is defined as all individuals living in a household together related by birth, marriage, or adoption.xxviii The OPM considers families to be living in poverty when their total income is below the official poverty threshold, which is adjusted for family size and composition.

Since the OPM's development, the original dollar amount has been adjusted every year for inflation, but it has not been adjusted to account for large-scale changes in the types and costs of family expenses needed to meet basic needs that have outpaced inflation, such as those associated with housing, health care, child care, and where people live. While newer measures of poverty such as the Supplemental Poverty Measure do account for some of these factors, this report refers to the OPM and uses its thresholds because of the measure's wide and longstanding use and familiarity as a benchmark for people's economic well-being in the United States.

Research suggests that families need incomes of approximately 1.5 to 3.5 times the poverty threshold xxix to meet their basic needs, depending on where they live. Thus, researchers studying families with low incomes often include those with earnings up to two times (i.e., 200%) the poverty threshold. We use this approach in this report, considering "low income" to be less than 200 percent of the official poverty threshold. Families with household incomes below the official poverty line are classified as in poverty. Those with incomes above the official poverty line but below two times the poverty line are classified as near poverty. For a family of three with one child under age 18 in 2020 (the year of income reported in the 2021 Current Population Survey; CPS), these classifications equate to incomes below roughly \$41,600 (low income), of roughly \$20,800-\$41,600 (near poverty), and below \$20,800 (poverty).

See the Data, Sample, and Measures section for more details on income and poverty measures used in this report and on how families were classified.

Characteristics of families in households with low incomes

Below we look more closely at the characteristics of families in households with low income, describing a range of characteristics linked to family well-being and economic mobility across the following domains: (1) family demographics, (2) employment and education status, (3) the use of public benefits and health insurance status, and (4) community characteristics. We detail results for all families in households with low income, as well as separately for families in households with a single parent, families with young children, families with young parents, and multigenerational families. See Data, Sample, and Measures section for more detail on the data sources, sample selection, and construction of the included variables. Importantly, the family types we examine in this analysis are not mutually exclusive. For example, a single-parent family may also have young children or be headed by a young parent.

 $^{^2}$ Some human service programs set their income eligibility thresholds at some level above the U.S. Department of Health and Human Services' (HHS) poverty guidelines, which are a simplified version of the official poverty thresholds. The official poverty thresholds and the HHS poverty guidelines are typically very close.

Family demographics

In this section, we detail a range of demographic characteristics for families in households with low income, including:

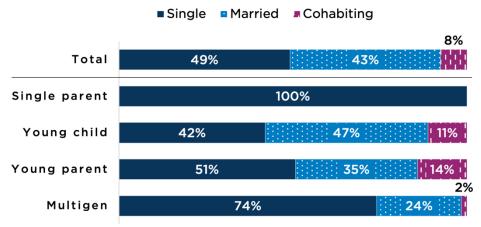
- The union status of the parent(s), distinguishing between parents who are single, married (including biological, adoptive, and step parents), and cohabiting (biological or step, including same-sex partners).
- Housing status, distinguishing between families whose home is rented or owned.
- Living arrangements, identifying those who live on their own, with a grandparent, or with other individuals (including relatives and non-relatives).
- Racial and ethnic identity, specifically parents who identify as Black, White, Hispanic, of some other race
 or ethnicity not listed (e.g., Asian, Native American, Multiracial), or when parents are of different racial
 or ethnic identities from each other.
- The presence of young children (< age 5) in the household.
- The health status of parents, focusing on the percent who are in poor or fair health.

Union status

The "Total" bar in Figure 1 demonstrates that in 2021, among families living in households with low income, being single was the most common union status (49%). Being married was the next most common union status (43%), followed by cohabitation (8%). Combined, a little more than half (51%) of families in households with low income were two-parent households, either married or cohabiting.

The remaining bars in Figure 1 similarly depict percentages for the various family types included in this analysis. A few statistics are highlighted below.

Figure 1. Parent union status by family type among families in households with low incomes, 2021



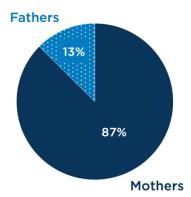
Note: Estimates are among families in households with income below 200% of the official poverty threshold.

Data source: Integrated Public Use Microdata Series (IPUMS) 2021 Annual Social and Economic Supplement of the Current Population Survey.

- The majority of multigenerational families in households with low income were also single-parent families (74%).
- More families with young children have two parents in the household (58%—47% married and 11% cohabiting) than the other family types examined.
- Aside from single parent families, cohabitation is not unusual across the various family types: 14
 percent of young parent families and 11 percent of families with young children had parents in a
 cohabiting union.

Gender differences in families headed by single parents have been well documented. Although fathers make up an increasing proportion of the single parent population, most single parent families are headed by women. This is particularly true among the single parent families in the families in our analysis, as shown in Figure 2. In 2021, 87 percent of single-parent families in households with low income were headed by mothers, while 13 percent were headed by fathers.

Figure 2. Mother- and father-headed families among single parents in households with low incomes, 2021



Note: Estimates are among families in households with income below 200% of the official poverty threshold.

Data source: Integrated Public Use Microdata Series (IPUMS) 2021 Annual Social and Economic Supplement of the Current Population Survey.

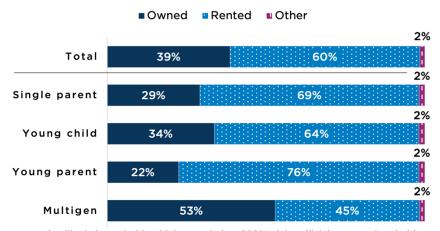
Housing status

Home ownership is important to wealth building in the United States, including for families with low income. VII Many families with low income—particularly non-White families—face substantial barriers in accessing this path to building wealth, such as having capital for down payments, access to credit, and inequities in mortgage lending practices or zoning. XXX, XXXI

Figure 3 shows that in 2021, most families in households with low income—60 percent—lived in rented housing, while 39 percent lived in homes that are owned or being purchased (only 2% were in some other type of housing arrangement).

A substantially higher percentage of families in multigenerational households lived in homes that are owned or being purchased (53%) than the other types of families. Families with young parents are the most likely—76 percent—of the family types to be living in rented housing.

Figure 3. Housing status by family type among families in households with low incomes, 2021



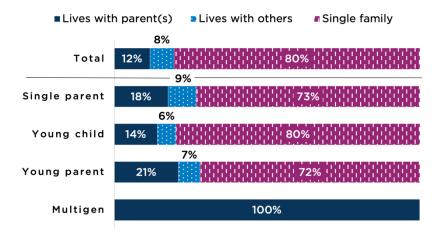
Note: Estimates are among families in households with income below 200% of the official poverty threshold.

Data source: Integrated Public Use Microdata Series (IPUMS) 2021 Annual Social and Economic Supplement of the Current Population Survey.

Living arrangements

Figure 4 shows who lived in the households of the families in our sample. Most families in households with low income—80 percent—live on their own, without others in the household. Still, 12 percent report living with at least one grandparent (i.e., in a multigenerational household), and 8 percent report sharing a household with someone other than a grandparent—either a relative or non-relative.

Figure 4. Living arrangements by family type among families in households with low incomes, 2021



Note: Estimates are among families in households with income below 200% of the official poverty threshold.

Data source: Integrated Public Use Microdata Series (IPUMS) 2021 Annual Social and Economic Supplement of the Current Population Survey.

Although living with a grandparent can mean an extra adult to help with child care or household needs, for many parents it can add to their care responsibilities, and this is especially true for families with low income. For example, research shows that in single-parent families with low incomes, living in a multigenerational household can help alleviate financial strain. However, this same research shows that more than half of single parent families reported that the primary reason for the living arrangement is to provide care for an adult, while less than a third report it is to help with child care. Thus, many parents in households with low income are caring for their children and a parent(s) at the same time.

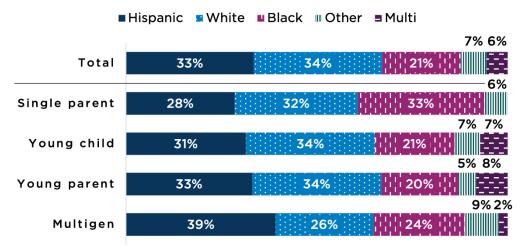
Families headed by young or single parents, or who have young children, are all more likely than lower income families overall to be living in a multigenerational family. For example, roughly one-fifth of young parent (21%) and single parent (18%) families live in a multigenerational family.

Race and ethnicity

Centuries of structural discrimination in the United States—resulting, for example, in inequitable policies and practices related to housing, education, employment, access to safety net programs, and the criminal justice system—have placed individuals and children who are Black, Hispanic, and American Indian and Alaskan Native (AIAN) at increased risk of living in poverty or near poverty. II, XXXIIII

Figure 5 shows couple-level estimates of parents' race-ethnicity. Although non-White racial and ethnic groups are overrepresented among low-income families (relative to all families), we see that families in which all parents (i.e., single parents, or both parents in married or cohabiting families) are non-Hispanic White (34%) and those with Hispanic parents (33%) make up the largest percentage of families in households with low income. This is followed by parents who identify as non-Hispanic Black (21%), families with parents of different race or ethnic identities (of the groups specified here) from one another (7%), and non-Hispanic parents who identify as some other race/ethnicity not previously listed (e.g., Hispanic, White, Black) (6%).³

Figure 5. Parent race/ethnicity by family type among families in households with low incomes, 2021



Note: Estimates are among families in households with income below 200% of the official poverty threshold.

Data source: Integrated Public Use Microdata Series (IPUMS) 2021 Annual Social and Economic Supplement of the Current Population Survey.

These percentages are relatively similar across all the family types included in this analysis, although families with Hispanic parents make up a relatively larger proportion of multigenerational families in households with low income (39%) and families with non-Hispanic Black parents make up a relatively larger percentage of single-parent families (33%).

It is important to note that the racial and ethnic composition of families in the U.S. is much broader than is captured in this analysis, which only details the three largest racial and ethnic groups. Many large-scale, nationally representative data sets such as the one used here do not have a large enough sample to support a detailed analysis of other racial and ethnic groups. This is because these other groups make up smaller proportions of the population. While surveys often oversample some groups to increase sample sizes (e.g.,

³ Percentages for non-Hispanic Asian, Native Hawaiian/Other Pacific Islander, and American Indian/Alaska Native parents, as well as those of specific Hispanic ethnic groups and specific mixed-race groups, are not presented due to very small sample sizes.

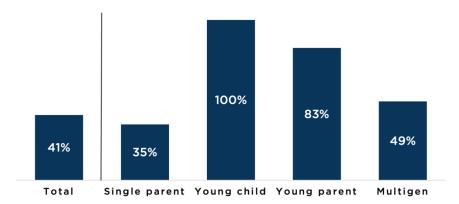
the CPS oversamples Hispanics), how many populations are oversampled is often quite limited. However, researchers can dive more deeply into the family experiences of these smaller populations using a combination of data sources. For example, this <u>recent blog on AIAN individuals</u> reports on Census estimates of poverty status, and references other research using a wide range of data sources to contextualize those estimates. This type of research is essential in efforts to be fully inclusive of families' diverse experiences.

Children under age 5

Families with preschool-age children are often more vulnerable to impacts of economic stress, and research shows that adverse economic experiences in early childhood can affect a person's health and learning well into adulthood. **This vulnerability was made especially clear during the COVID-19 pandemic. ***Properties** pandemic. ***Properties** pandemic. **** For example, research shows that, among a sample of low-income families with preschool-age children, COVID-19-related income loss was linked to increased parental stress and more negative interactions with children. **** children. ***** COVID-19-related income loss was linked to increased parental stress and more negative interactions with children. ****

As seen in Figure 6, 41 percent of families in households with low income have a young child (under age 5). Not surprisingly, young parents are much more likely—83 percent—than other family types to have young children in the household. Additionally, half of multigenerational families have young children. Relatively fewer—35 percent—single parents in this analysis have children under age 5.

Figure 6. Families with children under 5, by family type and among families in households with low incomes, 2021



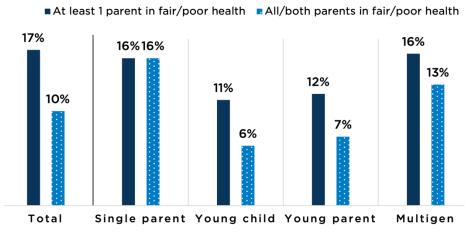
Note: Estimates are among families in households with income below 200% of the official poverty threshold. **Data source:** Integrated Public Use Microdata Series (IPUMS) 2021 Annual Social and Economic Supplement of the Current Population Survey.

Health status

Health status and economic well-being are closely interlinked. People who grow up with economic disadvantage have less access to health care and tend to have poorer health outcomes in childhood and adulthood. **xxviii,xxxix,xl** In adulthood, being in poor health can limit one's ability to maintain a stable income. **xli** Importantly, there remain substantial barriers to employment among individuals with disabilities, **xliii** and among all people, the conditions of the workplace (e.g., schedules, hours, autonomy, quality of working relationships) matter for one's health. **xliii**

Figure 7 shows the self-rated health status—a measure that is a very strong predictor of later health and mortality^{xliv}—of parents in the families included in the analysis. Seventeen percent of families in households with low income had at least one parent reporting fair or poor health (as opposed to good, very good, or excellent), while in 10 percent of the families, all the parents reported fair or poor health. Of the family types included in this analysis, families with young parents and with young children were the least likely to have parents in fair or poor health, while parents in single parent or multigenerational families were the most likely to report poor or fair health.

Figure 7. Parent health status by family type among families in households with low incomes, 2021



Note: Estimates are among families in households with income below 200% of the official poverty threshold. **Data source:** Integrated Public Use Microdata Series (IPUMS) 2021 Annual Social and Economic Supplement of the Current Population Survey.

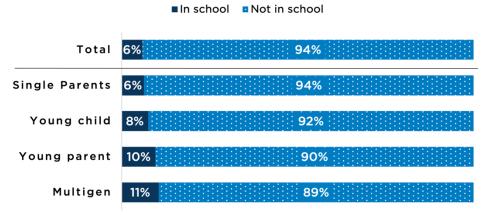
Education and employment

In this section, we look at school enrollment, educational status, and employment status of the parents in families living in low-income households, both at the time of the survey and in the past year. Additionally, among those who did not work in the past year, we look at the primary reasons they did not.

School enrollment

Most parents with children in the household are past the age when one is in high school or typically enrolls in a college program. However, student parents are not uncommon. In fact, research shows that a little more than one in five students enrolled in undergraduate programs are parents. We see in Figure 8 that six percent of the families in our analysis had at least one parent who reported currently attending high school or college (primarily college). School attendance was somewhat higher among young parents (10%) and parents living in multigenerational households (11%).

Figure 8. Parental school enrollment among families in households with low incomes, 2021



Note: Estimates are among families in households with income below 200% of the official poverty threshold. **Data source:** Integrated Public Use Microdata Series (IPUMS) 2021 Annual Social and Economic Supplement of the Current Population Survey.

Completed education

Individuals in families with low income face a disproportionate set of barriers to school enrollment and completion at the family level, school level, and community level.xivi Figure 9 shows the highest level of education for the most educated parent in the family. The highest level of education for more than half of families in households with low income was a high school diploma or less: 36 percent had a high school diploma or equivalency, while 17 percent had not (yet) finished high school.

Nearly one-third of families (30%) had at least one parent who had completed some college, while 17 percent had a parent who had completed a bachelor's degree or more.

Young parents, single parents, and parents in multigenerational families were the least likely of all the groups examined to report having a bachelor's degree or more (8%, 11%, and 11%, respectively).

Figure 9. Parent education level among families in households with low incomes, 2021

Note: Estimates are among families in households with income below 200% of the official poverty threshold.

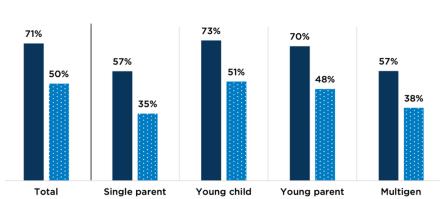
Data source: Integrated Public Use Microdata Series (IPUMS) 2021 Annual Social and Economic Supplement of the Current Population Survey.

Current employment status

Figure 10 shows the percentage of families in households with low income with at least one parent who reported being currently employed, at all and full-time. Overall, 71 percent of families had at least one employed parent. Families with a single parent in the household (57%) and multigenerational families (57%) had the lowest percentages of parents reporting being currently employed.

At least one parent currently employed
 At least one parent currently employed full-time

Figure 10. Parent employment status among families in households with low incomes, 2021



Note: Estimates are among families in households with income below 200% of the official poverty threshold.

Data source: Integrated Public Use Microdata Series (IPUMS) 2021 Annual Social and Economic Supplement of the Current Population Survey.

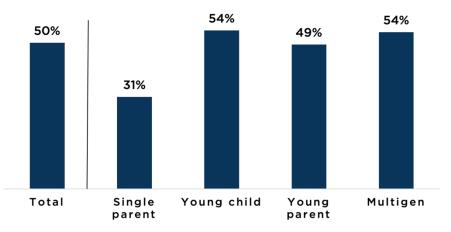
Half of the families in the analysis had at least one parent who reported both currently and usually working a full-time schedule. Patterns of full-time employment by family type were similar to those for any employment and were lowest among families with a single parent in the household (35%) and multigenerational families (38%).

Reasons for not working

The CPS collects data on why adults did not work, but only for the work in the previous calendar year (2020), not in the current year. Using these data, Figure 11 shows that 50 percent of the families in our sample reported that at least one parent did not work in the prior year. This percentage was slightly higher among families with young children (54%), and lowest among single parent families (31%).

Two of the most common options respondents reported as the main reason they did not work in the previous year were: (1) they had an illness or disability and (2) they cared for the home or family.

Figure 11. At least one parent who did not work in the previous year by family type, among families in households with low incomes, 2021



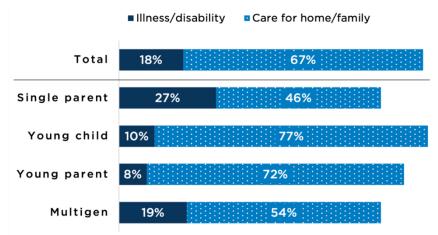
Note: Estimates are among families in households with income below 200% of the official poverty threshold. Data source: Integrated Public Use Microdata Series (IPUMS) 2021 Annual Social and Economic Supplement of the Current Population Survey.



Figure 12 shows that among families who reported that at least one parent did not work in the previous year, almost one in five (18%) did not work due to illness or a disability. This reason was more commonly reported among families with a single parent in the household (27%) and multigenerational families (19%).

Additionally, two-thirds (67%) of families in households with low income reported not working to care for their home or a family member. This reason was much less common among single parents (46 percent) and parents in multigenerational households (54%), many of whom are also single parents.

Figure 12. Reason for not working last year by family type, among families in households with low incomes with at least one parent who did not work the previous year, 2021



Note: Estimates are among families in households with income below 200% of the official poverty threshold.

Data source: Integrated Public Use Microdata Series (IPUMS) 2021 Annual Social and Economic Supplement of the Current Population Survey.

Use of human services and health insurance coverage

Families with low income often face a daunting set of life pressures that use up scarce economic resources and can present barriers to economic mobility—pressures such as food and housing insecurity and physical-and mental health-related needs. A wide range of human service programs aim to help alleviate some of these pressures to support economic stability and mobility.

Human service program support

In Figure 13 we show the percentages of families in households with low income who reported receiving some of the most common public benefits to help improve family well-being in the previous year, including subsidized housing (either public housing or government rent subsidies), SNAP ("food stamps"), WIC, and some form of cash assistance (e.g., Temporary Assistance for Needy Families; TANF). Estimates of public benefits use presented here are likely conservative, as studies have documented underreporting of participation in the CPS (see the Data, Sample, and Measures section for more details).

Overall, approximately one in five of families in households with low income reported receiving both some type of housing subsidy (20%) and WIC (17%), even though WIC is only available up until a child's fifth birthday. A substantial minority (44%) of families reported that someone in their household received SNAP. Five percent of families reported receiving any type of cash assistance.

• A relatively higher percentage of families with a single parent in the household reported receiving subsidized housing (28%), SNAP (56%), and cash assistance (8%) than did all families in households with low income.

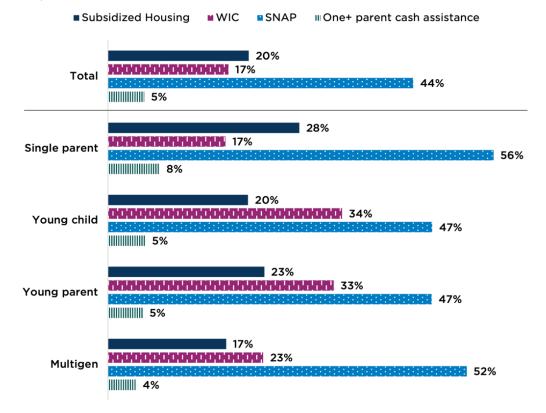
 A relatively higher percentage of families with young parents (33%) and with young children (34%) reported receiving WIC, which is not surprising since more of these families had children in the age range that made them eligible for this program.

These public benefits provide key supports to families, but how far that support goes is dependent on other characteristics of the economy. Almost three years after the onset of the COVID-19 pandemic, there remain large economic impacts. Notably, the cost of living has increased substantially. Data show that consumer prices rose an average of 6.5 percent from December 2021 to December 2022. xivii Increases were particularly



large for food and utilities: food costs alone increased 10.4 percent. These increases may limit the reach and effectiveness of benefits such as SNAP for many families, creating a greater risk of food insecurity. It

Figure 13. Household receipt of select public benefits by family type, among families in households with low incomes, 2021



Note: Estimates are among families in households with income below 200% of the official poverty threshold.

Data source: Integrated Public Use Microdata Series (IPUMS) 2021 Annual Social and Economic Supplement of the Current Population Survey.

Health insurance status

Per person healthcare costs in the United States are about twice as much as the average healthcare costs in other wealthy countries.¹

Thus, health insurance is a critical financial support for families, especially families with low incomes. As shown in Figure 14, 75 percent of families in our analysis reported that all the parents in the household had health insurance (either public or private), while 21 percent reported that none of the parents in the family had health insurance. These percentages were similar across family type.

Total

Total

75%

21%

Single parent

80%

Young child

75%

19%

Young parent

73%

Multigen

78%

21%

Figure 14. Parent health insurance status by family type among families in households with low incomes, 2021

Note: Estimates are among families in households with income below 200% of the official poverty threshold.

Data source: Integrated Public Use Microdata Series (IPUMS) 2021 Annual Social and Economic Supplement of the Current Population Survey.

Community characteristics

The characteristics of the communities where families live can shape their access to important social and economic resources that can help them thrive. Table 2 shows some of the key characteristics of the counties where householder families (also referred to in this report as family households) with low income live (see text box for key sample details). The first column shows the county characteristics for all householders in the American Community Survey (ACS) aged 15 and older. The second column shows county characteristics for householder families with low incomes. For comparison, the third column shows the same estimates for householder families with incomes at or above 200% of official poverty threshold.

Sample for county-level data

For this analysis, we first identify householder families with low income using data from the Census Bureau's 5-year ACS for 2016-2020. In contrast to the analysis of CPS data described in the previous sections, the ACS sample used in this sample is restricted to householder families (i.e., excluding any additional families that may live in the household) and income status is based on the householder family income. The ACS provides a much larger sample size of families and wider county coverage than the CPS data. Using the ACS, we are able to obtain county-level information for roughly 61 percent of householder families with low income. Importantly, families without county data are predominantly in unknown metrostatus areas and non-metropolitan or rural areas; thus the sample of families in these analyses is somewhat more urban and suburban than the overall population.⁴

 $^{^4}$ Appendix A shows comparisons of the ACS sample with county data, the corresponding group without county data, and the CPS sample.

Table 2: County Characteristics for Family Households with Low Income, 2016-2020

	All householders (N=3,583,115)	Householder families, low Income (N=248,328)	Householder families, not low income (N=1,024,131)
Unemployment rate			
Percentage of people age 16+ who are unemployed but seeking work	4%	4%	4%
Child poverty			
Percentage of people under age 18 living in poverty	16%	18%	15%
Severe housing problems			
Percentage of households with at least one of the following: Overcrowding, high housing costs, lack of kitchen facilities, or lack of plumbing facilities	19%	20%	18%
Child care cost burden (2022)			
Child care costs as a percent of median household income	27%	27%	25%
Broadband access			
Percentage of households with a broadband internet connection	85%	84%	85%
Long commute			
Percentage of workers who drive alone with a commute of >30 minutes	39%	38%	38%
Income inequality ratio			
Ratio of household income at the 80th percentile to the 20th percentile (a higher ratio indicates greater inequality)	4.8	4.8	4.8
Food environment index			
Index of 0 (worst) to 10 (best) for two indicators: 1) does not live close to a grocery store and 2) did not have reliable access to source of food	8.1	7.9	8.1
Air pollution			
Average daily density of fine particulate matter measured as micrograms per cubic meter (PM2.5)	8.9	9.1	8.3

	All householders (N=3,583,115)	Householder families, low Income (N=248,328)	Householder families, not low income (N=1,024,131)
Violent crime rate			
Number of reported violent crime offenses per 100,000 population	422	456	386
Child care centers (2022)			
Number of child care centers per 1,000 population under age 5	6	6	6

Data source: 2021 and 2022 County Health Rankings & Roadmaps, and the Integrated Public Use Microdata Series (IPUMS) 2016-2020 American Community Survey 5-Year Sample.

Note: "Low income" refers to family to householder family incomes below 200% of the official poverty threshold.

These data tell us that, on average, family households with low income tend to live in counties that have worse scores across many of the community health and well-being characteristics examined. For example, looking at economic factors, we see that family households with low income reside in counties that have a higher proportion of children living in poverty (18%), than do those with higher income (15%). However, other economic indicators, such as the unemployment rate and the measure of income inequality within the county are the same.

Family households with low income also live in counties that, relative to families in higher-income households, are characterized by:

- A slightly worse food environment of 7.9 (scale ranges from 0 (worst) to 10 (best) and captures access to healthy and reliable food sources).
- Somewhat more severe housing problems, with an average of 20 percent of households with at least one of four severe housing problems (lacking complete kitchen facilities, lacking complete plumbing facilities, overcrowding, or a household that is severely cost burdened).
- Higher levels of air pollution, scoring 9.1 on a measure of the average daily density of fine particulate matter.
- A substantially higher rate of violent crime—a reported 456 violent crime offenses per 100,000 population.
- A higher child care cost burden, with an average of roughly 27 percent of county households' median income going to child care.

Discussion

This report has provided a current data snapshot of many of the U.S. families who may be eligible for and benefit from 2Gen supports and services, including those living in households with incomes below 200 percent of the poverty threshold. 2Gen approaches highlight six key domains of intervention that research indicates can help put families on a path to success: physical and mental health, early childhood education, postsecondary and employment pathways, economic assets, K-12 education, and social capital.XV,XVII,XVIII Using nationally representative data, we described families across a range of measures in several of these domains, including health, education and employment, and economic supports. We supplemented this with

an examination of community characteristics at the level of the counties in which many families with low incomes live, allowing us to assess the health of their communities.

As we have demonstrated, the percentage of families in households with low incomes has declined over the past 10 years. This is good news, and points to the success of many of the existing social safety net programs in the United States. However, we also know that the COVID-19 pandemic has worsened economic hardship for many families since 2020. A range of federal initiatives—including direct economic payments and increased child tax credits—helped lift many families out of poverty during this time, he many pandemic-related supports have since expired. Families—especially those with low incomes—continue to struggle with increased costs of living, widening income inequality, and ongoing economic uncertainty and inflation. As this report has shown, many of these families also continue to face life circumstances—such as poor health, unemployment, lower levels of education, limited access to human services, and living in less-healthy communities—that can hinder economic stability and mobility. These are particularly pronounced for families headed by a single parent, families with young children, families with young parents, and multigenerational families.

The data used for these analyses did not allow us to look directly at some of the other important domains that 2Gen approaches prioritize—early childhood education and social capital—within families. However, we know from our analysis that family households with low incomes generally reside in counties with a slightly higher child care cost burden than other families. An increasing number of resources provide important information on the need for—and the availability, accessibility, and affordability of—high-quality early childhood educational opportunities for families, including under-resourced families. high-quality early childhood educational opportunities for families, including under-resourced families. have with people, networks, and information at the individual and community levels—for improved social and economic well-being. And information at the individual and community levels—for improved social and economic well-being. We know from our analysis that families in households with low incomes are more likely to live in somewhat less healthy counties than families with higher incomes—counties with higher poverty rates, more crime, and less access to healthy food. Other research has found that some of these same community characteristics can also hinder the development of social capital in communities. As researchers, policymakers, and practitioners continue to build out 2Gen supports for families, it is important that they be aware of some limitations that exist in the data.

- First, it is challenging to find any one data source that allows for a simultaneous examination of all domains highlighted in two-generation approaches. Thus, a full accounting of what families look like across these domains will need to rely on data from multiple sources.
- Second, some populations in the United States face disproportionate and unique barriers to economic
 stability—this includes, for example, Black, Hispanic, and AIAN families; families with a member who has
 a disability; and families who live in rural communities. A deeper consideration of the life circumstances
 that these and other populations face can be challenging, since many data sources do not have a large
 enough sample size to support an analysis of specific groups or do not include many of the measures
 that are particularly relevant for that population.
- Finally, as we addressed at the beginning of this report, what families look like is changing. U.S. families are diverse, which matters to our understanding of family resources and needs. We often think about families at the household level—in fact, the eligibility criteria for many human service programs are based on household-level factors, and large surveys frequently use households for sampling populations. However, we know that in many cases, family members who provide important support to one another do not always live together—such as tightly knit extended families living in different households or parents sharing custody of children. Our understanding of families' potential challenges, and of their available resources that can help them thrive—including their social connections—will be more complete if we pay attention to factors inside and outside the household.

Evidence suggests that coordinated and integrated approaches—such as 2Gen approaches—are likely to expand the reach and effectiveness of many human services designed to support families' economic stability and mobility. This is important because, despite the increased reach of some social safety net programs, we

know that many families are not receiving the opportunities and support they need to obtain economic security. Additionally, the field will need to make sure that efforts to help families thrive also focus on removing very real barriers to social and economic well-being for many families—barriers that often result from policies and practices embedded within the very systems that aim to help them.

Data, Sample, and Measures

Data sources

2021 and 2011 CPS ASEC

The main data for this report come from the Current Population Survey (CPS) 2021 Annual Social and Economic Supplement (ASEC, also referred to as the "March Supplement"), conducted by the Bureau of the Census for the Bureau of Labor Statistics and downloaded from the Integrated Public Use Microdata Series (IPUMS) website. In the CPS collects data from a probability sample of U.S. households to provide nationally representative estimates for the civilian non-institutionalized population of the United States. In addition to basic monthly questions, the CPS has a variety of supplements collected during specific months to focus on specific topics. The ASEC is the official government source on employment and unemployment, and provides further information on income, non-cash benefits, migration, and standard sociodemographic characteristics (e.g., age and sex, race and Hispanic origin, nativity, marital status and family structure, household composition). For select analyses, we also use data from the 2011 ASEC.

2016-2020 ACS

We also use data from the 2016-2020 5-Year Sample of the American Community Survey (ACS), conducted by the Bureau of the Census and downloaded from IPUMS. Ixii The ACS is an ongoing survey of approximately 3.5 million households that provides estimates of a variety of population, family, household, and other estimates on a yearly basis in between Decennial Censuses. In addition to the yearly data releases, the Census Bureau also releases pooled 5-year ACS samples designed to produce multiyear estimates and allow larger sample sizes for geographic areas with less than 65,000 residents.

County-level data

To estimate the characteristics of communities where families with low incomes live, we use county-level data from the County Health Rankings & Roadmaps (CHR&R), low in a program of the University of Wisconsin Population Health Institute funded by the Robert Wood Johnson Foundation (RWJF). The data include Federal Information Processing System (FIPS) codes that uniquely identify counties, allowing us to link the county data with our ACS family data. CHR&R compiles county data from a variety of sources that are released at different times, so data come from different years for different measures, indicated below. All county measures used in these analyses come from the 2021 CHR&R data except for the child care measures, which were only available in the 2022 data. Many of the measures in the 2022 CHR&R used data from 2020 and 2021, so we used the 2021 CHR&R data as our primary source to better align with the 2016-2020 years of our ACS sample.

Samples

CPS family samples

Our main analyses in this report focus on a sample of 6,003 families in households with low income from the 2021 CPS ASEC. To identify these families, we use data from 21,846 families in the data, represented by parents (i.e., one parent per family to ensure that no family is counted twice) age 15 or older not living in

group quarters who report (1) that they have at least one of their own children (including biological, adopted, and stepchildren) living in the household with them, and (2) that their youngest child in the household is under 18. Our family sample's parents are therefore restricted to residential parents. Similarly, CPS data do not include details on custody arrangements or the percentage of time the child lives in the respondent's home, so our family sample likely includes families whose children do not live with them full-time. For families with two parents, we use information from both parents. Our analytic sample does not include families with children who are not living with either parent (for example, children living with grandparents). There are a small number of respondents who may be categorized as unpartnered when they are cohabiting with an unmarried partner, due to misalignment or misassignment of family and household relationship identifiers in the original and IPUMS data that we were not able to resolve.

Families are considered low income in the CPS samples based on their total household income and the designated family income threshold for calculating families' official poverty status, provided in the data. Incomes below the assigned threshold are considered below the poverty level; we calculated household incomes against specific percentages of the official poverty threshold (for example, below 200 percent of the poverty threshold) and classified families accordingly. While this approach combines two different income measures, family income and household income, nearly all of our sample's families were the householder family and were in single-family households (roughly 92%), resulting in identical family and household incomes in the vast majority of cases. Additionally, household income is used for a variety of public aid eligibility criteria.⁶

The 2011 ASEC family sample used in select figures has the same parameters described above and consists of 30,185 total families, including 11,659 families with household incomes below 200 percent of the official poverty threshold.

CPS family type subgroups

We present estimates for several family type subgroups (not mutually exclusive) in the CPS samples:

- Families headed by a single parent (n=2,858), defined as a parent who is not married (to a spouse present in the household) and is not living with an unmarried cohabiting partner.
- Families with children under age 5 (n=2,391), defined as families with at least one child under age 5 living in the household.
- Families with young parents (n=879), defined as families in which one or more parent is under the age of 28, a proxy for "young" as the data do not provide information on parents' age at first birth and only provide age for parents' oldest child currently living in the household. We selected the cutoff of 28 years old because (1) the numbers of teen and even early- and mid-20s parents were too low to generate reliable estimates, and (2) because the median age at first birth for women in the U.S. is roughly 27 years old, and the average age roughly 28 for men, both of whom are included in our family sample. Thus, any parent who already has children by that age began having children earlier than the national median.
- Families in multigenerational households (n=663), defined as families with three or more generations living in the household, such as a cohabiting couple with a child living with at least one of the partner's parents.

ACS family sample

The analytic ACS sample for estimating community characteristics consists of 894,540 families. We define families in the ACS sample with the same parameters as the CPS samples, but we restrict the sample to

⁵ Of all children under age 18 living in a household in the 2021 ASEC, roughly four percent were not living with a parent.

⁶ For the households with different family and household incomes, additional sensitivity analyses found that differences were often the result of cohabiting partners' individual income being excluded from the focal parent's family income, since unmarried partners were assigned categorized as separate family units in the data, whereas their income is included in household income.

householder families (i.e., where a parent in the family is the householder). The ACS data do not identify family relationships in non-householder families as effectively as the CPS, particularly for cohabiting couples—only single and married couples are identified in household subfamilies. We identify families' poverty status based on the IPUMS-provided POVERTY variable, which indicates families' percentage of the official poverty threshold from 1 percent or below to 599 percent. The ACS sample of householder families with low incomes includes the 248,328 families from the main analytic sample with incomes below 200 percent of the poverty threshold, which in this sample aligns closely with the household's income. While the data do provide household income, they do not provide thresholds for the official poverty measure as in the CPS; however, as in the CPS sample, the vast majority of the family sample are householders and in single-family households, and cohabiting families are underestimated irrespective of income data as described above. Overall, these differences are small and the CPS and ACS family samples are similar (See Appendix A).

Measures

Family demographics

Parent union status refers to three mutually exclusive categories indicating whether family parents are single (and not living with a partner), married (with spouse present in the household), or cohabiting⁷ with an unmarried partner for both CPS and ACS samples. Thus, cohabiting and single parents may be separated or married with no spouse present, divorced, or widowed.

Mother- or father-headed family refers to whether a family headed by a single parent is headed by the father or mother, based on the reported sex of the parent. The data do not allow us to further account for respondents' gender. While we can identify whether a two-parent family consists of two mothers or two fathers, we do not present estimates separated by same- versus different-gender parents.

Housing status in the CPS sample identifies whether parents live in a home that is owned or being bought, rented for cash, or occupied without payment of cash rent.

Household living arrangements measures include whether the sample family's parent(s) are living with one or more of their parents or, in the case of two-parent families, one of their partner's parents—also considered "multigenerational" households. Using this definition, in the CPS these households do not include families consisting of children who live with grandparents but not their parents. For the ACS sample, we use the data's detailed "multigenerational household" variable that captures some multigenerational housing situations not captured otherwise, such as a reference parent living with an absent or deceased partner's parents. We also estimate families who live with other individuals or families who are not parents (e.g., adult siblings, unrelated housemates, friends, etc.). For the CPS sample we create these categories based on information collected from respondents.

Young parents is a constructed dichotomous measure for both the CPS and ACS samples indicating whether one or more parent is under the age of 28, as a proxy for "young" parent(s) as the data do not provide information on parents' age at first birth and only provide age for parents' oldest child currently living in the household. With these limitations in mind, we selected the cutoff of 28 years old because (1) the numbers of teen and even early- and mid-20s parents were too low to generate reliable estimates, and (2) because the national average age at first birth for women is roughly 27 years old, and slightly older for men, both of whom are included in our family sample. Thus, any parent who already has children by that age began having children earlier than the national median.

⁷ In some cases, a discrepancy between the IPUMS-derived and original CPS flags for a cohabiting partner's location in the household results in respondents being categorized as either single or cohabiting, depending on which variable is used. Following recommendations from IPUMS, we defer to the original CPS flag for cohabitation.

Presence of children under age 5 is a dichotomous measure provided in both the CPS and ACS IPUMS files indicating that the respondent has an own child under the age of 5 living in the household.

Parent race-ethnicity is a five-category couple-level constructed measure for the CPS samples that incorporates race-ethnicity information from the focal parent as well as their partner, if they have one. Parents are categorized as either "all" Hispanic (i.e., the focal parent is Hispanic if single, or if partnered the focal parent and their partner are both Hispanic), all non-Hispanic White, all non-Hispanic Black, all another race or ethnicity not listed (e.g., Asian, Native American, Multiracial), or another interracial or interethnic pairing of one of the race-ethnicity categories. Since all single parents are accounted for in the first four categories, the fifth category by default only includes partnered parents.

Parental health status includes two measures in the CPS data derived from a self-rated overall health question with responses of poor, fair, good, very good, or excellent. We present estimates of families in which at least one parent is in fair/poor health, and families in which all/both parents are in fair/poor health (for single parents, as in other measures that incorporate partner data, the estimate is the same).

Education and employment

Current employment status is measured as a family having at least one parent who is currently employed, in which we include those who reported having work, having a job but not at work the previous week, and being in the Armed Forces, from an ASEC employment status variable. While Armed Forces is often considered separate from the civilian labor force, we include it here given our interest in identifying families with parents with gainful activity providing income. For the same reason, denominators for estimates on current employment include parents who reported not being in the labor force.

Current employment category is a more detailed measure of parents' current employment that incorporates their full-time status and whether they are usually full-time or part-time, with the mutually exclusive categories of at least one parent working full-time, all/both parents working part-time, no full-time parent but at least one parent working part-time, and no/neither parent currently employed. For this measure we restrict "full-time" to those who report having regular full-time work. That is, those who are currently working at least 35 hours per week and usually work full-time, and not including those who report not working or working part-time despite usually working full-time, or those who report currently working full-time hours but usually working part-time.

Employment in the previous year (2020) includes a measure of whether at least one parent in the family worked full-time in the previous year (the source variable does not include the detailed full-time/part-time status described for current employment), and whether at least one parent did not work at all in the previous year. For those who did not work in the previous year, the ASEC collects information on why respondents did not work. For the subset of families with at least one parent who did not work in the previous year, we include estimates of families in which at least one parent did not work due to illness or disability, and in which at least one parent did not work in order to take care of home or family.

Attending school is used for the CPS sample and has three mutually exclusive categories for whether any parent is currently attending high school, attending college or university, or no parent is attending school.

Highest educational attainment for the CPS sample refers to the educational attainment of single parents, or for partnered parents, the highest level attained of the most educated parent. Some more detailed levels (such as grades below 12, years of college without graduation, and associate's degree programs) were combined into single categories due to small sample sizes and to align with commonly used educational attainment categories.

Human services

Public benefits includes four indicators derived from CPS measures to indicate whether at least one parent received cash assistance (also referred to as cash welfare, such as TANF) in the previous year, based on a measure of the amount of cash assistance received; whether someone in the family's household received WIC assistance; whether someone in the family's household received SNAP, sometimes referred to as "food stamps;" and whether families live in government-subsidized housing through either public housing or subsidized rent. Estimates generated from these measures are likely conservative, as studies have documented underreporting of public program participation in the CPS when compared to actual participation and relative to the Survey of Income and Program Participation. SNAP recipients not reporting participation in the CPS ASEC has been estimated as high as 46 percent in some states; another study found that only two-thirds of SNAP, TANF, and WIC benefits were commonly reported across several major national surveys including the CPS.

Health insurance coverage incorporates coverage information in the CPS to create a three-category measure indicating whether all/both parents have health insurance coverage (including public coverage), at least one parent has coverage, or no parent has coverage.

Community characteristics

The community characteristics presented come from the CHR&R data and are all county-level measures.

Unemployment rate is the percentage of people age 16+ who are unemployed but seeking work and comes from 2019 Bureau of Labor Statistics data.

Percentage of children in poverty is the percentage of people under age 18 living in poverty and comes from the Census Bureau's 2019 Small Area Income and Poverty Estimates.

Income inequality ratio is the ratio of household income at the 80th percentile to that at the 20th percentile, i.e., when the incomes of all households in a county are listed from highest to lowest, the 80th percentile is the level of income at which only 20 percent of households have higher incomes, and the 20th percentile is the level of income at which only 20 percent of households have lower incomes. A higher inequality ratio indicates greater division between the top and bottom ends of the income spectrum. This measure comes from the 2015-2019 ACS 5-year data.

Severe housing problems draws on data from the U.S. Department of Housing and Urban Development's Comprehensive Housing Affordability Strategy data for 2013-2017 and indicates the percentage of households with one or more of the following:

- 1. Overcrowding
- 2. High housing costs
- 3. Lack of kitchen facilities
- 4. Lack of plumbing facilities

The food environment index comes from the U.S. Department of Agriculture's Food Environment Atlas (2015) and Feeding America's Map the Meal Gap (2018). The measure ranges from 0 (worst) to 10 (best) and equally weights two indicators of the food environment:

- Limited access to healthy foods: The percentage of the population that is low income and does not live close to a grocery store.
- Food insecurity: The percentage of the population that did not have access to a reliable source of food during the past year.

Violent crime rate is the number of reported violent crime offenses per 100,000 population and comes from the Federal Bureau of Investigation's 2014 and 2016 Uniform Crime Reporting.

Air pollution refers to the average daily density of fine particulate matter, measured as micrograms per cubic meter ($PM_{2.5}$), and comes from 2016 data from the Centers for Disease Control and Prevention's Environmental Public Health Tracking Network.

Child care cost burden is the child care costs for a household with two children as a percent of median household income and comes from the Massachusetts Institute of Technology's Living Wage Calculator 2021) and the Census Bureau's Small Area Income and Poverty Estimates (2020). This measure is only available in the 2022 CHR&R.

This measure is not fully representative of the cost burden of child care in a county, as half of the
households have a lower income and thus child care would constitute an even higher percentage of their
income. Similarly, this measure is not representative of the cost of child care for families with more than
two children, or with infant children. Finally, the quality of child care is most important in terms of
positive impacts on children's development, and the measure of Child Care Cost Burden does not reflect
the quality of available care.

Child care centers measures the number of child care centers per 1,000 population under age 5 and comes from the U.S. Department of Homeland Security's 2021 Homeland Infrastructure Foundation-Level Data. This measure is only available in the 2022 CHR&R.

• The presence of child care centers measures one aspect of child care availability. Child care must also be affordable, high-quality, reliable and have sufficient enrollment capacity to effectively support households with children. This measure does not capture the quality, affordability, reliability, or enrollment opportunities relating to the centers counted in the data set. The dataset only includes center-based child day care locations (including those located at schools and religious institutes) and does not include group, home, or family-based child care.

Broadband access is the percentage of households with a broadband internet connection through subscription and comes from the 2015-2019 ACS 5-year data.

Long commute is the percentage of workers who drive alone with a commute longer than 30 minutes and comes from the 2015-2019 ACS 5-year data.

Appendix A. Select characteristics of ACS versus CPS analytic family samples

	ACS 2016-2020 5yr (N=894,540)	ACS w/o county ID (N=561,761)	CPS ASEC 2021 (N=21,846)
Poverty			
<100% FPL	14%	15%	11%
100-199% FPL	18%	20%	17%
>=200%FPL	68%	64%	71%
Union status			
Single	24%	23%	28%
Married	68%	67%	65%
Cohabiting	8%	9%	7%
Family type (below 200% FPL)			
All low-income parents	32%	36%	29%
Young child	13%	15%	12%
Young parent	5%	7%	5%
Multigenerational household	2%	2%	3%
Single parents	14%	15%	14%
Metro status			
Central city	16%	3%	27%
Outside central city	37%	22%	47%
Metro/mixed area	46%	21%	-
Non-metro area	1%	21%	12%
Unknown/unidentifiable	0%	33%	14%

Data source: Integrated Public Use Microdata Series (IPUMS) 2016-2020 American Community Survey 5-Year Sample and the 2021 Annual Social and Economic Supplement of the Current Population Survey.

Acknowledgements

The authors thank <u>Ascend at the Aspen Institute</u>'s Anne Mosle, Marjorie Sims, Sarah Haight and Shilpi Niyogi for their collaboration and review. Additionally, they thank Mindy Scott, Zakia Redd, and Kristen Harper for their helpful reviews of the report and Ria Shelton and Lauren Kissela for their research assistance at multiple stages of this project.

About the authors

Elizabeth Wildsmith, PhD, is a research scholar at Child Trends. She is a family demographer whose research examines the process of marriage, cohabitation, and childbearing, as well as how social and family contexts are linked to the health and well-being of women, children, and families.

Marta Alvira-Hammond, MA, is a research scientist at Child Trends. She is a social demographer whose work focuses on child and family well-being and how they are linked to social and economic contexts.

Suggested Citation: Wildsmith, E., & Alvira-Hammond, M. (2023). *Data on families with low incomes across America can inform two-generation approaches*. Child Trends. https://doi.org/10.56417/1147h453i

References

¹ Creamer, J., Shrider, E. A., Burns, K. & Chen, F. (2022). *Poverty in the United States*: 2021. U.S. Census Bureau. https://www.census.gov/library/publications/2022/demo/p60-277.html

iv Haskins, R., Garfinkel, I., & McIanahan, S.S. (2015). Introduction: Two-Generation Mechanisms of Child Development. *The Future of Children*, 24, 12 - 3.

^v Benzow, A., & Fikri, K. (2020). The expanded geography of high-poverty neighborhoods - How the economic recovery from the great recession failed to change the landscape of poverty in the United States. Economic Innovation Group. https://eig.org/wp-content/uploads/2020/04/Expanded-Geography-High-Poverty-Neighborhoods.pdf

vi Office of Disease Prevention and Health Promotion. (n.d.). *Discrimination*. Healthy People 2030. https://health.gov/healthypeople/priority-areas/social-determinants-health/literature-summaries/discrimination

vii Boehm, T. P. & Schlottmann, A. (2004). Wealth accumulation and homeownership: Evidence for low-income households. U.S. Department of Housing and Urban Development. https://www.huduser.gov/portal/publications/HOMEOWN/WAccuNHomeOwn.html

viii Office of Disease Prevention and Health Promotion (n.d.). *Social and community context*. https://health.gov/healthypeople/objectives-and-data/browse-objectives/social-and-community-context

^{II} Thomson, D., Ryberg, R., Harper, K., Fuller, J., Paschall, K., Franklin, J., & Guzman, L. (2022). Lessons from a historic decline in child poverty. Child Trends. https://doi.org/10.56417/1555c6123k

iii Opportunity Insights. (n.d.). The American Dream is fading. https://opportunityinsights.org/national_trends/

- ix Hoagwood, K. E., Rotheram-Borus, M. J., McCabe, M. A., Counts, N., Belcher, H. M. E., Walker, D. K. & Johnson, K. A. (2018). The interdependence of families, communities, and children's health: Public investments that strengthen families and communities and promote children's healthy development and societal prosperity. *National Academy of Medicine Perspectives*. https://doi.org/10.31478/201804a
- * Hellerstein, J. K., & Neumark, D. (2020). Social Capital, Networks, and Economic Wellbeing. *The Future of Children*, 30(1), 127–152.

https://futureofchildren.princeton.edu/sites/g/files/toruqf2411/files/foc vol 30 no 1 combined v6.pdf

- xiChaudry, A., & Wimer, C. (2016). Poverty is not just an indicator: The relationship between income, poverty, and child well-being. *Academic Pediatrics*, 16(3), S23–S29. https://doi.org/10.1016/j.acap.2015.12.010
- xii National Academies of Sciences, Engineering, and Medicine. (2019). Consequences of child poverty. In G. Duncan and S. I. Menestrel (Eds.), A roadmap to reducing to child poverty. The National Academies Press. https://doi.org/10.17226/25246.
- xiii Future of Children. (2014). Helping Parents, Helping Children: Two Generation Mechanisms. *Future of Children*, 24(1). https://futureofchildren.princeton.edu/sites/g/files/toruqf2411/files/media/helping parents helping children 24 01 full journal.pdf
- xiv Quint, J., Griffin, K. M., Kaufman, J., & Landers, P. (n.d.). Experiences of Parents and Children Living in Poverty A Review of the Qualitative Literature. Office of Planning, Research, and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services.
- xv Pina, G., Moore, K. A., Sacks, V. & McClay, A. (2022). Two-Generation Programs may have long-term benefits, according to simulation. Child Trends. https://www.childtrends.org/publications/two-generation-programs-may-have-long-term-benefits-according-to-simulation
- xvi Upadhyaya, S., Blocker, C. P., Houston, H. R., & Sims, M. R. (2021). Evolving two-generation services to disrupt the intergenerational effects of poverty and promote family well-being. *Journal of Business Research*, 125, 324–335. https://doi.org/10.1016/j.jbusres.2020.12.019;
- xvii Mosle, A., & Sims, M. (2021). State of the field: Two-generation approaches to family well-being. Ascend the Aspen Institute.
- xviii Ascend the Aspen Institute (n.d). Making tomorrow better together report of the two-generation outcomes working group. https://ascend.aspeninstitute.org/wp-content/uploads/2020/10/Making-Tomorrow-Better-Together -Process-Outcomes-and-Measures-for-2Gen-Organizational-Change.pdf#:~:text=In%202015%2C%20Ascend%20Network%20Partners%20spearhead%20the%20development,and%20family%20outcomes%20when%20taking%20a%202Gen%20approach.
- xix Pew Research Center. (2015). *The American family today*. https://www.pewresearch.org/social-trends/2015/12/17/1-the-american-family-today/
- xx Eickermeyer, K., Hemez, P., Manning, W. D., Brown, S. L. & Guzzo, K. B. (2020). *Trends in relationship formation and stability in the United States: Dating, cohabitation, marriage, and divorce*. Child Trends. http://mastresearchcenter.org/wp-content/uploads/2020/05/MAST-PA1-Trends-Brief_May-2020_final.pdf

- xxi Cherlin, A. (2018). Marriage has become a trophy. The Atlantic. https://www.theatlantic.com/family/archive/2018/03/incredible-everlasting-institutionmarriage/555320/
- xxii Manning, W. D. & Carlson, L. (2021). Trends in Cohabitation Prior to Marriage. Family Profiles, FP-21-04. https://doi.org/10.25035/ncfmr/fp-21-04
- xxiii Horowitz, J. M., Graf, N. & Livingston, G. (2019). Marriage and Cohabitation in the U.S. Pew Research Center. https://www.pewresearch.org/social-trends/2019/11/06/marriage-and-cohabitation-in-the-u-s/
- xxiv Martin, J. A., Hamilton, B. E., Sutton, P. D., Ventura, S. J., Menacker, F., Kirmeyer, S., & Munson, M. L. (2007). Births: Final Data for 2005. National Vital Statistics Reports. https://www.cdc.gov/nchs/data/nvsr/nvsr56/nvsr56 06.pdf
- xxv Osterman, M. J. K., Hamilton, B. E., Martin, J. A., Driscoll, A. K., Valenzuela, C. P. (2022). Births: Final Data for 2020. National Vital Statistics Reports. https://www.cdc.gov/nchs/data/nvsr/nvsr70/nvsr70-17.pdf
- xxvi Livingston, G. (2018). The changing profile of unmarried parents. Pew Research Center. https://www.pewresearch.org/social-trends/2018/04/25/the-changing-profile-of-unmarried-parents/
- xxvii United States Census Bureau. (2022). The History of the Official Poverty Measure. Census.gov. https://www.census.gov/topics/income-poverty/poverty/about/history-of-the-poverty-measure.html
- xxviii United States Census Bureau. (2022). Measuring America: How the U.S. Census Bureau Measures Poverty. Census.gov. https://www.census.gov/library/visualizations/2021/demo/poverty_measure-how.html
- xxix Dinan, K. A. (2009). Budgeting for basic needs: A struggle for Working Families. National Center for Children in Poverty. https://www.nccp.org/publication/budgeting-for-basic-needs-a-struggle-for-working-families/
- xxx United States Department of Housing and Urban Development. (n.d.). HUD Archives: Barriers to Minority Homeownership. https://archives.hud.gov/reports/barriers.cfm
- xxxi Goodman, L., McCargo, A., Golding, E., Strochak, S., & Bai, B. (2018). Barriers to Accessing Homeownership: Down Payment, Credit, and Affordability. Housing Finance Policy Center. https://www.urban.org/sites/default/files/publication/99028/barriers to accessing homeownership 2018 4.pdf
- xxxii Cohn, D., Horowitz, J. M., Minkin, R., Fry, R. & Hurst, K. (2022). The experiences of adults in multigenerational households. Pew Research Center. https://www.pewresearch.org/socialtrends/2022/03/24/the-experiences-of-adults-in-multigenerational-households/
- xxxiii Him, D. A. & Gordon, H. S. J. (2022). Latest census estimates show disproportionate poverty among American Indian and Alaska Native (AIAN) children and the overall AIAN population. Child Trends. https://www.childtrends.org/blog/latest-census-estimates-show-disproportionate-poverty-amongamerican-indian-and-alaska-native-aian-children-and-the-overall-aian-population
- xxxiv Jordan, E., & Bredeson, M. (2022). Reducing Child Poverty for Our Youngest Children Requires That We Consider Their Unique Needs. Child Trends. https://www.childtrends.org/publications/reducing-childpoverty-for-our-youngest-children-requires-that-we-consider-their-unique-needs

- xxxv He, M., Carbrera, N., Renteria, J., Chen, Y., Alonso, A., McDorman, S. A., Kerlow, M. A. & Reich, S. M. (2021). Family functioning in the time of COVID-19 among economically vulnerable families: Risks and protective factors. *Frontiers in Psychology*. https://doi.org/10.3389/fpsyg.2021.730447
- xxxvi Lee, H. (2021). Supporting families with young children: Using existing services during the pandemic. MDRC. https://www.mdrc.org/publication/supporting-families-young-children
- xxxvii Kalil, A., Mayer, S., & Shah, R. (2020). *Impact of the COVID-19 Crisis on Family Dynamics in Economically Vulnerable Households*. Becker Friedman Institute for Economics at University of Chicago. https://bfi.uchicago.edu/wp-content/uploads/2020/10/BFI_WP_2020143.pdf
- xxxviii Schmeer, K. K. (2012). Early childhood economic disadvantage and the health of Hispanic children. Social Science & Medicine, 75(8), 1523–1530. https://doi.org/10.1016/j.socscimed.2012.05.031
- xxxix Ferraro, K. F., Schafer, M. H., & Wilkinson, L. R. (2016). Childhood Disadvantage and Health Problems in Middle and Later Life: Early Imprints on Physical Health? *American Sociological Review*, 81(1), 107–133. https://doi.org/10.1177/0003122415619617
- xl Swain, G. R. (2016). How does economic and social disadvantage affect health? *Focus*, 33(1). https://www.irp.wisc.edu/publications/focus/pdfs/foc331a.pdf
- xli Thorpe, K. E., &; DeMatteis, C. (2016). Addressing health in America to build wealth. *Health Affairs Forefront*. https://doi.org/10.1377/forefront.20160418.054518
- xlii U.S. Bureau of Labor Statistics. (2020). *Barriers to employment for people with a disability*. TED: The Economics Daily. https://www.bls.gov/opub/ted/2020/barriers-to-employment-for-people-with-a-disability.htm
- xliii McLellan, R. K. (2017). Work, health, and worker well-being: Roles and opportunities for employers. Health Affairs, 36(2), 206–213. https://doi.org/10.1377/hlthaff.2016.1150
- xliv Schnittker, J. & Bacak, V. (2014). The Increasing Predictive Validity of Self-Rated *Health. PLoS ONE*, *9*(1). https://doi.org/10.1371/journal.pone.0084933
- xlv Institute for Women's Policy Research (IWPR). (2018). Institute for Women's Policy Research (IWPR) analysis of data from the U.S. Department of Education, National Center for Education Statistics, 2015–16 National Postsecondary Student Aid Study (NPSAS:16).
- xlvi Office of Disease Prevention and Health Promotion. (n.d.). *High School Graduation*. Healthy People 2030. https://health.gov/healthypeople/priority-areas/social-determinants-health/literature-summaries/high-school-graduation
- xivii U.S. Bureau of Labor Statistics. (2023). Consumer Price Index: 2022 in review. TED: The Economics Daily. https://www.bls.gov/opub/ted/2023/consumer-price-index-2022-in-review.htm#:~:text=Consumer%20prices%20for%20all%20items,for%20food%20away%20from%20hom
- xiviii U.S. Bureau of Labor Statistics. (2023). Consumer Price Index: 2022 in review. TED: The Economics Daily. https://www.bls.gov/opub/ted/2023/consumer-price-index-2022-in-review.htm#:~:text=Consumer%20prices%20for%20all%20items,for%20food%20away%20from%20home

xlix Martinchek, K. (2022). Inflation could drive more families toward food insecurity this summer. Urban Institute. https://www.urban.org/urban-wire/inflation-could-drive-more-families-toward-food-insecurity-summer

Wager, E., Ortaliza, J. & Cox, C. (2022). How does health spending in the U.S. compare to other countries? Peterson-KFF Health System Tracker. https://www.healthsystemtracker.org/chart-collection/healthspending-u-s-compare-countries-2/

Fox, L., & Burns, K. (2022). The Impact of the 2021 Expanded Child Tax Credit on Child Poverty. Census.gov. https://www.census.gov/library/working-papers/2022/demo/SEHSD-wp2022-24.html#:~:text=This%20paper%20examines%20the%20impact,lifted%20above%20the%20povertv%20li

Hamilton, L., Roll, S., Despard, M., Maag, E., Chun, Y., Brugger, L., & Grinstein-Weiss, M. (2022). The impacts of the 2021 expanded Child tax credit on family employment, nutrition, and financial well-being. Brookings. https://www.brookings.edu/research/the-impacts-of-the-2021-expanded-child-tax-credit-on-familyemployment-nutrition-and-financial-well-being/

iii Paschall, K., Davis, E. E., & Tout, K. (2021). Measuring and comparing multiple dimensions of early care and education access. OPRE Report #2021-08. Washington, DC: Office of Planning, Research, and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services. https://www.acf.hhs.gov/sites/default/files/documents/opre/CCEEPRA-measuring-access-february-2021.pdf

liv Miranda, B., Gebhart, T., Madill, R., & Halle, T. (2020). Snapshots from the NSECE: How Are LowerIncome Households Using Nonparental Care for Children Under Age 6? An Analysis of Primary and Combinations of Care Types. OPRE Report #2020-150. Washington, DC: Office of Planning, Research, and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services. https://www.acf.hhs.gov/sites/default/files/documents/opre/CCEEPRA-snapshot-nonparental-care-2020.pdf

^{Iv} Friese, S., Lin, V., Forry, N. & Tout, K. (2017). Defining and Measuring Access to High Quality Early Care and Education: A Guidebook for Policymakers and Researchers. OPRE Report #2017-08. Washington, DC: Office of Planning, Research and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services.

https://www.acf.hhs.gov/sites/default/files/documents/opre/cceepra access guidebook final 213 b508.p <u>df</u>

^{lvi} Hill, Z., Bali, D., Gebhart, T., Schaefer, C., & Halle, T. (2021). Parents' reasons for searching for care and results of search: An analysis using the Access Framework. OPRE Report #2021-39. Washington, DC: Office of Planning, Research, and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services.

https://www.acf.hhs.gov/sites/default/files/documents/opre/Search%20and%20Use%20of%20Care%20S napshot%20508.pdf

lvii Rocco, L., & Suhrcke, M. (n.d.). Is social capital good for health? World Health Organization. https://www.euro.who.int/ data/assets/pdf file/0005/170078/Is-Social-Capital-good-for-your-health.pdf

lviii Abbott, M., & Reilly, A. (2019). The role of social capital in supporting economic mobility. Office of the Assistant Security for Planning and Evaluation.

https://aspe.hhs.gov/sites/default/files/migrated_legacy_files/189421/socialcapitalsupportingeconomicmobility.pdf

lix Chetty, R., Jackson, M. O., Kuchler, T., Stroebel, J., Hendren, N., Fluegge, R. B., Gong, S., Gonzalez, F., Grondin, A., Jacob, M., Johnston, D., Koenen, M., Laguna-Muggenburg, E., Mudekereza, F., Rutter, T., Thor, N., Townsend, W., Zhang, R., Bailey, M., ... Wernerfelt, N. (2022). Social capital I: Measurement and associations with economic mobility. *Nature*, 608(7921). https://doi.org/10.1038/s41586-022-04996-4

^{lx} Haskins, R., Garfinkel, I., & McLanahan, S. (2014). Future of Children. Helping Parents, Helping Children: Two Generation Mechanisms. *Future of Children*, 24(1). https://futureofchildren.princeton.edu/sites/g/files/toruqf2411/files/media/helping_parents_helping_children_24_01_full_journal.pdf

lxi Flood, S., King, M., Rodgers, R., Ruggles, S., Warren, J. R. & Westberry, M. (2022) *Current Population Survey* (Version 10.0) [dataset]. Integrated Public Use Microdata Series. https://doi.org/10.18128/D030.V10.0

lxii Ruggles, S., Flood, S., Goeken, R., Schouweiler, M. & Sobek, M. (2022). *IPUMS USA* (Version 12.0) [dataset]. Integrated Public Use Microdata Series. https://doi.org/10.18128/D010.V12.0

lxiii University of Wisconsin Population Health Institute. (n.d.). County Health Rankings & Roadmaps. https://www.countyhealthrankings.org/

lxiv Shrivastava, A., & Thompson, G. A. (2022). TANF Cash Assistance Should Reach Millions More Families to Lessen Hardship. Center on Budget and Policy Priorities. https://www.cbpp.org/research/income-security/tanf-cash-assistance-should-reach-millions-more-families-to-lessen

kv Rothbaum, J., Fox, L. A., & Shantz, K. (n.d.). Fixing Errors in a SNAP: Addressing SNAP Under-reporting to Evaluate Poverty. Census.gov. https://www.bls.gov/cex/rothbaum_consumption_symposium.pdf

havi Meyer, B., Mok, W. K., & Sullivan, J. (2009). The Under-Reporting of Transfers in Household Surveys: Its Nature and Consequences. National Bureau of Economic Research. https://doi.org/10.3386/w15181