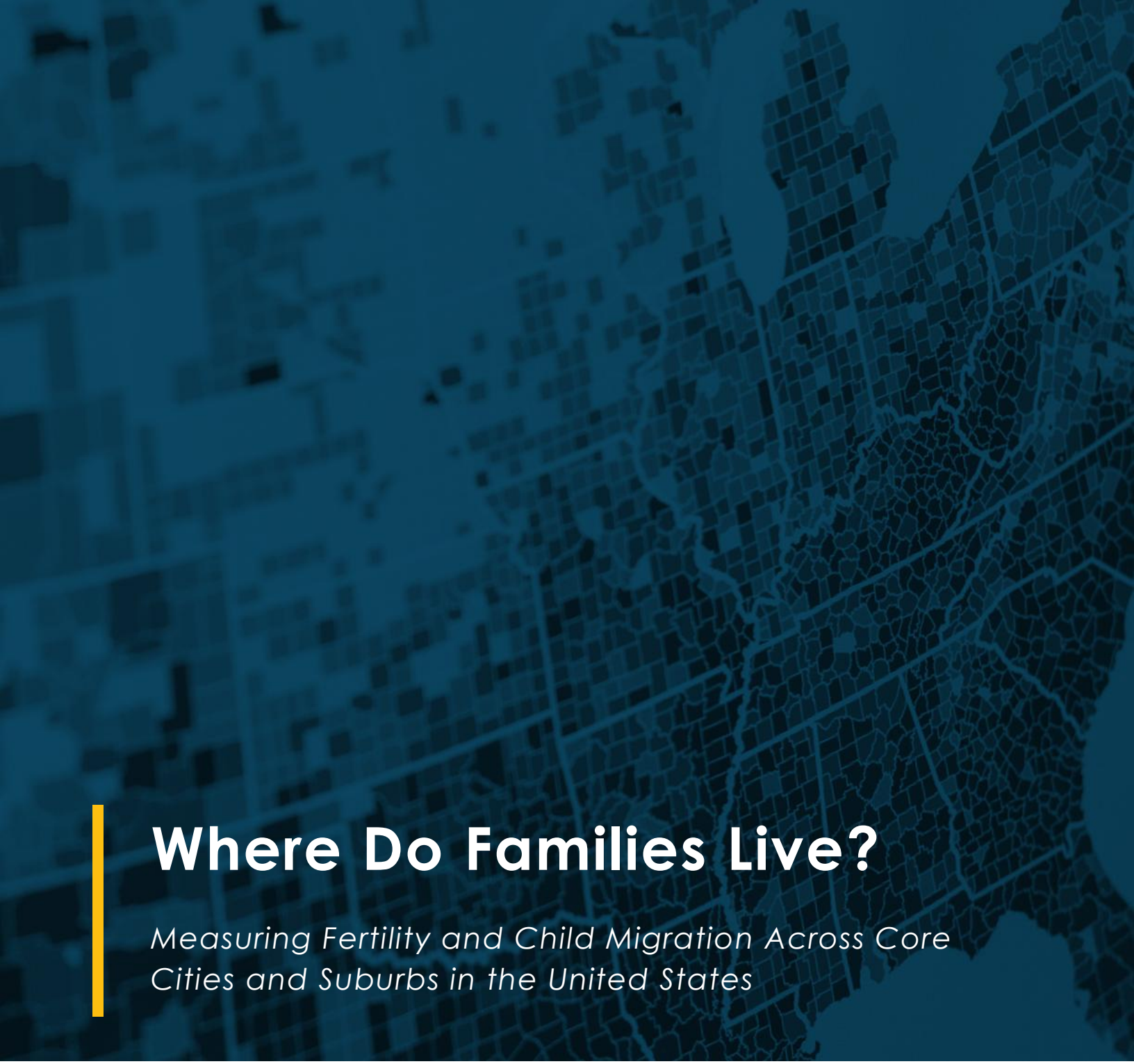

Where Do Families Live?

Measuring Fertility and Child Migration Across Core Cities and Suburbs in the United States

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URBAN INSTITUTE

RESEARCH REPORT

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Executive Summary

Local governments across the United States face growing challenges in sustaining stable population growth and retaining households with children as historically low fertility rates coincide with accelerating out-migration of young families from core urban areas (Martin et al. 2025; Kearney et al. 2022).[1] These demographic shifts have profound implications for local fiscal planning, school system design, and long-run population projections. Millennials flocked into core cities throughout the first two decades of the 21st century, and many had children there, but now, many of them are leaving core cities, even as they enter peak earning years (Lee et al. 2024). Historically low and declining fertility rates combined with a postpandemic rise of remote work have accelerated the dispersal of high-income households away from dense urban cores and are reshaping the demographic landscape that cities and state governments must plan around (Kearney et al. 2022; Martin et al. 2025; Ramani et al. 2024). These trends raise pressing questions about what cities must offer to attract and retain households with children.

Although no study has yet treated family formation and retention as a formal urban performance indicator, the convergence of evidence on workforce demographics, neighborhood effects on intergenerational mobility, and the fiscal consequences of population decline suggest that states, regions, and cities should begin using family formation and retention as early indicators of future workforce capacity, long-run inequality trajectories, and fiscal health (Asquith and Mast 2024; Chetty and Hendren 2018; Kearny et al. 2022; Maestas et al. 2022; Sprung-Keyser and Porter 2023). Indeed, higher family populations in cities may be a source for economic growth, as parents have higher per worker spending than nonparents and average parental spending per child outpaces average public support outlays[2] (Lino et al. 2017; Warner and Baran-Rees 2012). Thus, for economic growth purposes, cities may wish to track their success in supporting family formation and retention. While numerous scholars have offered helpful insights into the factors influencing fertility and household migration, this report offers a new set of metrics by which cities can measure their family retention and overall child populations and explore the characteristics frequently associated with those measures. The metrics we offer for tracking families include the following:

- **General fertility rate (GFR)** is the number of live births per 1,000 women of childbearing age per year.
- **Net child migration rate or child retention score (CRS)** is the number of children born in a place, plus the number of children who move in, minus the number of children who move out, all

divided by the original population of children born there, adjusted for prior fertility rates and deaths.

- **Child population index** is the number of children from birth to age 15 per 1,000 women of childbearing age that would be in a place, assuming a steady state where recent fertility and child migration patterns persist indefinitely.

We explored factors correlated with these family outcomes by applying fine-grained geographic and family-specific data to the following research questions:

- What is the distribution of fertility and child population across metropolitan areas' core cities and suburbs in the US in the years surrounding and since the COVID-19 pandemic?
- What city characteristics are associated with creating and retaining households with children? How do these characteristics vary across core and suburban cities?
- How do the city characteristics related to creating and retaining households with children vary for households of differing socioeconomic status?

Descriptive and Correlational Findings

Many core cities have high family formation and retention metric scores, and the relationship between family formation and retention has several consistent relationships with local characteristics. Generally, metropolitan suburban and exurban areas have significantly higher general fertility rates and child retention scores on average than their dense cores, but many dense cores in some metropolitan statistical areas (MSAs)—both with high and low relative gross domestic product (GDP) per capita—have higher fertility and child retention than suburban areas in other MSAs. Thus, the trope that families do not form or stay in core cities is not universally true.

We examined the characteristics associated with stronger family formation or child retention outcomes within a regression analysis that considered all variables' controlled relationships and found the following consistent correlative (not causal) patterns:

- **Formation and retention have different drivers.** Factors associated with higher fertility rates differ from those linked to retaining families with older children. For example, family-sized housing and child care density are positively associated with child retention (especially in suburbs) but not consistently associated with fertility, and bar density and young adult in-

migration are negatively associated with fertility but not with child retention. These findings speak to different preferences and household needs at different stages of life. Increasing the total population of children in cities requires attending to both metrics.

- **Core and suburb factors differ.** Education quality and commute times have strong positive relationships with child retention and fertility (respectively) in cores, while child care density has a consistently significant relationship with child retention only in suburbs. The share of college-educated residents is strongly and negatively correlated with both fertility and retention in cores but has no significant relationship with family outcome metrics in suburban areas. Population sorting across jurisdictions and over people's life courses reveals that policymakers must tend to different parental preferences and challenges depending on their jurisdiction's role in the labor market.
- **Socioeconomic status (SES) creates gaps.** High-SES families' fertility and migration decisions respond to many local features (e.g., housing size, school quality, child care), but low-SES families show less consistent responses to those factors. This indicates that low-SES families have a limited ability to act on their preferences regarding where to have and raise children. Therefore, policymakers intervening to make areas more supportive toward family formation and retention must pay attention to low-SES households' ability to access resources within high-income areas and invest in substantial antidisplacement measures if they make changes to increase family friendliness in lower-income neighborhoods.

Conclusions and Future Research

As historically low fertility rates intersect with families' greater mobility across jurisdictions, patterns of where children are born and raised have growing implications for population stability and long-run economic prospects. This analysis shows that fertility and child retention respond to different local conditions, vary across core cities and suburban areas, and differ substantially by socioeconomic status. These findings suggest that tracking and supporting family retention should be viewed as a long-term essential component of economic growth and resilience, upward mobility, and regional equity strategies. States, regions, and cities can respond by more deliberately aligning housing, education, infrastructure, and fiscal systems to avoid creating regional markets that systematically concentrate the best conditions for having and raising children within a limited set of expensive or inaccessible places. Avoiding such concentration will help regions sustain more stable child populations over time, which will strengthen future workforce capacity, fiscal resilience, and long-run equity. Future research could

extend this work by examining causal pathways that link housing, education, and child care investments to family retention and by developing longitudinal or quasi-experimental designs to better distinguish retention dynamics from broader population sorting. Additional work to refine knowledge regarding how these dynamics differ across socioeconomic groups will further clarify how these relationships vary within metropolitan regions and across city types.

Where Do Families Live?

A steady or growing population is the foundation of a strong economy; a stable supply of well-educated young children form the core of a strong future labor force. This is especially true for urban metropolitan areas, which generate 90 percent of the country's gross domestic product (GDP) (USCM 2025). Millennials flocked into core cities throughout the period between 2000 and 2020, and many had children there. But now, many of these millennial families are leaving core cities, even as they enter peak earning years (Lee et al. 2024). Even more concerning, the United States also just experienced a historically low level of overall fertility, with the most severe drops occurring in urban areas (Martin et al. 2025).[3] Coupled with the rise of remote work, which allows families greater flexibility to choose where they live, these widespread fertility rate declines leave cities across the nation grappling with how to make themselves better places to start and raise a family and leave state governments wrestling with what policy changes these population shifts require of them to foster sustainable regional economic growth and equity.

Though frequently framed as personal or cultural choices, fertility decline and family migration are urban policy issues deeply shaped by housing costs and space, safety and recreation opportunities, public service and amenity fragmentation, and inequality across jurisdictions (Cox and Stone 2025; Mangual et al. 2023; Owens and Rich 2023).[4] Public opinion surveys show that people have fewer children and leave urban cores not by preference but because of constraints (Perry and Eisner 2024). Their departures have vast implications for urban community health. In addition to property tax payments, households with children contribute to local economies by spending more per employee on life essentials and leisure goods: housing, groceries, health care, child care, recreation, and education.[5] The loss of households with children reduces demand for these goods and services, weakening spending and reducing employment opportunities in those sectors. As cities increasingly embrace young talent and information-based economies, the departure of families with children contributes to growing inequalities between urban cores and suburbs, changes the nature of amenities and quality of life enjoyed across different jurisdictions, and exposes core city growth to increased risk from relying too heavily on one population age group (Nijman and Wei 2020). Changes in young adult migration flows during and after the COVID-19 pandemic showed that growth based on adult in-migration is subject to technological change (i.e., remote work) and public preference (Florida et al. 2023).[6]

Scholars investigating the decline in fertility and child populations in cities found that many possible levers affecting these outcomes are difficult to rectify. Some research focuses on family friendliness[7] at the county or metropolitan level, which blurs the responsibility among different levels of government

and overlooks neighborhood-level influences that support family formation and retention. Other research examines singular features without controlling for multiple associated factors or focuses on singular factors in isolation, such as fertility rates or household migration patterns. Consequently, little is known about the local factors directly related to both family fertility and migration decisions in core cities relative to suburban and exurban areas or about the strength of those factors relative to each other when other factors are held constant. This report offers a methodological innovation for the field by creating new metrics to measure family outcomes. The new metrics add (1) a child retention score to general fertility rates, (2) a combined overall child population index (box 1), and (3) an investigation of factors associated with higher child populations in core cities versus suburban and exurban areas. We applied this new set of metrics and methods to the following research questions:

- What are the fertility and child population distributions across metropolitan area core cities and suburbs in the US in the years surrounding and since the COVID-19 pandemic?
- What city characteristics are associated with creating and retaining households with children? How do these characteristics vary across core and suburban cities?
- How do city characteristics related to creating and retaining households with children vary for households of differing socioeconomic status?

BOX 1

Key Term Definitions

This report assesses outcome metrics associated with higher child populations across geographies within metropolitan areas. The following terms are used frequently:

General fertility rate (GFR): The number of live births per 1,000 women of childbearing age per year.

Net child migration rate or child retention score (CRS): The number of children born in a place, plus the number of children who move in, minus the number of children who move out, all divided by the original population of children born there, adjusted for prior fertility rates and deaths.

Child population index: The number of children ages birth to 15 years per 1,000 women of childbearing age that would be in a place, assuming a steady state where recent fertility and child migration patterns persist indefinitely.

Core cities: Census places within metropolitan statistical areas (MSAs) with between 100,000 and 200,000 of its residents living in an area with a population density of over 6,000 people per square mile (i.e., a population density at which it would be impossible to house all residents within single-family homes alone).

Suburban and exurban areas: Incorporated and unincorporated areas within MSAs with no areas having a population density greater than 6,000 people per square mile (i.e., all residents could be housed in single-family homes on standard quarter-acre lots).

Our analysis used American Community Survey (ACS) microdata paired with neighborhood-level data on education, healthy environments, and economic and public amenities from the Child Opportunity Index and National Neighborhood Data Archives in the 43 MSAs where at least one Public Use Microdata Area (PUMA) had a population density of more than 6,000 people per square mile.

Descriptive data exploration revealed that although MSAs' dense cores tend to have lower fertility and child migration rates relative to their suburban and exurban counterparts within the same MSA, many core cities have higher fertility and child retention rates than suburban and exurban regions in other MSAs. Additionally, examining these MSAs' fertility patterns over time indicated that fertility declines in core cities stems primarily from decreased teen pregnancy rates and from lower-socioeconomic-status (SES) households delaying childbirth until they have achieved more economic stability (matching higher-SES households' fertility rates). Thus, core city characteristics themselves are not necessarily associated with their steeper decline in fertility rates.

Regressions exploring the relationship between family outcome metrics and local factors such as housing, parenting environments, demographic controls, and adult migration dynamics across core cities and suburban and exurban areas revealed that the factors related to the different outcomes are distinct; family housing (i.e., homes with three or more bedrooms, often found in single-family homes) and child care facility density were positively related to higher child retention rates but did not have a consistent relationship with fertility patterns in either suburban or core urban areas. Conversely, bar density was often lower in areas with higher fertility, as were shares of in-migrating young adults, but these were not significantly related to child retention rates. Thus, policymakers must attend to different factors to make their cities more supportive of both family formation and retention.

Significant relationships between family outcome metrics and local characteristics also differed depending on the jurisdiction's role in the local labor market. The share of college-educated residents had a significant, large, and negative relationship with fertility and child retention in core cities but not in suburban and exurban areas. Similarly, the share of Hispanic residents was only significantly correlated with family outcome metrics in core cities, showing a negative relationship with fertility rates and a positive relationship with child retention. Consequently, when aiming to reduce barriers to family

formation and to attract and keep more families long term, the challenges facing suburban and exurban policymakers differ from those of core city policymakers.

Additional regression analysis by SES in core cities revealed that high-SES families have significantly more latitude to make decisions about where to have and raise their children within core cities compared with low-SES families. High-SES household fertility and child retention rates showed strong, predictable relationships with local characteristics, including housing form, child care density, education quality, and adult in-migration. In contrast, low-SES households' fertility and child retention rates had few significant relationships with local characteristics, indicating that financial constraints limit their ability to consistently access neighborhoods that are good for having and raising children. One exception was that low-SES households in areas with higher education scores had lower fertility rates than the national average, and conversely, low-SES households in areas with lower education scores had higher fertility rates. These findings are consistent with previous studies' results showing that income inequality dynamics are perpetuated through unequal access to education (Diamond and Suárez Serrato 2025; Fogli et al. 2025).

Our findings have strong implications for policymakers seeking to increase family friendliness and improve upward social mobility for all residents' children in their jurisdictions and states. The factors related to family formation differ from those related to family retention. The factors also differ for core cities compared with suburban and exurban local governments. In addition, high-SES households may already benefit from ideal conditions for having and raising children, but low-SES households need subsidized or protected access to family-friendly environments. Policymakers seeking to track and boost their overall child populations must consider these life phase and socioeconomic factors separately and apply these metrics to measure performance along these indicators as they test and implement policies to support family formation and retention across different SES levels.

Report Structure

We begin the report with a discussion of why the number of families with children is an important metric for cities. We then review the literature on family formation and child migration influences in core urban and suburban areas and provide a detailed explanation of study design and analytical dataset structure. Next, we present descriptions of family outcome metrics—fertility, child retention, and the child population index—across different metropolitan areas, followed by a statistical investigation into related factors. Finally, we discuss how these results vary by socioeconomic strata and summarize the policy implications of our findings.

Background

The United States is facing declining fertility rates alongside a concurrent shift in population migration dynamics related to the recent pandemic and the rise of remote work. These changes—which have implications for regional economic development strategies, immigration policies, state and local infrastructure investment, and city planning—provide an opportunity to reconsider existing policies and resource distribution patterns to better support family formation and attract or retain households with children, both overall and within strategic areas in metropolitan regions.

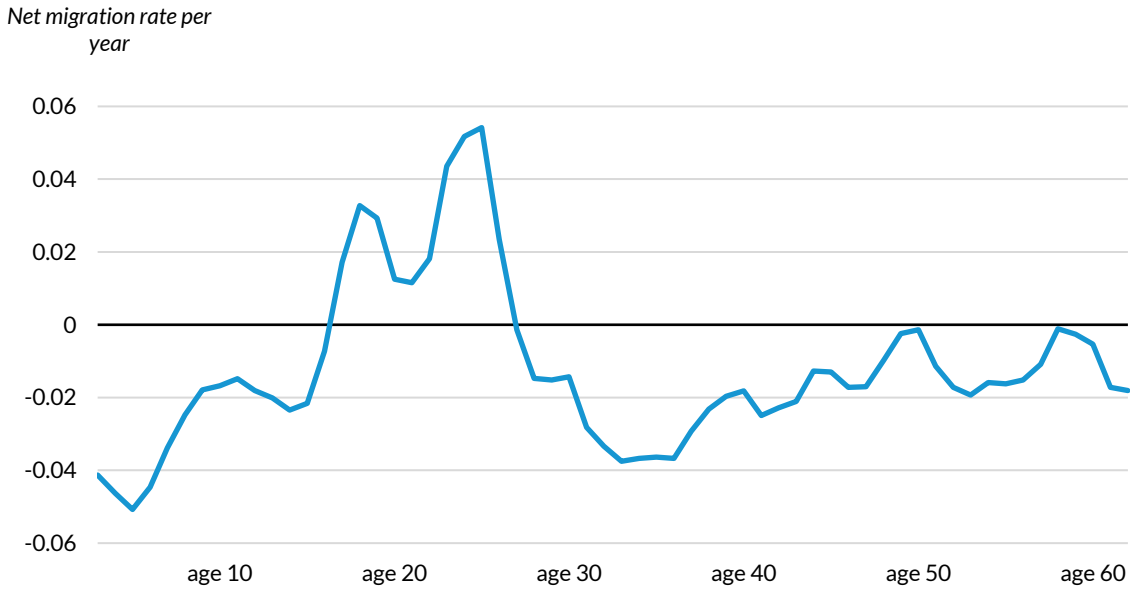
Why Should City Policymakers Track Their Family Outcome Metrics?

At first glance, core cities seemingly might not need to be family friendly to grow. Indeed, most urban core economic and population growth since 2000 is attributed to a dramatic increase in net internal migration of young adults (Cortright 2020; Lee et al. 2024; US Census Bureau 2025). Notably, these young adults were more highly educated than those that migrated to cities in prior generations, with just 32 percent of young workers holding college degrees in 2007, jumping to over 50 percent in 2024 (Cortright 2020; Couture and Handbury 2020; Lo 2026). The higher rates of highly educated in-migration paired with slower out-migration of millennials and Gen Z workers led to population swelling in cities and a higher concentration of higher-income workers in core cities (Couture and Handbury 2020; Kolko 2016).

This pattern of youth in-migration to core cities has historical roots. Generally, net migration into densely populated areas—typically the center cities of metropolitan areas—tends to rise as children near college age, dip after college (between ages 20 and 22), and be net negative for people ages 28 to 50 (figure 1). Suburbs experience the reverse, as workers in their 30s and older adults (including families with young children or about to have young children) migrate away from urban cores for environments that offer more family-oriented amenities at lower costs. Scholars noted that young people move to dense cities for the better "economic opportunity, dense labor markets, dense mating and friendship markets, and the related amenities they provide," but then face a different set of economic demands that make suburban areas more attractive (Florida et al. 2023, 1517). Indeed, the economic opportunities offered in cities also differ from those of suburban and exurban areas, with cities' industrial composition trending more heavily toward services and knowledge work, because high-skill technical and managerial job density rises with population density (Dumont 2024). Consequently, core cities and suburban areas have become even more differentiated in their composition, life-course purposes, and economic structures.

FIGURE 1

Domestic In-Migration to US Core Cities Peaks Between Ages 20 and 30 Before Declining



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Source: Authors' analysis of American Community Survey Public Use Microdata 2022–2023. Presented by Invitation at the Edaily-PERI Special Symposium on June 19, 2025, in Seoul, Korea.
Notes: High density-areas are Public Use Microdata Areas with a population density of more than 3,000 people per square mile. (Metric values are for comparisons with Korean data: 3,000 people per square kilometer = 7,770 people per square mile.)

Given that urban cores have a generally successful growth strategy already, why switch to a focus that promotes and retains children? The current strategy faces challenges going forward as generational shifts drive greater out-migration, future generational cohorts become smaller, remote work allows young workers to accept core city job opportunities while living in more affordable areas, and international immigration faces an unpredictable future (Frey 2026). Millennials, the largest generation, have finally entered their peak parenting years (much later than prior generations) and thus their out-migration rates may increase in coming years (Lee et al. 2024; O'Brien and Zagare 2026). And future cohorts of young adults are smaller and progressively shrinking as already historically low US birth rates are projected to decline (Martin et al. 2025; O'Hare and Mayol-Garcia 2023; US Census Bureau 2023). The rise of remote work (from 4 percent of workers in 2013 to 13 percent in 2024) hits core cities that are especially susceptible to these shifts because more core city jobs are knowledge based and suitable for remote work. In addition, people leaving core cities most frequently cite the high cost of living as a primary motivator (Perry and Eisner 2024). Finally, although the Census Bureau projects that core cities' other primary growth source— international immigration—will increase, recent

federal policies coupled with geopolitical shifts and continuing declines in international immigration suggest that cities need to diversify their strategies for population growth (Frey 2026).

The risk and reward calculation for improving family friendliness is clear. Cities that rely predominantly on young adult in-migration for population growth face the risk of rapid demographic aging as young families depart. Population aging, once under way, is highly persistent (Glaeser and Gyourko 2005) and a self-reinforcing cycle, whereby rising elderly dependency ratios reduce the conditions that support family formation and retention (e.g., loss of child care businesses, school closures, diversion of family-dedicated investments, and increased programming toward adult and senior needs), which further accelerates population aging (Council et al. 2025; Glaeser and Gyourko 2005; Liang et al. 2018; Manville and Kuhlman 2018; Steinberg and MacDonald 2019; Zhang 2021). However, cities with adverse conditions for families do not face even out-migration because it is usually middle- and high-income families who leave. This increases the risk of concentrating poverty within cities, which imposes high fiscal costs on core cities, increases cross-jurisdiction income segregation, and reduces upward social mobility (Chetty and Hendren 2018; Jargowsky 2014; Ladd and Yinger 1991; Owens 2016; Owens and Rich 2023; Sharkey and Torrats-Espinosa 2017; Sprung-Keyser et al. 2022; Tach et al. Whitaker 2019). These two points suggest that prevention of family out-migration is substantially easier than reversal.

Moreover, families are a valuable source of potential economic growth. Cities' future labor pipeline is largely local, with nearly 60 percent of young adults living within 10 miles of where they grew up and 75 percent living within 30 miles of their parents (Choi et al. 2019; Sprung-Keyser et al. 2022). Additionally, on average, households with children spend 35 percent more per year total than households with no children ($89,347 per year versus $66,317),[8] and their spending is more often local, directed toward housing, child care, clothing, food, health care, recreation, and transportation (Warner and Baran-Rees 2012).[9] Child care expenses ranged from $6,552 to $15,600 per child in 2022.[10] Additionally, families spend approximately 41 percent more per child than is spent on public support for education; in 2025, the national average local public expenditure for education per student for a full K–12 education was $187,553, which is just 59 percent of the approximately $319,463 (inflation adjusted) that parents spend per child, according to US Department of Agriculture calculations (Lino et al. 2017).[11] Naturally, these costs vary by local jurisdiction and family SES, but overall, investing in attracting and retaining families (especially high-SES families) makes strong economic sense for cities.

What Characteristics Are Associated with Higher Fertility and Child Population Levels?

To consider approaches to boosting family populations, policymakers need clear evidence on the characteristics associated with families having babies and raising their children in a city and how these characteristics differ within metropolitan areas by density and socioeconomic strata.

Research on fertility across small, nondense metropolitan areas (populations < 2 million) versus larger metropolitan areas (populations > 2 million) found that nationwide decreases in fertility rates were more pronounced in larger metropolitan areas than small ones and that areas with higher housing rents, decreasing foreign-born female populations, and higher levels of female education and employment showed larger reductions in fertility (Li and Winters 2024). However, the relationship between fertility rates and housing costs is complicated; other research found that higher housing prices (and/or lower mortgage interest rates) increase fertility among homeowners, but simultaneously decrease fertility among nonhomeowners (Affuso et al. 2022). Previous studies suggests that higher residential density (e.g., smaller housing unit sizes and crowded housing) is associated with lower fertility rates (Stone 2024). However, Richard Florida argued that fertility rate declines in the US track less with population density and more with parental education levels and the share of Hispanic residents and foreign-born populations.[12] Most of these studies do not identify how and whether these dynamics related to fertility rates differ between core city areas and suburban areas.

However, scholars have investigated how family migration differs across dense urban and suburban areas. Several studies have conducted cross-sectional household surveys in the US (Cox and Stone 2025) or surveyed people with children who migrated out of New York City (Perry and Eisner 2024). Their findings suggest that housing affordability is the primary driver of family formation and/or migration decisions. Connor O'Brien examined ACS data to identify causes of family out-migration from urban counties during the pandemic. The author postulated that declines in the under-5-year-old populations were driven by central cities' conditions during the pandemic (e.g., lockdowns of community amenities, unaddressed rising crime, increasingly unaffordable housing costs, and the shift to remote work); however, study results indicated the actual cause was a drop in fertility rates during that time period.[13] Other scholars using ACS and current population survey data and more discrete measures of family migration found that households from lower SES levels leave more expensive metropolitan *regions* at higher rates than high-income households, and that within lower-SES groups, white and US-born households leave high-cost metropolitan regions at higher rates than Black, Latinx, and foreign-born households, but these studies do not examine rates of intra-metropolitan migration between core cities and their suburbs by SES (Buchholz 2022). Racialized patterns in migration demonstrate different

preferences and advantages between those who leave and those who stay, with white households with children who leave dense urban areas demonstrating a stronger preference for segregated living and child rearing (Goyette et al. 2014; Schachner 2022). Other research affirms these findings showing that while suburbs have diversified, the urban-rural divide in schools and school quality drives significant differences in migration patterns between advantaged groups and disadvantaged groups. Advantaged groups tend to leave urban school districts to raise their children in segregated suburban communities, even as disadvantaged groups disperse between urban and suburban school districts but cluster in less advantaged suburbs (Owens and Rich 2023).

Our review did not identify any studies that provide a clear picture of local conditions correlated with fertility. We also did not find any direct measures of child migration and retention (as opposed to simply household migration) across core cities versus suburbs that used family-specific data with fine-grained geographies (i.e., census place level or finer). Thus, our report proposes metrics and methods to fill this gap and explores the distribution of fertility and child populations across metropolitan area core cities and suburbs, the characteristics associated with creating and retaining households with children across core cities and suburbs, and how factors associated with family formation and retention vary by SES.

Methodology

To bridge the outlined gaps in the existing literature, we constructed a dataset at the lowest level of geography that still maintained clear relationships and trustworthy statistical reports on household-specific information, such as the number and age of children by parents' (specifically mothers') SES. US vital statistics—which represent the most accurate source of demographic data and against which we benchmarked all potential datasets—are tabulated only at the county level and thus fail to differentiate differences between city and suburb dynamics in fertility and child retention. After testing several demographic data sources, we chose the American Community Survey microdata from IPUMS for 2019 to 2023. We pulled the number of children ages birth to 2 years and the number of children birth to 17 years in households where the mother was identifiable. IPUMS data are grouped and aggregated by PUMAs, a census-generated geography that combines American Community Survey responses from 100,000 to 200,000 people. Therefore, census places or municipalities often have multiple PUMAs. Table 1 outlines the variables we assembled by source, their units and interpretation, and our method for calculating them. Our core metrics (defined in table 1) measure fertility and child retention, and we created a combined variable indicating a PUMA's projected overall child population levels.

We would expect fertility and child retention rates to vary not only by geographic area but also by a family's SES, so in addition to our core metrics, we created measures of fertility and child retention that separate households by SES. The fertility and migration metrics created for our core model offer the highest degree of family-level accuracy at the most fine-grained level of geography available but cannot be divided cleanly by the SES of the families in which children are born and raised. Consequently, we constructed two alternative measures of fertility and child retention that use women's[14] individual survey records to identify the mother's education level, whether they had a baby in the prior year, and the number of children of different ages in their family. These individual-level records are subject to significantly higher degrees of measurement error and inaccurate reporting, and thus analyses that include them offer a lower degree of accuracy and validity than those in prior sections. However, we include them as a preliminary set of findings to spur the field to further explore these factors. Appendix A provides a more in-depth description of our design decisions and variable calculation methods for both the core model and the SES-divided models.

TABLE 1

Key Model Definitions and Construction Methods

Variable	Definition or interpretation
Key outcome measures	
General fertility rate (GFR)	The number of live births per 1,000 women of childbearing age per year
Child retention score (CRS)	The number of children born in a place, plus the number of children who move in, minus the number of children who move out, all divided by the original population of children born there, adjusted for prior fertility rates and deaths
Child population index	The number of children from birth to age 15 per 1,000 women of childbearing age that would be in a place, assuming a steady state where recent fertility and child migration patterns persist indefinitely
Alternate specifications of key outcome measures by SES	
GFR for non-college-educated women	The number of live births per 1,000 women of childbearing age per year, estimated for women without a 4-year college degree and not on track for a 4-year college degree
GFR for college-educated women	The number of live births per 1,000 women of childbearing age per year, estimated for women with a 4-year college degree or on track for a 4-year college degree
CRS for non-college-educated women	Net child migration by age 15, estimated for own children of women without a 4-year college degree and not on track for a 4-year college degree
CRS for college-educated-women	Net child migration by age 15, estimated for own children of women with a 4-year college degree or on track for a 4-year college degree
Bar density	The count of bars, nightclubs, and lounges from the NaNDA per 1k residents
Library density	The count of all libraries from the NaNDA per 1k residents
Child care density	The count of all registered child care businesses from NaNDA per 1k residents

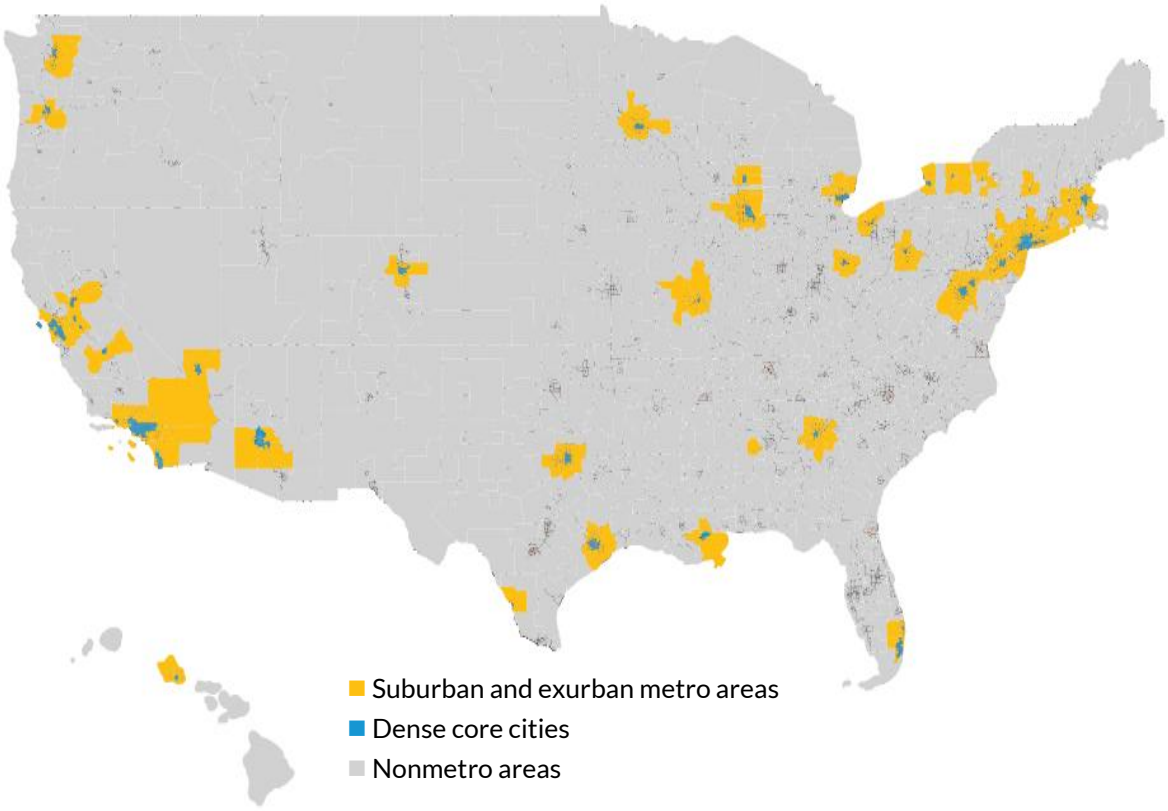
Variable	Definition or interpretation
Monthly child care costs	The average monthly child care cost across all ages of children from birth to 5 years cared for in a child care center
Child Opportunity Index education quality metric	An index that captures private and public pre-K enrollment, elementary school reading and math scores and growth, plus poverty-adjusted scores, Advanced Placement course enrollment among high schoolers, college enrollment within a 20-mile radius, high school graduation rates, child enrichment-related nonprofits, teacher experience, and school poverty rates
Child Opportunity Index healthy environment metric	An index that captures airborne microparticle scores, ozone concentration, industrial pollution levels, hazardous waste dump site proximity, fast food restaurant density, healthy food retailer density, extreme heat exposure, nature score, Environmental Protection Agency walkability scores, community safety-related nonprofits, vacant housing, health-related nonprofits, and health insurance coverage
Net migration of 15-to-20-year-olds	A measure of the share of the population that increases or decreases around the transition to young adulthood (a high net migration of 15-to-20-year-olds is generally a sign of a large college population and associated economy and culture; net migration at this age also includes people moving in for work and/or family formation after leaving a parental household and, in a few cases, military bases)
Net migration 20-to-30-year-olds	A measure of the share of the population that increases or decreases because of young adult post-college migration (a high net migration of 20-to-30-year-olds is generally a sign of a large influx of early-career workers and, in a few cases, a prison population)

Source: Author interpretation of ACS IPUMS 2019–2023, Child Opportunity Index 2025, and NaNDA 2025 data.
Notes: Additional influencing variables (share of single-family housing, share of residents with a bachelor's degree, share of Hispanic or non-Hispanic Black residents, and commute times) used for the study come directly from the ACS IPUMS 2019–2023 dataset with minimal formatting (e.g., converting raw numbers into percentages) and no definition or interpretation needed beyond what the Census Bureau provides. A description of their construction is in appendix A. NaNDA = National Neighborhood Data Archive.

To identify and indicate core versus suburban status for PUMAs in our study, we identified PUMAs that had an average population density of 6,000 people per square mile or higher[15] and identified the census place (i.e., municipality) within which those PUMAs lay, and added all other PUMAs where 75 percent or more of their area lay within the city borders.[16] This approach yielded 43 MSAs with a total of 520 PUMAs within "core cities" and 664 PUMAS in the MSAs' suburban and exurban areas (figure 2). Assessing the distribution of our independent analytic variables across core and noncore PUMAs yielded the results shown in table 2. These indicate higher shares of single-family units and homes with three or more bedrooms and lower rents, child care costs and provider densities, and shares of non-Hispanic white residents in suburban areas. Core areas had lower education index scores but higher rates of young adult in-migration. These differences suggest that our designation captures other researchers' approaches to categorizing suburban areas versus core parts of metropolitan areas.

FIGURE 2

2020 PUMAs Included in the Study, by Suburban or Core City Status



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Source: American Community Survey 2020 PUMAs.
Notes: PUMA = Public Use Microdata Area. No Alaskan metropolitan statistical areas were included in our study, as none had core areas of qualifying densities.

TABLE 2

Summary Statistics for Noncore and Core PUMAs in Study Metropolitan Areas

	Total	Suburbs and exurbs	Core cities	Differential *t*-test *p* value
N	**1,182**	**664**	**518**	--
Family outcomes				
GFR	55	58	52	***
CRS	1.11	1.18	1.01	***
Housing access				
Share single-family homes	64%	74%	51%	***
Share 3+ bedroom units	59%	68%	48%	***
Monthly rent	$1,487	$1,429	$1,562	***
Parenting environment				
Monthly child care costs	$1,003	$967	$1,049	***
Child care businesses per 1,000 population[a]	0.26	0.24	0.29	***
Bars per 1,000 population[a]	0.28	0.23	0.35	***
Libraries per 1,000 population[a]	0.030	0.034	0.027	***
Commute time (minutes)	29	29	30	
Child Opportunity Index education index score[b]	57	63	49	***
Child Opportunity Index environmental health index score[b]	60	61	59	
Demographic controls				
Share Hispanic residents	24%	18%	32%	***
Share non-Hispanic Black residents	15%	13%	18%	***
Four-year college student/graduate population share ages 18 to 47	44%	44%	45%	
Estimated young adult migration flows				
Net in-migration of 15-to-20-year-olds	1.03	0.87	1.22	***
Net in-migration of 20-to-30-year-olds	1.30	1.13	1.52	***
Experimental family outcomes estimates				
GFR noncollege women	57	58	55	**
GFR college women	56	62	49	***
Net child migration, noncollege mothers	2.25	2.34	2.13	***
Net child migration, college mothers	1.06	1.59	1.04	***

Source: IPUMS American Community Survey 2019–2023, Child Opportunity Index 3.0 data 2019–2023; NaNDA 2025 data.
Notes: CRS = child retention score; GFR = general fertility rate; PUMA = Public Use Microdata Area.
[a] Variables from the National Neighborhood Data Archives datasets.
[b] Variables from the Child Opportunity Index as compared with national averages; scores from 2019–2023 were averaged across years at the tract level and then aggregated and averaged at the PUMA level using Geocorr's 2020 tract to PUMA crosswalk. For technical documentation on the two Child Opportunity Index variables' construction, see https://www.diversitydatakids.org/sites/default/files/file/COI%203.0%20Technical%20Documentation%2020250724_0.pdf.
* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

To identify factors related to fertility and child retention and family migration, we used an ordinary least squares regression model (robust to heteroskedasticity) with dependent variables of general fertility or child migration. All variables in the model were scaled to the national average such that the

constant in the regression model reflects a city that is exactly the national average on all measures, and a one-unit change in any variable is a one-unit deviation from the national average. The model pulled in control variables (tested for their internal collinearity and variable inflation factors, excluding or making sure to explain those where internal correlations and/or inflation factors would interfere with other key variables) that capture job and residential mismatch or density via commute times, education, and (separately) environmental health quality via Child Opportunity Index data, housing form, and cost data from the ACS, neighborhood amenities from NaNDA data, and residents' demographic characteristics and young adult net migration from the ACS. Where correlations prevented the inclusion of key variables in our main regression model (correlation matrix tables provided in appendix B), we erred on the side of choosing variables that related to local government policies over federal policies or macroeconomic conditions. This yielded a main model wherein our dependent variables of general fertility or child migration (y_i) were determined by the following formula:

$$Y_i = \beta_i \text{ share homes with 3+ bedrooms} + \beta_i \text{ monthly rent} + \beta_i \text{ education quality index scores} + \beta_i \text{ environmental health scores} + \beta_i \text{ commute time} + \beta_i \text{ child care businesses per 1k residents} + \beta_i \text{ bars per 1k residents} + \beta_i \text{ libraries per 1k residents} + \beta_i \text{ share of Hispanic residents} + \beta_i \text{ share of non-Hispanic Black residents} + \beta_i \text{ share of residents with a bachelor's} + \beta_i \text{ in-migration of 15-to-20-year-old adults} + \beta_i \text{ in-migration of 20-to-30-year-old adults} + \mu_i.$$

Notably, the share of college-educated adults tended to have high correlations with rent prices and education quality: college-educated adults tend to cluster in productive areas, are attracted to higher-paying jobs, and thus are also associated with attractiveness, expense of living, and cost of housing in the area (Moretti 2013). However, the share of college-educated residents is an extremely important variable among demographers for predicting fertility and household migration and thus could not be excluded from the model without introducing strong omitted variable bias. A college education does not, on its own, influence fertility and household migration patterns (Colleran 2014), but the variable stands in for many other significant factors associated with highly educated residents (e.g., cost of living, labor market composition, civic society, political affiliation) that lay outside the scope of this report.

Two notable omissions from this model's independent variables are child care costs and home values. Median home values were highly correlated with both share of college-educated adults and monthly rents, and thus monthly rents are intended to capture housing costs in general (though their power is often overshadowed or proxy indicated by the share of college-educated adults). Additionally, though our dataset includes monthly child care costs at the PUMA level—which we sourced from Department of Labor county-level statistics on prices for center-based child care for children ages birth to 5 (USDOL 2024) and converted from county-based geographies to PUMA-level geographies using areal interpolation—these data were not included as part of our standard statistical model because they

are highly correlated with rent prices (0.71, $p < 0.01$). Indeed, an ordinary least squares regression of rent on child care prices controlling for whether or not the PUMA is in a core city revealed that if rents are $1 higher than the national average, monthly child care costs are $2.07 and $2.55 higher than the national average in suburban areas and core cities, respectively ($p < 0.001$). Although this finding is not a causal relationship, it nevertheless raises the question of whether child care costs might be affected through some of the same channels used to make rents more affordable for low-income households (e.g., density bonuses for developers including low-rent child care spaces in their designs, offering publicly owned land for child care, rent vouchers for child care centers, or project-based subsidized child care spaces).[17]

Additional missing independent variables from the model that are present in other studies of fertility and child migration determinants (on smaller geographies) include direct crime data. These data are unavailable because the FBI's Unified Crime Database contains only voluntary crime reporting from police districts, which leaves systematic gaps in geographic coverage. However, the Child Opportunity Index healthy environments metric includes a proxy measure, along with health care access data. Furthermore, families' migration patterns are often heavily influenced by the presence of relatives or strong social support networks (e.g., Pew Research findings on the share of Americans living within an hour's drive of extended family[18]), but such analysis is beyond the scope of this report.

Dependent variable limitations include the following: Our measures of general fertility rates and child retention are not direct measures and therefore include some error. Direct measures of births from vital statistics are reported only at the county level, which blurs any distinction between the trends for core cities and suburban and exurban areas. Consequently, we used the ACS counts of children birth to 2 years in a PUMA, which, when aggregated to the county level and compared with vital statistics, produces minimal errors. For migration, the ACS reports whether a household lived elsewhere one year prior and which PUMA they lived in, but the data appeared inaccurate such that measures of births, deaths, foreign immigration, and domestic migration using this variable resulted in unacceptably large variations from true population measures. Our indirect measure captures the ratio of older children to younger children, accounting for prior fertility rates and deaths, and thus is a measure of whether families leave, stay, or even move to an area after they have had children. Additional limitations exist in our construction of these measures by socioeconomic status. For a more complete discussion of the measures and their limitations, see appendix A.

This study overall is limited in that it cannot identify causal links between the dependent and independent variables. Generating such a model would require a longitudinal panel, instrumental

variables, and/or fixed effects, and the process of identifying and constructing such a dataset lay beyond the scope of this report. Instead, we aimed to further the academic and policy discourse around factors that are associated with higher fertility and family retention at a more granular scale of geography, thereby enabling more accurate discussions around municipal-, regional-, and state-level interventions that can support family friendliness across different phases of families' life course.

The Landscape of Families Across the US

Metropolitan areas across the US have widely varying child population levels that vary *within* the metropolitan areas as well. These differences arise from a mixture of differing fertility levels, international immigration, and internal family migration levels.

TABLE 3

Fertility and Net Child Migration in the 22 Largest US Metropolitan Areas, Sorted by Population

Metropolitan area	Total population	GDP per capita	Noncore PUMAs			Core PUMAs		
			GFR	CRS	CPI	GFR	CRS	CPI
New York-Newark-Jersey City, NY-NJ-PA	20,562,983	$98,163	60	1.12	959	55	0.87	772
Los Angeles-Long Beach-Anaheim, CA	13,011,058	$82,255	58	1.16	935	48	1.01	718
Chicago-Naperville-Elgin, IL-IN-WI	9,478,387	$75,150	59	1.12	929	52	0.92	748
Dallas-Fort Worth-Arlington, TX	7,734,594	$93,186	58	1.09	910	61	0.82	829
Houston-The Woodlands-Sugar Land, TX	7,156,107	$89,683	65	1.04	985	60	0.86	840
Washington-Arlington-Alexandria, DC-VA-MD	6,364,805	$104,795	61	1.00	912	54	0.79	727
Philadelphia-Camden-Wilmington, PA-NJ-DE	6,284,816	$75,868	55	1.09	861	55	0.82	757
Atlanta-Sandy Springs-Roswell, GA	6,144,525	$88,005	54	1.15	873	37	0.73	478
Miami-Fort Lauderdale-West Palm Beach, FL	6,102,902	$75,079	55	1.02	833	54	0.96	793
Boston-Cambridge-Newton, MA-NH	4,991,280	$111,515	56	1.10	885	44	0.82	607
Phoenix-Mesa-Scottsdale, AZ	4,929,954	$75,365	57	1.15	925	53	1.01	797
San Francisco-Oakland-Hayward, CA	4,652,724	$149,082	57	1.08	883	46	0.84	634
Riverside-San Bernardino-Ontario, CA	4,638,966	$46,917	62	1.06	954	55	1.11	863
Detroit-Warren-Dearborn, MI	4,420,960	$62,974	58	1.03	889	61	0.91	876
Seattle-Tacoma-Bellevue, WA	4,021,498	$133,707	58	0.93	839	36	0.75	472
Minneapolis-St. Paul-Bloomington, MN-WI	3,656,687	$84,335	63	1.03	960	54	0.77	718
San Diego-Carlsbad, CA	3,283,122	$82,999	62	0.92	898	52	0.90	738
Denver-Aurora-Lakewood, CO	3,010,532	$99,125	55	1.20	901	48	0.79	646
St. Louis, MO-IL	2,895,984	$64,495	58	1.04	885	48	0.67	607
Baltimore-Columbia-Towson, MD	2,789,207	$76,958	56	1.07	874	54	0.79	721
Portland-Vancouver-Hillsboro, OR-WA	2,444,214	$80,007	53	1.07	829	41	1.01	622
Sacramento-Roseville-Arden-Arcade, CA	2,405,927	$69,805	52	1.14	834	54	1.04	829

Source: IPUMS American Community Survey 2019–2023.

Notes: CPI = child population index, or the number of children ages birth to 15 years per 1,000 women of childbearing age that one would find in a place assuming a steady state where recent fertility and child migration patterns persist indefinitely; CRS = child retention score (i.e., the number of children born in a place, plus the number of children who move into the place, minus the number of children who move out of the place, all divided by the total original population of children born in a place, adjusted for prior fertility rates and deaths); ; GDP = gross domestic product; GFR = general fertility rate (i.e., the number of live births per 1,000 women of childbearing age per year); PUMA = Public Use Microdata Area.

Table 3 shows the 22 largest metropolitan areas in order of their MSA population. In this table, a higher GFR means more babies born to childbearing-age women, a higher CRS indicates an area with more older children (ages 3–17) relative to the number of babies (ages birth to 2 years) born there, and a higher child population index means an area could expect to see higher overall child populations from both fertility and child retention if its current rates were projected out 18 years.

The first comparison apparent in this cross-section shows that suburban and exurban areas have significantly higher average general fertility rates and net child migration scores, though this does not hold for several metropolitan areas. Dallas, Texas; Sacramento, California; and Detroit, Michigan, all have higher fertility rates in their core areas, while Philadelphia's fertility rate is constant across both core and suburban areas, and Riverside, California, has higher core city child retention scores. Second, and potentially more importantly, several core city areas have higher child population index, fertility, and child retention rates than some of the lower-scoring noncore areas. Riverside, Los Angeles, and Sacramento, California; Houston and Dallas, Texas; Phoenix, Arizona; and Portland, Oregon, all have higher core-city child retention scores than the suburbs of San Diego, California; Seattle, Washington; Washington, DC; or Orlando, Florida. Thus, the trope that families do not form or stay in core cities is not universally true. Instead, key characteristics of these cities appear to drive differences in fertility, retention, and overall child populations.

Family Outcome–Related Factors Differ Across Core and Suburban Areas

As a result of life-course migration (figure 1) and demonstrated preferences for residential characteristics, populations that choose to live in core cities and suburban and exurban areas categorically differ from each other, with different preferences, constraints, and plans around whether, when, and where to have and raise children. The following sections explore factors related to fertility and family migration decisions in core cities versus suburban and exurban areas.

We began by exploring the nature of the US fertility rate drop since its peak in 2007 across suburbs and core cities. According to ACS IPUMS data, in 2007, the US GFR stood at 64 in core cities and 62 in all nondense cities, suburbs, and exurbs within metropolitan areas. By 2021, dense and nondense areas had flipped their fertility dynamics, and GFR had had fallen to 52 and 58, respectively. Thus, dense and nondense areas experienced a respective 19 percent and 7 percent decline in fertility. Investigating which groups experienced the largest declines revealed that the change in overall fertility rates in the

US between 2007 and 2023 was almost entirely attributable to plummeting teen birth rates and decreasing (mostly nonmarital) birth rates for women ages 20 to 24; a large majority of the women who had previously had high birth rates in these age categories (teens, low income, unmarried women) lived in core cities (Osterman et al. 2024). These findings indicate that core cities' fertility rate declines since 2007 may stem less directly from rising housing costs or changing societal values and more directly from improvements in teen pregnancy prevention and lower-income women in core cities accessing health and reproductive care that allows them to become more socially and economically established before having children.

After determining that core area characteristics alone were not driving dramatic declines in desirable fertility, we investigated what elements of core cities and suburban and exurban areas were positively or negatively related to people's decisions to have a baby and where to raise the child. We applied our ordinary least squares regression model to measures of housing cost and type, parenting environment, resident demographics, and young adult migration flows to general fertility rates and child retention scores (table 4).

TABLE 4

Factors Related to General Fertility and Child Retention Across Core, Suburban, and Exurban Areas, 2019–2023

	Suburban and Exurban Areas		Core Cities	
	GFR	CRS	GFR	CRS
Housing				
Share of homes with 3+ bedrooms	-4.45 (0.04)	0.71*** (0.10)	7.86 (4.20)	0.56*** (0.09)
Monthly rent (in hundreds of dollars)	-0.00 (0.15)	0.01 (0.00)	-0.15 (0.15)	0.01 (0.00)
Parenting environment				
Commute times (minutes)	-0.01 (0.11)	0.01 (0.00)	0.18* (0.09)	0.00 (0.00)
Education quality index score	-0.15** (0.02)	0.00 (0.00)	0.03 (0.04)	0.002* (0.001)
Environmental health index score	0.03 (0.03)	-0.002** (0.00)	-0.09** (0.03)	0.00 (0.00)
Child care density per 1,000 population	2.45 (3.95)	0.20* (0.08)	7.89 (4.18)	0.03 (0.07)
Bar density per 1,000 population	-11.70*** (4.03)	0.02 (0.03)	-9.86*** (1.74)	-0.01 (0.04)
Library density per 1,000 population	-19.38 (22.51)	0.42 (0.07)	47.95 (28.42)	0.72 (0.73)
Demographic controls				
Percentage of residents with a college education[a]	-2.78 (7.72)	0.22 (0.15)	-0.31*** (0.08)	-0.37* (0.15)
Percentage of Hispanic residents[a]	-1.65 (5.38)	-0.06 (0.08)	-0.13** (0.05)	0.26** (0.10)
Percentage of non-Hispanic Black residents[a]	-9.68* (3.95)	-0.09 (0.07)	-0.06 (0.0s5)	-0.07 (0.08)
Young adult migration dynamics				
Net in-migration of 15-to-20-year-olds	-11.80*** (0.79)	--	-2.11** (0.73)	--
Net in-migration of 20-to-30-year-olds	-2.17 (2.96)	-0.23*** (0.03)	0.98 (0.83)	-0.08*** (0.02)
Constant	56.56*** (0.51)	1.11*** (0.01)	59.51*** (1.30)	1.10*** (0.03)
N	664	664	518	520
R squared	0.18	0.39	0.47	0.43

Source: American Community Survey IPUMS data 2019–2023; Child Opportunity Index data 2024; NaNDA 2021 data.
Notes: CRS = child retention score; GFR = general fertility rate. Standard deviations are in parentheses below regression coefficients. All independent variables with the exception of net in-migration of young adults and rent are scaled to the national average, such that a one-unit change means a one-unit deviation from the national average.
[a] Percentages in these variables are scaled 0 to 1 (i.e., 35 percent of residents = 0.35).
* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

The first key finding represented in table 4 is that the factors correlated with fertility rates and child retention differ. That is, the place characteristics associated with higher numbers of babies differ from

the place characteristics associated with higher numbers of older children. For example, child retention scores have a significant positive relationship with share of family-sized units across both suburbs and core cities (though the relationship is stronger in suburban areas), but fertility rates did not have any consistent relationship with family-sized units' fertility rates. This may indicate that families with older children demand more housing space or rooms, or that areas with an adequate supply of large homes attract more families with kids, but that home size may have a less consistent relationship with family decisions about whether to have a(nother) baby. Similarly, bar density has a negative relationship with fertility rates across suburbs and core cities, but that negative relationship does not hold for child retention. It is possible that areas with higher shares of pregnant women and young parents have lower demand for bars, or that people focused on having babies or raising young children choose to live in areas with fewer bars, but that these trends recede as children get older. Finally, net in-migration of college-age youth is negatively associated with fertility across geographies, but in-migration of 20-to-30-year-olds is negatively associated with child retention scores.

A number of factors associated with these outcomes differ across suburban or exurban areas and core cities; that is, factors that suburban residents consider important for family formation and retention differ from those of urban residents. Notably, demographic composition appears to have strong relationships with fertility and child retention within core cities alone. The strongest relationship is the share of college-educated residents, which is large, negative, and significant for both fertility and child retention. The negative relationship with fertility in core cities likely stems from higher opportunity and real costs of childbearing. For example, delaying childbearing allows would-be parents to focus on professional development, and/or the higher financial costs of having children in areas with higher shares of college-educated adults encourages would-be parents to wait for financial stability before having (more) children,[19] as documented in other research (Japaridze and Sayour 2024). These factors may be less of a concern in suburban and exurban areas or at later life stages when couples traditionally migrate to suburbs. The negative relationship between the share of college-educated adults and child retention in core cities may indicate that the lifestyle and labor market orientation of college-educated adults *specifically while they are in core cities* crowd out elements of life conducive to raising children, or that college-educated (i.e., high-SES) parents specifically plan to move to areas with the best amenities when they raise their children, which often means moving to a suburb (Diamond and Suárez Serrato 2025). Finally, the share of Hispanic residents showed strong relationships with fertility and child retention in core cities alone. Areas that attract high shares of Hispanic residents are associated with below-average fertility rates but above-average child retention scores. These results may indicate that core cities that attract Hispanic residents receive families who already have children

(absent an indicator for foreign-born migration) or that areas that attract Hispanic communities may be more affordable, encouraging households with children to move there and stay.

Several trends are unique by both geographic area and fertility versus child retention. For example, child care density has a moderate significant positive relationship with child retention in suburban areas. This might indicate that child care businesses in suburbs survive only when there are stable and large enough populations of older children (i.e., children between 3 and 5 years old or even up to 14 years old) or that areas with more child care (i.e., places where child care businesses can open and survive) are also places where families choose to raise their kids. The lack of a significant relationship in core areas may indicate that child care density is not a consistent element related to where families raise their kids or that families in core cities may not rely as consistently on child care businesses. Notably, education quality is positively associated with child retention in core cities but not in suburban areas. Thus, higher education quality might encourage families to stay longer in core cities. Or the finding may indicate that families with kids insist on higher educational investments in core cities, without which they leave, or that core cities with more children are able to invest more in education quality. The lack of a significant relationship between education quality and suburban areas may indicate that suburban families have more mixed preferences for education quality or differing abilities to fund education. Fertility rates showed a significant relationship with education quality only in the suburbs, where higher education quality was associated with lower fertility rates. This might mean that families living in suburban areas with higher education quality have higher per child investments and thus fewer kids, and/or that suburban and rural areas with higher fertility rates have lower demand for (or funds for) education quality. Longer commute times are also associated with higher fertility rates only in core cities. This relationship may indicate that people who must live or choose to live farther from job centers (i.e., having a longer commute) place a higher priority on space and thus potentially value family over job proximity. Alternatively, it could indicate that the lower cost per square foot of housing further from job centers (and thus potentially lower crowding rates) enables families to consider having more kids (Stone 2024). The lack of significance for commute times in suburban and rural areas may reflect the opposite end of the spectrum—that at some point, additional space does nothing more for family formation and retention and longer commutes start to crowd out family time.

Together, these findings imply that core city policymakers and suburban policymakers should pilot and test separate approaches to support family formation and child retention. These results provide an indicator of arenas where interventions may have a stronger effect, but the correlations do not identify causation; therefore, additional research into the direction and strength of these relationships is needed to tease out influencers of these often endogenous feedback loops.

Core Cities' Fertility and Child Retention Dynamics Also Differ by Socioeconomic Strata

Having and raising children is an expensive endeavor, especially in core cities, and families' ability to bear the cost varies by their incomes and the areas in which they live. Our analysis of these factors begins with a focus on fertility.

Establishing a baseline understanding of fertility rate differences by SES, we found that households with a college-educated woman had a GFR of 58, and those where the woman was not a college graduate had a GFR of 61. While the difference in rates is statistically significant, it does not match the drop in national fertility since its 2007 peak of 70 (Martin et al. 2010). However, categorizing these groups by geographic location reveals a starker difference. Women without a college education in suburban and exurban areas had a GFR of 62, while those in core cities had a GFR of 55 ($p < 0.001$). College-educated women had a similar split, with a GFR of 60 in suburbs and exurbs (higher than non-college-educated women in core cities) and a GFR of 49 in core cities ($p < 0.001$). Thus, women's education level has a negative relationship with household fertility decisions, with a larger effect in core cities than in suburban and exurban areas (i.e., a 2.6-unit difference between college-educated and non-college-educated women in suburban areas and a 5.9-unit difference in core cities). Again, these correlations do not infer causality, so additional research on the potential source of these differences is warranted.

Factors associated with household fertility and child retention rates in core cities by education level are shown in table 5. Notably, these measures are experimental (especially CRS by SES). Thus, these results are a preliminary offering intended to spur further research. However, further analysis (described below) revealed trends that both align with those presented in table 4 and are consistent with other research findings of differences between low- and high-SES household decisionmaking.

TABLE 5

General Fertility Rates and Child Retention Scores, by Mother's Education Level in Core Cities, 2019–2023

	GFR		CRS	
	No college	College	No college	College
Housing				
Share of homes with 3+ bedrooms[a]	-2.80	15.09*	0.74***	0.98***
	(6.32)	(6.59)	(0.20)	(0.15)
Monthly rent ($)	-0.44	-0.01	0.00	0.01
	(0.25)	(0.24)	(0.01)	(0.00)
Parenting environment				
Commute times (mins.)	0.13	0.08	0.01	0.00
	(0.15)	(0.14)	(0.00)	(0.00)
Education quality index score	-0.17**	0.13*	0.00	0.01***
	(0.06)	(0.07)	(0.00)	(0.00)
Environmental health index score	0.01	-0.05	0.00	0.00
	(0.05)	(0.05)	(0.00)	(0.00)
Child care density per 1,000 population	-5.75	-4.28	0.15	0.43***
	(7.59)	(7.45)	(0.20)	(0.13)
Bar density per 1,000 population	-6.92*	-7.69**	-0.14	0.11
	(2.95)	(2.60)	(0.10)	(0.06)
Library density per 1,000 population	27.57	95.1	-0.33	-1.52
	(51.09)	(53.88)	(1.53)	(1.17)
Demographic controls				
Percentage of Hispanic residents[a]	-7.90	-21.84***	0.32	0.11
	(6.79)	(6.59)	(0.22)	(0.17)
Percentage of non-Hispanic Black residents[a]	0.42	-13.36	-0.01	0.20
	(7.51)	(7.96)	(0.21)	(0.16)
Percentage of residents with a college degree[a]	-28.11*	-39.47**	1.08**	-0.83***
	(12.69)	(12.93)	(0.34)	(0.22)
Young adult migration dynamics				
Net in-migration of 15-to-20-year-olds	-1.30	-2.18*	---	---
	(0.77)	(0.94)		
Net in-migration of 20-to-30-year-olds	0.81	2.75*	-0.08*	-0.07**
	(1.32)	(1.27)	(0.04)	(0.02)
Constant	59.63***	60.05***	0.99***	0.85***
	(2.04)	(2.21)	(0.06)	(0.05)
N	518	518	518	518
R squared	0.32	0.21	0.12	0.34

Source: American Community Survey IPUMS data 2019–2023; Child Opportunity Index data 2024; NaNDA 2021 data.
Notes: CRS = child retention score; GFR = general fertility rate. Standard deviations are in parentheses below regression coefficients. All independent variables are scaled to the national average, such that a one-unit change means a one-unit deviation from the national average, which is presented in table 2.
[a] These variables are scaled 0 to 1 (i.e., 35 percent of residents = 0.35).
* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Our analysis revealed a marked variation between high- and low-SES families' decisions about having and raising children. Most notable across the models was that many more factors were significantly associated with fertility and child retention for high-SES families than for low-SES families

(indeed, the high-SES models had higher *R* squared model fits). Also, where significant factors were related to both high- and low-SES families' fertility or migration outcomes, high-SES families' relationship coefficients were almost always larger. This echoes findings from other research that high-SES families have significantly more choice over their life circumstances and paths than low-SES families (Bayer et al. 2007; Chetty et al. 2016). Owens (2016) found that high-SES families with children are willing to spend more of their income to afford "ideal" neighborhoods for having and raising families, leading to higher-income segregation across households with children.

Specific trends associated with fertility and child retention (table 4) show that parenting environment factors strongly related to fertility differed from those strongly related to child retention. The share of homes with three or more bedrooms was more strongly associated with child retention scores than with fertility rates. Compared with low-SES families, the coefficient of the relationship between number of bedrooms and child retention among high-SES families was 0.024 points larger for every 10 percent increase above the national average of homes with three bedrooms. Also, fertility rates showed a significant relationship with family-sized units for high-SES families, indicating that, compared with low-SES families, high-SES families may place more of a premium on (or be more able to afford) adequate space when making decisions about having children than low-SES families. Additionally, low-SES families had higher fertility rates in locations with lower education investment but lower fertility rates in locations with higher education quality. Conversely, high-SES families had higher fertility rates in locations with higher education quality (which could be interpreted as high-SES families being willing or able to pay more to live in areas with higher education quality). Indeed, child retention for high-SES families was higher in areas with better education quality, but this relationship was not significant for low-SES families, indicating that low-SES families may be unable to afford raising children in areas with higher education quality. This dynamic illustrates the cycle perpetuating education and income inequality. Another parenting environment factor, bar density, showed a negative relationship with fertility rates, which may be attributed to a lack of demand or to households focused on child rearing choosing to live elsewhere. This relationship was somewhat stronger for higher-SES households. Child care facility density was positively related to child retention in high-SES families living in core cities, indicating higher-educated mothers' increased reliance on child care businesses to allow them to participate in employment.

An analysis of local demographic composition and its relationship with fertility and child retention by SES showed that for high-SES households, fertility and child retention are significantly associated with who lives in the surrounding areas. Across both high- and low-SES families, higher shares of college graduates were associated with lower fertility rates. A 10 percent increase above the national average

in the share of college graduates was associated with 2.8 and 3.9 fewer babies per 1,000 childbearing-age women for low- and high-SES families, respectively. This is consistent with our findings (described earlier) that areas where college graduates choose to live have a higher cost of living (beyond rent, which is controlled for) and higher professional opportunity costs for having children. In-migration of college-age young adults has a similar relationship with fertility rates—areas with more young people migrating in for college produces a dampened ratio of women overall to women having babies, though this was (logically) only significant for families where the woman had or was pursuing a college degree. The child retention relationship with share of college-educated residents was negative for high-SES families and positive for low-SES families. This might indicate that low-SES parents prefer to or must raise their children in the same environments that attract higher shares of college-educated households in cities but that these areas have fewer high-SES families raising children there. Finally, in-migration of young adults in their twenties and thirties was also negatively associated with child retention across both SES groups, indicating that households raising children tend to avoid environments that attract transient young adults.

Beyond the share of college-age adults, high-SES households in areas with a higher share of Hispanic residents have lower fertility rates compared with the national average (i.e., a 10 percent lower share of Hispanic residents was associated with 2.2 more babies per 1,000 childbearing-age, college-educated women). This may indicate that areas high-SES families choose for having children may not be attractive or affordable for Hispanic communities and vice versa. Interestingly, the share of college-educated adults was strongly positively related to lower-SES families' decisions to raise their children in those areas, potentially indicating that the amenities and local conditions associated with where college-educated adults live are favorable for children in lower-SES families.

Conclusions and Future Research Implications

This report reviews factors affecting family formation and migration across core cities and suburban and exurban areas. Our research and analysis show the following key findings:

- **Family-friendly core cities are possible and likely desirable.** Although core cities typically have lower fertility and child retention rates than surrounding suburbs, many have higher rates than other metropolitan areas' suburbs. Cities with higher child populations have diversified growth sources and a longer-term sustainable source of workers. Families with children also spend more per worker on local economic goods and services than single-person or childless

households. Finally, national averages of per child spending outweigh public support dollars, though this varies by location and the socioeconomic composition of families in an area.

- **Factors correlated with fertility rates and child retention rates differ.** Policymakers and researchers should seek to disentangle, examine, and design separate policies for these life phases. For example, family-sized housing and child care facility density are positively associated with retaining families with older children (especially in suburbs) but are not consistently linked to having babies; conversely, bar density and in-migration of young adults are negatively associated with fertility but not with family retention.
- **Factors that affect family formation and retention differ depending on a jurisdiction's role within a labor market or metropolitan region.** Education quality and longer commutes are linked to higher child retention or fertility only in core cities, while child care facility density matters more in suburbs, suggesting that cities and suburbs need different strategies to support family formation and retention. College-educated populations show strong negative relationships with both fertility and child retention in core cities. This likely reflects higher opportunity costs, higher living costs, and selective suburban migration of high-SES families when raising children. These patterns are weaker or absent in suburban and exurban areas.
- **Compared with low-SES families, high-SES families' fertility and child-rearing decisions appear to be more responsive to local conditions.** More factors significantly predict high-SES families' fertility and child retention, and the effects are larger—consistent with research showing high-SES families have more residential and life-course choices (Baum-Snow and Lutz 2011). Housing size and education quality matter much more for high-SES families. Larger homes and better school quality are positively associated with both fertility and child retention for high-SES families, while the relationships with these factors are weaker or absent for low-SES families. This suggests that financial constraints limit low-SES families' ability to prioritize space and schools; therefore, family-friendly amenities designed to attract and retain families must especially attend to exclusionary or displacement risks to ensure that low-SES households can access the opportunities created for intergenerational upward mobility.

This research demonstrates that core cities and suburban and exurban areas form an interdependent ecosystem across life stages, with jurisdictions bearing responsibilities toward their own residents and economic growth and for the health of the region as a whole (as the future residences of their current residents). Therefore, policies that influence these factors must be fine-tuned at the local, regional, and state levels.

For local governments, policy and program strategies to encourage family formation must be considered distinct from family retention. Given the strong negative relationships between family outcome metrics and young adult in-migration, economic development strategies aimed at straight GDP growth will likely crowd out both fertility and retention without particular care. Core cities that wish to increase their child populations (not just their talent pipelines and GDP) must explore and pilot investments in family-oriented housing structures and stability through homeownership, increase family amenities, reduce child care costs, and enhance education quality to retain college-educated workers with children. This might include amending building codes and zoning for better family-sized units (made financially feasible usually only through single-stair reforms), protecting and investing in libraries and schools, offering affordability subsidies for child care providers and workers, and conditioning economic development incentives for companies upon their contributions to family housing, child care provision, and school capacity. Note that these actions do not imply that local governments should make core cities more like suburban areas (since many suburban areas have lower overall child populations than core cities) but rather to ensure core cities imitate the characteristics of the most family-friendly core areas. For suburban city governments and exurban county governments, these findings imply a continued need to invest in strong cross-jurisdictional commuting infrastructure to support families who have left core cities.

For state and regional governments, these findings highlight the continued importance of education and housing systems that operate across municipal boundaries. Because K–12 education finance in most states remains significantly dependent on local property tax bases, large disparities in per pupil resources persist within metropolitan regions—particularly where households of different socioeconomic statuses concentrate in different jurisdictions. States therefore play a central role in examining and strengthening school funding formulas to more fully offset differences in local fiscal capacity and to ensure a minimum level of educational adequacy across all districts, including those serving rapidly growing child populations. More equitable state education funding equalization systems (e.g., those in Massachusetts or Minnesota) place less emphasis on property tax and aggregate wealth alone and more emphasis on per pupil fiscal capacity and student need, thereby reducing persistent within-metropolitan disparities that arise when jurisdictions differ sharply in the share of residents with children. Improving funding formula equity can reduce uneven education quality within labor markets (improving core cities' competitiveness) without eliminating local fiscal participation or control (Kenyon et al. 2023). Given the high degree of correlation between education quality and rent prices, states and regional planning mechanisms may also wish to prioritize family-sized and income-diverse housing production near high-quality schools and job centers, such as by aligning infrastructure funding, housing allocation plans, and low-income housing tax credit priorities (i.e., qualified allocation plan scoring

mechanisms) with access to education and child care. While such approaches do not directly alter fertility, they may shape where families can raise children within metropolitan regions by reducing sharp education and child care quality and supply gradients that currently drive intra-regional income sorting and segregation.

Overall, states and cities should begin using child retention as a performance indicator because retention predicts future workforce size, long-run inequality, and fiscal sustainability (Zhang et al. 2025). Regions that succeed economically without building family capacity will import young adults, export children, and reproduce inequality across jurisdictions in their labor markets. The task at hand does not imply that supporting families and economic growth are antithetical but rather that family friendliness is a long-term investment that is worth making as cities and states attend to readily available economic growth. They can accomplish these twin tasks by aligning housing, infrastructure, and fiscal and educational systems so that economic growth does not crowd families out.

Future Research

This report presents a novel approach to applying demographic methods to fine-grained geographies to explore factors closely related to fertility and net child migration in core cities versus nondense cities, suburbs, and exurbs in metropolitan areas. Future investigations might explore the influences of different NaNDA neighborhood-level amenities (e.g., park space, hospital and health care provider counts and/or density), labor market composition and economic growth strategies, or public transit and car ownership effects on fertility and child retention across these geographies. Additional exploration into causal directionality in these factors, using longitudinal panels or instrumental variables, could provide clearer evidence for state and local policymakers on the potential impacts of their programs and policies. Future research might also improve upon the metrics for identifying differences in trends by SES using household-level rosters to construct and weight the composition of child populations across core and noncore PUMAs.

Appendix A. Key Analytic Variable Construction

Unless otherwise specified, all variables are derived from data in the 2019–2023 American Community Survey five-year dataset.

General Fertility Rate

The general fertility rate (GFR) is the number of live births per 1,000 women of childbearing age per year. The "childbearing age" definition varies, with 15 to 44 and 15 to 49 being common ranges. For those more familiar with total fertility rates (TFRs), a GFR of 70, defined for a 30-year age range of women, would correspond roughly to a TFR of 2.1 (70 * 30 / 1,000 = 2.1), subject to the age distribution of reproductive-age women.

Our working definition of GFR for each PUMA is the person-weighted count of children ages birth to 2 years divided by the person-weighted count of women ages 18 to 47, multiplied by a factor of 1,000 / 3 to approximate the formal definition of a GFR.

The following alternative methods for estimating fertility rates were assessed.

- Estimating GFR using the count of newly born children (age 0) only
- Rescaling the GFR to be based on the population of women ages 18 to 47
- Estimating GFR using FERTYR, the count of children born in the past year for women ages 15 to 50 in the ACS
- Estimating TFR using FERTYR
- Using household weights instead of person weights for counts of both children and reproductive-age women

We declined to use these alternative methods for reasons of internal consistency, for variance and other statistical properties, and for accuracy by comparison with US Vital Statistics Data. Full explanations of the alternative methods, as well as some descriptive and regression results based on such methods, are available from the authors upon request.

Net Child Migration Rate

The net child migration rate for a place is the number of children born in a place, plus the number of children who move into the place, minus the number of children who move out of the place, all divided by the original population of children born in a place. As such, a place with no net child migration would have a net child migration rate of 1.00. Places with a net influx of children would have a net child migration rate above 1.00, and places with a net outflow of children would have a net child migration rate below 1.00. For the US as a whole, net child migration is expected to average above 1.00, reflecting a net positive flow of children into the US from outside the US over recent years.

We estimated child migration using an approximation of past child migration reflected in current age distribution, with adjustments for nonmigration factors that could affect current age distributions—past differences in fertility rates and past child mortality. We defined a net child migration rate based on data from the 2019–2023 five-year ACS as follows: the person-weighted count of children ages 13 to 17 in a place, divided by (5/3)*(the person-weighted count ages birth to 2 years in a place), multiplied by (average annual US births from 2016 to 2023)/(average annual US births from 2001 to 2010), then multiplied by estimated US child survivorship from ages 1 to 15 (Arias et al. 2025).

The following alternative methods for child migration rates were assessed.

- Estimating child migration using adjacent five-year age groups of children in current data (for example, migration from birth to 5 years, ages 5 to 10, and/or ages 10 to 15)
- Estimating child migration using adjacent five-year age groups of children in 2019–2023 ACS compared with 2014–2018 ACS data
- Estimating child migration using current counts of children ages 13 to 17 in 2019–2023 ACS data compared with birth to 4 years in 2006–2010 ACS data
- Estimating child migration using ACS variables MIGPLAC1 and MIGPUMA1 to count children moving into each PUMA in the past year and to count children living in another PUMA who moved out of the focal PUMA in the past year
- Estimating child migration by mother's characteristics using ACS household rosters and identifiers of household women's (1) own children from birth to 4 years; (2) own children of any age; and (3) age of eldest child in household

We declined to use these alternative methods for reasons of internal consistency, inflated variances, and data quality concerns. Full explanations of the alternative methods, as well as some descriptive and regression results based on such methods, are available from the authors on request.

Child Population Index

For illustrative purposes, we combined fertility estimates and migration estimates into a single measure that describes how many children one is likely to encounter in a given place in the long run.

We defined the child population index as the average of [(the general fertility rate of a place) and the (general fertility rate)*(the net child migration)], multiplied by 16. The child population index is interpreted as the number of children birth to 15 years per 1,000 women of childbearing age that one would find in a place, assuming a steady state where recent fertility and child migration patterns persist indefinitely. For comparison, a place with a constant adult population, steady replacement fertility at TFR = 2.1, and no net child migration would be expected to have a CPI of 2.1 * 1.00 * (16 / 30) * 1,000 = 1,120 children per 1000 reproductive-age women.

The following alternative methods for defining a child population index were assessed.

- Constructing a child population index that tracked nonlinear net child migration patterns by five-year age patterns.
- Constructing a child population index based on different child age ranges, such as birth to 5 years, birth to 9 years, birth to 13 years, or birth to 17 years instead of birth to 15.
- Constructing a child population index based on number of children per 1,000 reproductive-age women *and* men instead of reproductive-age women only.

These alternative methods might be of use for future research, such as for targeted assessments of possible effects of educational environments. The results will vary somewhat based on the age ranges of children and whether adult men are included. (Some noncore PUMAs in particular have skewed sex ratios, which affects the calculation of CPI and could have a possible substantive influence on CPI.)

Table A.1 lays out our construction methods for all variables included in our statistical models and investigated for the study.

TABLE A.1

Full Model Variable Definitions and Construction Methods

Variable	Definition or interpretation	Calculation method
Key outcome measures		
General fertility rate (GFR)	The number of live births per 1,000 women of childbearing age per year	The person-weighted count of persons from birth to 2 years divided by the person-weighted count of women ages 18–47, multiplied by a factor of 1,000/3
Net child migration rate or child retention score	The number of children born in a place, plus the number of children who move into the place, minus the number of children who move out of the place, all divided by the original population of children born in a place, adjusted for prior fertility rates and deaths	The person-weighted count ages 13–17 in a place, divided by (5/3)*(the person-weighted count ages birth to 2 years in a place), then multiplied by (average annual US births from 2016–2023)/(average annual US births from 2001–2010), then multiplied by estimated US child survivorship from age 1–15 (Arias, Xu, and Kochanek 2025)
Child population index	The number of children from birth to 15 years per 1,000 women of childbearing age that one would find in a place, assuming a steady state where recent fertility and child migration patterns persist indefinitely	The average of [(the general fertility rate of a place) and the (general fertility rate)*(the net child migration)], multiplied by 16
Influencing metrics		
Housing access and cost		
Share of housing units that are single-family homes	Share of housing units in a PUMA that are single-family units, whether rented or owned (group quarters populations are not considered) To the extent living in a single-family unit is a standard for family formation, a higher share of owned households would predict higher fertility in a PUMA Single-family-unit residence may also predict greater permanence, a reduced rate of child out-migration, and therefore higher net child migration	Share of housing units in a PUMA that are single-family attached or detached homes (in regression models, this variable is rescaled to set US average at 0)
Share of households that own their homes	Share of households in a PUMA living in units that are owned, not rented (group quarters populations are not considered) To the extent homeownership is a standard for family formation, a higher share of owned households would predict higher fertility in a PUMA Greater homeownership also predicts greater permanence, a reduced rate of child out-migration, and therefore higher net child migration	Share of households in a PUMA for whom ACS variable OWNERSHPD indicates the household is under contract, mortgaged, or owned free and clear (in regression models, this variable is rescaled to set US average at 0)

Variable	Definition or interpretation	Calculation method
Rents	The average contract rent for rented households A simple model of fertility and family behavior would predict that low rents facilitate family formation	Mean value of ACS variable RENT: Contract Rent for rented households To inflate contract rent amounts from ACS years before 2023, the dollar values are inflated to the latest year's dollar values by multiplying by a factor equal to the average annual Consumer Price Index (CPI-U-RS-All items) (in regression models, this variable is rescaled to set US average at 0)
Owner costs	The average housing cost for owned households A simple model of fertility and family behavior would predict that low housing costs facilitate family formation	Mean value of ACS variable OWNCOST: selected monthly owner costs for owned households To inflate amounts from ACS years before 2023, the dollar values are inflated to the latest year's dollar values by multiplying by a factor equal to the average annual Consumer Price Index (CPI-U-RS-All items) (in regression models, this variable is rescaled to set US average at 0)
Parenting environment and centrality of families		
Bar density	The count of bars, nightclubs, and lounges from NaNDA per 1k residents	Count of bars in 2021 / total population x 1,000 (from: https://nanda.isr.umich.edu/project/eating-and-drinking-places/) (in regression models, this variable is rescaled to set US average at 0)
Library density	The count of all libraries from NaNDA per 1k residents	Count of libraries in 2021 / total population x 1,000 (Melendez et al. 2025) (in regression models, this variable is rescaled to set US average at 0)
Child care density	The count of all registered child care (from birth through pre-K) businesses from NaNDA per 1k residents	Count of child care services in 2021/ total population x 1000 (From: https://nanda.isr.umich.edu/project/social-services/) (in regression models, this variable is rescaled to set US average at 0)
Child Opportunity Index education quality metric	An index that captures private and public pre-K enrollment, elementary school reading and math scores and growth as well as poverty-adjusted scores, Advanced Placement course enrollment among high schoolers, college enrollment within a 20-mile radius, high school graduation rates, child enrichment–related nonprofits, teacher experience, and school poverty rates	Education quality index score scaled to the national average at the tract level and then population-weight-averaged to the PUMA level. Technical documentation available through the Child Opportunity Index (Noelke et al. 2025)
Child Opportunity Index healthy environment metric	An index that captures airborne microparticle scores, ozone concentration, industrial pollution levels, hazardous waste dump site proximity, fast food restaurant density, healthy food retailer density, extreme	Health and environment index score scaled to the national average at the tract level and then population-weight-averaged to the PUMA level. Technical documentation available through the Child Opportunity Index (Noelke et al. 2025)

Variable	Definition or interpretation	Calculation method
	heat exposure, nature score, EPA walkability scores, community safety–related nonprofits, vacant housing, health-related nonprofits, and health insurance coverage	
Monthly child care costs	The average monthly child care cost across all ages of children from birth to 5 years cared for in a child care center	The weekly cost of child care for all children ages birth to 5 years in child care centers, averaged, then multiplied by 52 and divided by 12; these costs were reported at the county level and interpolated to the PUMA level; PUMAs with no county-level data (all in NM, VA, and DC) were given the average cost of child care for the District or state (USDOL 2024)
Commute times	A measure of travel time to work, used as a possible correlate of travel times for other purposes and traffic congestion; alternately, could be used as an indicator of living in a "bedroom community"	Mean value in minutes of ACS variable TRANTIME: travel time to work; mean value in minutes for persons reporting nonzero, nonmissing travel time (in regression models, this variable is rescaled to set US average at 0)
Population shifts of young adults		
Net migration of 15-to-20-year-olds	A measure of the share of the population that increases or decreases around the transition to young adulthood; A high net migration of 15-to-20-year-olds is generally a sign of a large college population and associated economy and culture; net migration at this age also includes persons moving in for work and/or family formation after leaving a parental household and, in a few cases, military bases	ACS person-weighted counts of 18-to-22-year-olds divided by 13-to-17-year-olds in a PUMA (in all cases, rescaled to set US average at 0); this rescale automatically adjusts for population loss attributable to mortality and to past differences in births by year, at least at the national level
Net migration 20-to-30-year-olds	A measure of the share of the population that increases or decreases due to movements of post-college-age young adults; A high net migration of 20-to-30-year-olds is generally a sign of a large influx of early career workers, and in a few cases, a prison population	ACS person-weighted counts of 28-to-32-year-olds divided by 18-to-22-year-olds in a PUMA in all cases, rescaled to set US average at 0; this rescale automatically adjusts for population loss attributable to mortality and to past differences in births by year, at least at the national level
Demographic controls	Race, ethnicity, education level, and other characteristics are often associated with fertility and family movement for complex reasons; these variables are included in models to limit	

Variable	Definition or interpretation	Calculation method
	omitted variable bias for other variables of more clear policy interest	
Hispanic population share		ACS person-weighted counts of variable HISPAN in the PUMA indicating Hispanic ethnicity of any national origin (in regression models, this variable is rescaled to set US average at 0)
Non-Hispanic Black population share		ACS person-weighted counts of variable HISPAN in the PUMA indicating non-Hispanic ethnicity combined counts of variable RACBLK indicating Black as only race response or Black as one of multiple race responses (in regression models, this variable is rescaled to set US average at 0)
All other race responses)		Excluded category of race and ethnicity is all race and ethnic responses not listed above, including non-Hispanics of white, Asian, Native American, Pacific Islander, and other race, and including multiracial non-Hispanic persons not including Black people
College graduate share of 18- to 47-year-olds		Shares of persons of reproductive age in each PUMA in the ACS with values of EDUCD indicating that they have completed a four-year degree or more, combined with 18-, 19-, 20-, and 21-year-olds reported as currently attending college (in regression models, this variable is rescaled to set US average at 0)

Appendix B. Correlation Matrices

TABLE B.1

Model Variable Correlation Matrices for Core Cities

Core Cities	GFR	CRS	gfr_nocollege	gfr_college	CRS_nocollege	CRS_college	Share_single-family_homes	Share_3plusbedroom_homes	Monthly_rent	Median_home_value	Education_quality_index_score	Environmental_quality_index_score	Commute_times	Share_Hispanic_residents	Share_non_Hispanic_Black_residents	Share_college-educated_working-age_adults	Net_15-20_yrold_migration	Net_20-30_yrold_migration	Childcare_density	Library_density	Bar_density
GFR	1.00																				
CRS	-0.02	1.00																			
gfr_nocollege	0.61	0.00	1.00																		
gfr_college	0.55	0.00	0.23	1.00																	
CRS_nocollege	-0.11	0.46	-0.20	0.02	1.00																
CRS_college	0.08	0.62	-0.02	-0.03	0.29	1.00															
Share_single-family_homes	0.30	0.48	0.13	0.31	0.16	0.38	1.00														
Share_3plusbedroom_homes	0.37	0.51	0.14	0.33	0.21	0.47	0.89	1.00													
Monthly_rent	-0.35	-0.07	-0.44	-0.06	0.11	0.08	-0.12	-0.11	1.00												
Median_home_value	-0.33	-0.12	-0.38	-0.12	0.08	-0.03	-0.28	-0.29	0.83	1.00											
Education_quality_index_score	-0.33	-0.08	-0.50	0.00	0.12	0.19	-0.07	0.00	0.74	0.57	1.00										
Environmental_quality_index_score	-0.36	-0.22	-0.34	-0.10	0.11	-0.04	-0.19	-0.12	0.51	0.47	0.56	1.00									
Commute_times	0.18	0.08	0.09	0.03	0.08	0.04	-0.26	-0.09	0.05	0.11	-0.04	0.06	1.00								
Share_Hispanic_residents	0.19	0.32	0.23	0.00	-0.01	0.00	0.07	-0.01	-0.18	-0.18	-0.43	-0.60	0.14	1.00							
Share_non_Hispanic_Black_residents	0.18	-0.13	0.25	-0.04	-0.06	-0.06	-0.08	-0.03	-0.48	-0.37	-0.46	-0.09	0.16	-0.28	1.00						
Share_college-ed_working-age_adults	-0.54	-0.36	-0.53	-0.18	0.07	-0.09	-0.33	-0.30	0.69	0.62	0.81	0.71	-0.10	-0.59	-0.28	1.00					
Net_15-20_yrold_migration	-0.44	-0.24	-0.21	-0.32	-0.12	-0.19	-0.24	-0.26	0.07	0.04	0.07	0.17	-0.18	-0.15	-0.02	0.28	1.00				
Net_20-30_yrold_migration	-0.26	-0.48	-0.21	-0.07	-0.14	-0.29	-0.37	-0.43	0.35	0.41	0.27	0.30	0.00	-0.28	-0.12	0.51	-0.13	1.00			
Childcare_density	-0.11	-0.27	-0.10	-0.17	-0.01	-0.07	-0.43	-0.33	-0.01	0.11	0.06	0.38	0.22	-0.36	0.41	0.27	0.08	0.19	1.00		
Library_density	-0.12	-0.10	-0.08	-0.04	0.01	-0.10	-0.05	-0.10	0.00	0.04	0.10	0.33	-0.04	-0.26	0.17	0.25	0.08	0.07	0.25	1.00	
Bar_density	-0.49	-0.44	-0.28	-0.27	-0.17	-0.26	-0.42	-0.50	0.13	0.17	0.19	0.24	-0.26	-0.30	-0.04	0.48	0.30	0.51	0.26	0.25	1.00

Source: ACS IPUMS 2019–2023, Child Opportunity Index 2025, NaNDA data archives 2025.
Notes: GFR = general fertility rate, CRS = child retention score.

TABLE B.2

Model Variable Correlation Matrices for Suburban and Exurban Areas

Suburbs and Exurbs	GFR	CRS	gfr_nocollege	gfr_college	CRS_nocollege	CRS_college	Share_single-family_homes	Share_3plusbedroom_homes	Monthly_rent	Median_home_value	Education_quality_index_score	Environmental_quality_index_score	Commute_times	Share_Hispanic_residents	Share_non_Hispanic_Black_residents	Share_college-educated_working-age_adults	Net_15-20_yrold_migration	Net_20-30_yrold_migration	Childcare_density	Library_density	Bar_density
GFR	1.00																				
CRS	-0.47	1.00																			
gfr_nocollege	0.51	-0.40	1.00																		
gfr_college	0.42	-0.15	0.10	1.00																	
CRS_nocollege	-0.18	0.50	-0.41	-0.01	1.00																
CRS_college	-0.16	0.63	-0.17	-0.14	0.28	1.00															
Share_single-family_homes	0.07	0.44	-0.10	0.16	0.19	0.34	1.00														
Share_3plusbedroom_homes	0.09	0.45	-0.07	0.14	0.22	0.39	0.85	1.00													
Monthly_rent	-0.06	0.21	-0.27	0.03	0.28	0.17	-0.02	0.07	1.00												
Median_home_value	-0.09	0.23	-0.26	-0.02	0.27	0.17	-0.04	-0.01	0.85	1.00											
Education_quality_index_score	-0.21	0.37	-0.48	0.05	0.33	0.27	0.18	0.20	0.50	0.42	1.00										
Environmental_quality_index_score	-0.13	0.13	-0.36	0.04	0.19	0.05	0.06	0.03	0.41	0.39	0.64	1.00									
Commute_times	0.12	0.18	0.04	0.09	0.13	0.17	0.35	0.43	0.23	0.12	-0.08	-0.08	1.00								
Share_Hispanic_residents	0.14	-0.12	0.22	-0.11	-0.09	-0.13	-0.23	-0.13	0.06	-0.02	-0.45	-0.54	0.23	1.00							
Share_non_Hispanic_Black_residents	0.00	-0.17	0.19	-0.09	-0.12	0.01	-0.14	-0.04	-0.21	-0.31	-0.47	-0.26	0.15	-0.01	1.00						
Share_college-ed_working-age_adults	-0.22	0.28	-0.50	-0.02	0.34	0.21	0.01	0.04	0.57	0.50	0.88	0.70	-0.14	-0.47	-0.29	1.00					
Net_15-20_yrold_migration	-0.29	-0.24	0.03	-0.26	-0.17	-0.25	-0.32	-0.32	-0.14	-0.08	-0.14	-0.07	-0.26	0.08	0.05	-0.09	1.00				
Net_20-30_yrold_migration	0.09	-0.45	0.07	0.12	-0.24	-0.31	-0.32	-0.35	0.00	-0.03	-0.13	0.03	-0.14	-0.07	0.11	-0.01	-0.37	1.00			
Childcare_density	-0.12	0.03	-0.23	-0.07	0.09	0.06	-0.27	-0.26	0.10	0.12	0.30	0.37	-0.20	-0.27	0.15	0.42	-0.02	0.07	1.00		
Library_density	-0.09	0.07	-0.08	0.00	0.09	0.00	0.11	-0.05	-0.25	-0.01	0.06	0.13	-0.06	-0.29	-0.17	0.03	0.09	-0.16	0.08	1.00	
Bar_density	-0.20	-0.16	-0.10	-0.12	-0.09	-0.13	-0.34	-0.41	-0.18	-0.09	0.02	0.04	-0.36	-0.20	0.06	0.10	0.17	0.18	0.28	0.29	1.00

Source: ACS IPUMS 2019–2023, Child Opportunity Index 2025, NaNDA data archives 2025.
Notes: GFR = general fertility rate, CRS = child retention score.

Notes

[1] Connor O'Brien, "Young Families Have Continued Leaving Big Cities Post-Pandemic," Economic Innovation Group, July 10, 2024, https://eig.org/families-exodus/.

[2] Shane Meyers, Geoffrey Paulin, and Kristen Thiel, "Consumer Expenditures in 2022," Bureau of Labor Statistics Reports, 2023, https://www.bls.gov/opub/reports/consumer-expenditures/2022/home.htm.

[3] Connor O'Brien, "Young Families Have Continued Leaving Big Cities Post-Pandemic," Economic Innovation Group, July 10, 2024, https://eig.org/families-exodus/.

[4] Madeline Brown, Justin Doromal, Erica Greenberg, Elaine Maag, Heather Sandstrom, and Diane Schilder, 2025, "Cities Are Worried About Losing Families. DC Can Set an Example for How to Keep Them," *Urban Wire*, accessed February 8, 2026, https://www.urban.org/urban-wire/cities-are-worried-about-losing-families-dc-can-set-example-how-keep-them?&utm_source=%20urban_newsletters&utm_campaign=hm&utm_id=housing&utm_content=&utm_term=.

[5] Biswa Das, "Young Families Are Leaving Many Large US Cities. Here's Why That Matters," Iowa State Research, 2024, https://research.iastate.edu/2024/11/21/young-families-are-leaving-many-large-us-cities-%E2%88%92-heres-why-that-matters/.

[6] Connor O'Brien, "Young Families Have Continued Leaving Big Cities Post-Pandemic," Economic Innovation Group, July 10, 2024, https://eig.org/families-exodus/.

[7] Throughout this report, the term family-friendly is intended to indicate the abundance of families with children, not necessarily to provide any directionality in terms of whether families with children are doing well or whether their children have higher upward social mobility, though many other groups offer helpful guidance on these points (e.g., Urban Institute's Upward Mobility Framework and Opportunity Insights).

[8] Shane Meyers, Geoffrey Paulin, and Kristen Thiel, "Consumer Expenditures in 2022," Bureau of Labor Statistics Reports, 2023, https://www.bls.gov/opub/reports/consumer-expenditures/2022/home.htm.

[9] Shane Meyers, Geoffrey Paulin, and Kristen Thiel, "Consumer Expenditures in 2022," Bureau of Labor Statistics Reports, 2023, https://www.bls.gov/opub/reports/consumer-expenditures/2022/home.htm.

[10] Georgia Poyatzis and Gretchen Livingston, "New Data: Childcare Costs Remain an Almost Prohibitive Expense," US Department of Labor Blog, November 19, 2024, https://blog.dol.gov/2024/11/19/new-data-childcare-costs-remain-an-almost-prohibitive-expense.

[11] Melanie Hanson, "U.S. Public Education Spending Statistics," Education Data Initiative, February 17, 2026, https://educationdata.org/public-education-spending-statistics.

[12] Richard Florida, "Where Kids Live Now in the U.S.," Bloomberg CityLab, April 13, 2015, https://www.bloomberg.com/news/articles/2015-04-13/the-u-s-metros-with-the-highest-and-lowest-shares-of-children-under-18.

[13] Connor O'Brien, "Young Families Have Continued Leaving Big Cities Post-Pandemic," Economic Innovation Group, July 10, 2024, https://eig.org/families-exodus/.

[14] Education level is one of the most enduring demographic indicators for socioeconomic status; it is superior to annual income or household wealth because both vary significantly year to year and tend to grow over time. When selecting which ACS IPUMS record to pull for education level, we chose households where women were the respondent because women tend to more accurately report their own fertility, children's ages, and full household rosters (Joyner et al. 2012).

[15] We identified this threshold through testing that captures 20 percent of the US population in the highest-density areas whose behavior differs from the rest of the country in terms of family formation, child retention, and adult migration but is similar within this group. Additional explanation can be found in appendix A, conceptual model definitions. Using a historical standard of four housing units per acre, the threshold of 6,000 people per square mile is the threshold at which population cannot be housed solely through single-family residences. To check that our results were not idiosyncratic to our definition of "high density," we conducted sensitivity analyses of our descriptive statistics and regression results using other thresholds, such as 4,000+, 5,000+, 8,000+, and 10,000+ persons per square mile. All results were substantively similar to those shown in this report.

[16] Several PUMAs are outside municipal or township boundaries—they are in technically unincorporated areas governed by counties (e.g., Montgomery County, MD; Fairfax County, VA; Honolulu County, HI). In those cases, no additional PUMAs were added to those designated as "core PUMAs" within the county because county governments in those regions manage dense areas as if they were their own incorporated places (e.g., Honolulu city, HI; Silver Springs, MD) with neighborhood-level planning and school districts defined around those dense areas as well, but they manage the less-dense areas differently.

[17] Mary Carr Lee, "Good Ideas for Cities: Creative Tactics Cities Are Using to Address the Child Care Shortage," *Mayors Innovation Group*, 2024, https://mayorsinnovation.org/2024/10/29/good-ideas-for-cities-creative-tactics-cities-are-using-to-address-the-child-care-shortage/.

[18] Kiley Hurst, "More Than Half of Americans Live Within an Hour of Extended Family," Pew Research, May 18, 2022, https://www.pewresearch.org/short-reads/2022/05/18/more-than-half-of-americans-live-within-an-hour-of-extended-family/.

[19] For example, given that share of college-educated adults is highly correlated with rent prices and cost of living, which are not significant in this model but are nearly significant in the absence of the college-share variable.

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