Charting Tennessee's Prosperity: 15 Metrics that Matter Most

Supporting Literature

This document summarizes the research behind the selection of economic mobility indicators used in Think*Tennessee*'s "Charting Tennessee's Prosperity: 15 Metrics that Matter Most" framework.

Think*Tennessee* reviewed several economic mobility frameworks, including The Urban Institute's Upward Mobility Initiative, California Forward's California Dream Index, and Forum for Youth Investment's Opportunity Index, and conducted a comparative analysis to identify the similarities and differences of indicators and data sources included in each framework.

Think*Tennessee* reviewed the research literature associated with each indicator to evaluate its demonstrated connection to economic mobility. A summary of the research reviewed and the sources can be found in the citations below.

Indicators were then assessed again for merit before being selected. The framework was shared with Think*Tennessee*'s board of directors, advisory board members, and policy peers for feedback. However, none of the comments received altered the initial set of indicators selected for the framework.

1. Workers Earning Living Wages

The **"Workers Earning Living Wages"** indicator identifies the share of workers who earn an hourly wage equal to or higher than the state's living wage for a two-working-adult, one-child household. For Tennessee, the living wage is $20.25/hour as of January 2025. Living wages were selected as a metric for upward mobility as they benchmark the income required for a worker to meet their family's basic needs in a state's specific economy and cost of living. Higher wages have also been associated with better emotional and physical health factors, as well as higher educational attainment levels. Bhatia & Katz (2001) also identified positive health and living outcomes for workers when adopting a living wage standard, including the reduction of premature deaths, an increase in high-school completion, and a reduced risk of early childbirth.

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Bhatia, R., & Katz, M. (2001). Estimation of health benefits from a local living wage ordinance. *American Journal of Public Health*, *91*(9), 1398–1402. https://doi.org/10.2105/ajph.91.9.1398

Boshara, R., & Buchholz, D. (2015). Economic mobility: An overview. *Federal Reserve Bank of St. Louis*. https://www.stlouisfed.org/-/media/project/frbstl/stlouisfed/files/pdfs/community-development/econmobilitypapers/intro/econmobility_introduction_508.pdf?la=en

Brenner, M., & Luce, S (2018). Living wage laws in practice: Retrospective studies on Boston, Hartford, and New Haven. *A Measure of Fairness*, 147–192. Cornell University Press. https://doi.org/10.7591/9781501729522-015

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https://doi.org/10.1073/pnas.1011492107

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Wehby, G., Dave, D., & Kaestner, R. (2018). Effects of the minimum wage on infant health. *National Bureau of Economic Research*. https://www.nber.org/papers/w22373

2. Adults Avoiding Care Due to Cost

The **"Adults Avoiding Care Due to Cost"** indicator estimates the share of adults that forgo medical care due to cost as part of the civilian non-institutionalized population 18 years and over. This metric was chosen because research shows that health is a critical factor for economic mobility. Avoiding medical care can lead to emotional, physical, and financial hardship due to poor preventative care, missed disease diagnoses, or a lack of emergency care. People from racial and ethnic minorities are more likely to forgo medical care due to cost. The care gap is also more significant for adults without a high school degree (SHADAC, 2019). Access to medical care can reduce the likelihood of hospitalizations for chronic conditions (Birdman et al., 1995), increase preventive health service utilization (Ettner, 2011), and improve overall health (Freeman et al., 2011).

State Health Access Data Assistance Center (SHADAC). (2019). Affordability and access to care in 2018: Examining racial and educational inequities across the United States. SHADAC. https://www.shadac.org/news/affordability-and-access-care-2018-examining-racial-and-educational-inequities-across-united

Ben, J., Cormack, D., Harris, R., & Paradies, Y. (2017). Racism and health service utilization: A systematic review and meta-analysis. PloS One, 12(12), e0189900–e0189900. https://doi.org/10.1371/journal.pone.0189900

Bindman, A. B., Grumbach, K., Osmond, D., Komaromy, M., Vranizan, K., Lurie, N., Billings, J., & Stewart, A. (1995). Preventable hospitalizations and access to health care. *JAMA*, *274*(4), 305–311. https://pubmed.ncbi.nlm.nih.gov/7609259/

Devoe, J. E., Tillotson, C. J., Wallace, L. S., Lesko, S. E., & Angier, H. (2012). The effects of health insurance and a usual source of care on a child's receipt of health care. *Journal of Pediatric Health Care*, *26*(5), e25–e35. https://doi.org/10.1016/j.pedhc.2011.01.003

Ettner S. L. (1996). The timing of preventive services for women and children: the effect of having a usual source of care. *American Journal of Public Health*, *86*(12), 1748–1754. https://doi.org/10.2105/ajph.86.12.1748

Freeman, J. D., Kadiyala, S., Bell, J. F., & Martin, D. P. (2008). The causal effect of health insurance on utilization and outcomes in adults: A systematic review of US studies. *Medical Care*, *46*(10), 1023–1032. https://doi.org/10.1097/MLR.0b013e318185c913

Halfon, N., & Newacheck, P. W. (1993). Childhood asthma and poverty: differential impacts and utilization of health services. *Pediatrics*, *91*(1), 56–61. https://pubmed.ncbi.nlm.nih.gov/8416505/

Peek, M. E., Odoms-Young, A., Quinn, M. T., Gorawara-Bhat, R., Wilson, S. C., & Chin, M. H. (2010). Racism in healthcare: Its relationship to shared decision-making and health disparities: a response to Bradby. *Social Science & Medicine*, *71*(1), 13–17. https://doi.org/10.1016/j.socscimed.2010.03.018

Vyas, D. A., Eisenstein, L. G., & Jones, D. S. (2020). Hidden in plain sight: Reconsidering the use of race correction in clinical algorithms. *The New England Journal of Medicine*, *383*(9), 874–882. https://doi.org/10.1056/NEJMms2004740

3. Post-High School Educational Attainment

The **"Post-High School Educational Attainment"** indicator measures the percentage of people aged 25 to 64 with at least an associate's degree and was chosen because of the extensive evidence that educational attainment beyond a high school diploma or equivalent – including community college, technical college, and career and technical certifications (CTE) – is linked to higher wages and higher lifetime earnings. In addition, Rothstein (2017) finds that post-high school educational attainment is more strongly linked to economic mobility than other indicators, including high school graduation rates or 3rd-grade test scores, though those indicators are also important to economic mobility.

Emmons, R. W., Hernández Kent, A., & and Ricketts, L. R., (2019). Is college still worth it? The new calculus of falling returns. *Federal Reserve Bank of St. Louis Review*, 297-329. https://doi.org/10.20955/r.101.297-329

Haskins, R. (2008). Education and economic mobility. *The Brookings Institution.* https://www.brookings.edu/wp-content/uploads/2016/07/02_economic_mobility_sawhill_ch8.pdf

Rothstein, J. (2019). Inequality of educational opportunity? Schools as mediators of the intergenerational transmission of income. *Journal of Labor Economics.* https://www.journals.uchicago.edu/doi/abs/10.1086/700888

Social Security Administration. (n.d.). Education and lifetime earnings. *U.S. Social Security Administration*. https://www.ssa.gov/policy/docs/research-summaries/education-earnings.html

4. Voter Turnout (Presidential Election)

The **"Voter Turnout (Presidential Election)"** indicator is measured as the percentage of the eligible voting population who cast a ballot in the last presidential election cycle, as reported by the state's leading election authority. Research shows that political participation can empower individuals with different demographic attributes – especially economically disadvantaged communities and racial and ethnic minorities – to elect and communicate with representatives that align with their policy attitudes and needs. According to Blakely et al. (2011), the increasing gap in voter turnout among income levels has significant effects on self-assessed health status, where lower-income households participate less and perceive themselves with poor health. Voter turnout as a proxy for citizen participation in public affairs is related to psychological empowerment for leadership (Zimmerman & Rappaport, 1988).

Blakely, T. A., Kennedy, B. P., & Kawachi, I. (2001). Socioeconomic inequality in voting participation and self-rated health. *American Journal of Public Health*, *91*(1), 99–104. https://doi.org/10.2105/ajph.91.1.99

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Leighley, J. E. (2001). Strength in numbers?: The political mobilization of racial and ethnic minorities. *Princeton University Press*. https://doi.org/10.2307/j.ctv18zhf69

Terriquez, V., & Lin, M. (2019). Yesterday they marched, today they mobilized the vote: a developmental model for civic leadership among the children of immigrants. *Journal of Ethnic and Migration Studies*, *46*(4), 747–769. https://doi.org/10.1080/1369183X.2018.1556457

Verba, S., Schlozman, K. L., & Brady, H. E. (1995). Voice and equality: Civic voluntarism in American politics. *Harvard University Press*. https://doi.org/10.2307/j.ctv1pnc1k7

Verba, S., Schlozman, K. L., Brady, H., & Nie, N. H. (1993). Citizen activity: Who participates? What do they say?. *The American Political Science Review*, *87*(2), 303–318. https://doi.org/10.2307/2939042

Zimmerman, M. A., & Rappaport, J. (1988). Citizen participation, perceived control, and psychological empowerment. *American Journal of Community Psychology*, *16*(5), 725–750. https://doi.org/10.1007/BF00930023

5. Renter Housing Affordability

The **"Renter Housing Affordability"** indicator identifies the share of renter-occupied units where renters spend less than 30% of their income on housing costs. This metric was selected because of the role rent as a share of income has on the long-term stability of renter households and the likelihood of transitioning to homeownership (Pew Charitable Trusts, 2018). When there are high rent costs, households reduce other living expenses to afford housing. Most renter-occupied households with children are rent-burdened, with rates increasing among Black or African American and Hispanic or Latino households (Aratani et al., 2011). Higher rent burdens (30% or more of the household's income spent on rent) increase the likelihood of poor self-reported health and avoiding medical care (Melzer & Schwartz, 2015), childhood obesity (Nobari et al., 2019), and grade retention (Aratani et al., 2011).

Acolin, A., & Wachter, S. (2017). Opportunity and housing access. *Cityscape*, *19*(1), 135–150. https://www.huduser.gov/portal/periodicals/cityscpe/vol19num1/ch7.pdf

Aratani, Y., Chau, M., Wight, V. R., & Addy, S. (2011). Rent burden, housing subsidies and the well-being of children and youth. *National Center for Children in Poverty*. https://academiccommons.columbia.edu/doi/10.7916/D8Z89MMD

Blumenthal, P., & McGinty, J. (2015). Housing policy levers to promote economic mobility. *Urban Institute*. https://www.urban.org/sites/default/files/alfresco/publication-pdfs/2000428-Housing-Policy-Levers-to-Promote-Economic-Mobility.pdf

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Meltzer, R., & Schwartz, A. (2015). Housing affordability and health: evidence from New York City. *Housing Policy Debate*, *26*(1), 80–104. https://doi.org/10.1080/10511482.2015.1020321

Nobari, T. Z., Whaley, S. E., Blumenberg, E., Prelip, M. L., & Wang, M. C. (2019). Severe housing-cost burden and obesity among preschool-aged low-income children in Los Angeles County. *Preventive Medicine Reports*, *13*, 139–145. https://doi.org/10.1016/j.pmedr.2018.12.003

Pew Charitable Trusts. (2018). American families face a growing rent burden. *Pew Charitable Trusts.* https://www.pewtrusts.org/-/media/assets/2018/04/rent-burden_report_v2.pdf

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6. Total Incarceration Rate

The **"Total Incarceration Rate"** indicator accounts for the number of people who are confined in state, local, juvenile, federal, or other correctional facilities per 100,000 residents. The metric provides insight into the community's criminal justice system in the allocation of justice and its effects on social and health outcomes. Racial disparities are prevalent among incarcerated populations, with Black or African Americans and Hispanic or Latinos incarcerated at a rate at least twice as high as non-Hispanic whites (Bronson & Carson, 2019). The incarceration rate also disproportionally affects youth and uneducated populations. The negative effects of incarceration can persist even after individuals re-enter society by creating barriers to participation in the labor force (Schnittker & John, 2007) – especially among Black or African American men (Pager, 2007). Additionally, confinement rate has a detrimental impact on life expectancy at birth and infant mortality (Wildeman, 2012).

AuCoin, K., & Beauchamp, D. (2004). Impacts and consequences of victimization. *Statistics Canada*, *27*(1). https://citeseerx.ist.psu.edu/document?repid=rep1&type=pdf&doi=a624a4a51b6e9a4d2839e3680f6d65e51f234c25

Bronson, J., & Carson, A. (2019). Prisoners in 2017. *Washington, DC: Bureau of Justice Statistics April*. https://bjs.ojp.gov/content/pub/pdf/p17.pdf

Berman, S. L., Kurtines, W. M., Silverman, W. K., & Serafini, L. T. (1996). The impact of exposure to crime and violence on urban youth. *American Journal of Orthopsychiatry*, *66*(3), 329–336. https://doi.org/10.1037/h0080183

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Fagan, J. A., Geller, A., Davies, G., West, V., White, M. D., & Rice. S. K. (2009). Street stops and broken windows revisited: The demography and logic of proactive policing in a safe and changing city. *Race, Ethnicity, and Policing*, *NYU Press*. https://scholarship.law.columbia.edu/faculty_scholarship/1579/

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Sampson, R. J. (1990). The impact of housing policies on community social disorganization and crime. *Bulletin of the New York Academy of Medicine*, *66*(5), 526-533. https://pmc.ncbi.nlm.nih.gov/articles/PMC1809766/pdf/bullnyacadmed00016-0154.pdf

7. Labor Force Participation Rate

The **"Labor Force Participation Rate"** indicator measures the percentage of the total civilian, non-institutionalized working-age population (16+) that is either working or actively looking for work. Labor force participation is a key contributor to economic success both at an individual and societal level and can also reinforce individual feelings of autonomy and a sense of belonging. Research finds that new job takers are characterized by achieving adequate employment, while previously unemployed labor force participants experience rates of inadequate employment – such as involuntary part-time and low-wage employment opportunities (Lichter et al., 1991). Inadequate employment and unemployment lead to a decline in physical health and an increase in depressive symptoms, as well as a loss of self-esteem, morale, and life satisfaction (Dooley et al., 2000; Brand, 2015).

Brand J. E. (2015). The far-reaching impact of job loss and unemployment. *Annual Review of Sociology*, *41*, 359–375. https://doi.org/10.1146/annurev-soc-071913-043237

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8. Home Ownership

The **"Home Ownership"** indicator reflects the percentage of households who own their homes and serves to measure residential stability as an instrument for positive social, financial, and health outcomes. Home ownership is the leading contributor to wealth building and residential stability for Black or African American households (McCargo & Choi, 2020). Furthermore, it positively contributes to children's social and emotional well-being, reducing the likelihood of emotional distress (Vandivere et al., 2006). Alternatively, Kull et al. (2015) find that higher rates of residential moves are linked to higher occurrences of intimate partner violence, relationship instability, job changes, and substandard housing.

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McCargo, A., & Choi, J. H. (2020). Closing the gaps: Building black wealth through homeownership. *Urban Institute*. https://www.urban.org/research/publication/closing-gaps-building-black-wealth-through-homeownership

Reid, C., & Laderman, E. (2009). The untold costs of subprime lending: examining the links among higher-priced lending, foreclosures and race in California. *Federal Reserve Bank of San Francisco: Working Paper Series*. https://www.frbsf.org/wp-content/uploads/wp2009-09.pdf

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Woolf, S. H., Aron, L. Y., Dubay, L., Simon., S. M., Zimmerman, E., & Luk, K. (2015).

How are income and wealth linked to health and longevity?. *Urban Institute*. https://www.urban.org/research/publication/how-are-income-and-wealth-linked-health-and-longevity

9. Poverty

The **"Poverty"** indicator measures the percentage of the total non-institutionalized population over the age of 16 whose income over the past 12 months was below the Federal Poverty Level (FPL). This metric was selected as it is recognized that access to an adequate income is necessary to achieve positive educational, occupational, and health outcomes. Additionally, as income is strongly tied to labor market performance, low poverty rates serve as strong indicators of widespread economic prosperity. Research finds that low incomes are negatively associated with upward mobility – including children's educational attainment (Mayer, 2002), fetal health (Fiscella et al., 2004), and alienation in social and educational spaces (Boser & Baffour, 2017).

Boser, U., & Baffour, P. (2017). Isolated and segregated: A new look at the income divide in our nation's schooling system. *Center for American Progress*. https://www.americanprogress.org/article/isolated-and-segregated/

Chetty, R., Hendren, N., & Katz. L. F. (2016). The effects of exposure to better neighborhoods on children: New evidence from the moving to opportunity experiment. *American Economic Review*, *106*(4): 855–902. https://www.aeaweb.org/articles?id=10.1257/aer.20150572

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Massey, D. S., Gross, A. B., & Shibuya, K. (1994). Migration, segregation, and the geographic concentration of poverty. *American Sociological Review*, *59*(3), 425–445. https://doi.org/10.2307/2095942

Mayer, S. E., (2002). How economic segregation affects children's educational attainment, *Social Forces*, *81*(1), 153–176, https://doi.org/10.1353/sof.2002.0053

Mijs, J. J. B., & Roe, E. L. (2021). Is America coming apart? Socioeconomic segregation in neighborhoods, schools, workplaces, and social networks, 1970–2020. *Sociology Compass*, *15*(6). https://doi.org/10.1111/soc4.12884

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Palardy, G. J. (2013). High school socioeconomic segregation and student attainment. *American Educational Research Journal*, *50*(4), 714-754. https://doi.org/10.3102/0002831213481240

10. Low Birthweight

The **"Low Birthweight"** indicator measures the percentage of live births weighing less than 2,500 grams (5.5 pounds). This metric was selected because neonatal health outcomes have been found to influence physical

and cognitive development later in life. Conley & Bennett (2000) find that low birth weight negatively relates to high school educational attainment, while Mathewson et al. (2017) find that extremely low birth weight increases the likelihood of psychological challenges, including behavioral disorders and social difficulties. Overall, poor childhood health has been negatively linked to lower educational attainment, employment opportunities, and health outcomes as adults (Case & Paxson, 2006).

Case, A., & Paxson, C. (2006). Children's health and social mobility. *The Future of Children*, *16*(2), 151–173. https://doi.org/10.1353/foc.2006.0014

Conley, D., & Bennett, N. G. (2000). Is biology destiny? Birth weight and life chances. *American Sociological Review*, *65*(3), 458–467. https://doi.org/10.2307/2657467

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Mathewson, K. J., Chow, C. H., Dobson, K. G., Pope, E. I., Schmidt, L. A., & Van Lieshout, R. J. (2017). Mental health of extremely low birth weight survivors: A systematic review and meta-analysis. *Psychological Bulletin*, *143*(4), 347–383. https://doi.org/10.1037/bul0000091

11. Air Pollution

The **"Air Pollution"** indicator measures the average exposure of the public to particulate matter of 2.5 microns or less, measured in micrograms per cubic meter. This metric was selected due to air pollution's negative effects on health outcomes, including chronic conditions and untimely deaths. Research finds that long-term exposure to air pollution increases the likelihood of non-accidental deaths, low birth weight, and lung cancer (Morelli et al., 2016), as well as outbreaks of inflammatory diseases and cognitive impairment (Kristiansson et al., 2015). Pollution also negatively affects school performance (Sanders, 2012) and income mobility for low-income children when reaching adulthood (O'Brien et al., 2018). Furthermore, air pollution disproportionally impacts low-income, urbanized, minority neighborhoods (Margai, 2001; Taylor, 2014).

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12. Volunteering

The **"Volunteering"** indicator identifies the share of residents who spent any time volunteering for any organization or association in the past year. Volunteering provides insight into a community's civic health and measures how members of a community engage to make a difference for their peers and promote the common good. Research finds that tighter communities increase the likelihood of volunteering (Omoto & Packard, 2016) and that volunteering contributes to the beneficiaries' ability to build social network capital to access economic mobility (Chantarat & Barrett, 2012).

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13. Borrowers with Severely Delinquent Debt

The **"Borrowers with Severely Delinquent Debt"** indicator is a measure of the percentage of borrowers with at least one severely delinquent type of debt (debt that is 90+ days past due, in collections, or classified as severely derogatory). Increasing debt burdens have proven to challenge a family's financial stability and diminish the growth opportunities for personal net worth, the ability to borrow and mobilize financial resources, and the prospects of acquiring a home (Stanford Center on Longevity, 2018) – all significant obstacles to economic mobility. Furthermore, Elliot & Lowtiz (2018) find that people with poor credit have limited access to financial products, are charged with the highest interest rates, and could be limited in their options for work and housing.

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14. Average Commute to Work

The **"Average Commute to Work"** indicator measures the average travel time to work, in minutes, traveling one way. There is extensive research that shows that long commutes have detrimental impacts on economic mobility, and that short commutes have a positive impact on mobility. Chetty and Hendren (2018) find that of all factors studied, commuting time had the greatest impact on escaping poverty. Commute time was found to be a stronger predictor for mobility than other indicators, including crime levels, elementary school test scores, and two-parent households.

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15. Young Children Not in School

The **"Young Children Not in School"** indicator measures the share of children ages 3 to 4 not enrolled in school, including nursery school, preschool, or kindergarten, during the previous three months. The metric was selected because children as early as preschool age develop the foundational blocks for financial capability that continue developing as teens and young adults (Consumer Financial Protection Bureau, 2016). Formal schooling during early childhood is linked to enhanced learning across subjects (Barnett et al., 2018), better

performance on achievement tests (Ansari, 2018) and reduced economic inequality for low-income children in the future (Magnuson & Duncan, 2016).

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