

FINANCIAL CHALLENGES FACING US CITIES:
MILWAUKEE, WISCONSIN

Hoover Institution | Stanford University

Contents

Foreword	2
Executive Summary.....	3
Introduction.....	4
1. Economic Development.....	6
2. Public Pensions	13
3. Infrastructure.....	23
Conclusion.....	29
References	31

Foreword

The City of Milwaukee, like many cities around the United States, has faced financial challenges in recent years. Budgetary constraints have put pressure on the city's ability to promote economic growth, fund its pension obligations, and maintain basic infrastructure. Addressing these challenges requires research-based solutions and an innovative approach to governance that places data and evidence at the forefront of policymaking.

This report is the product of Milwaukee's participation in the Stanford Graduate School of Business Public Policy Lab, supported by the Hoover Institution. The Lab is an experiential learning course for MBA students where we partner with cities across the country to assess their policies and make recommendations based on research and discussions with city officials and scholars. The culmination of this course is a summit in which city leaders hear policy recommendations from students and meet with members of the Hoover Institution State and Local Governance Initiative to discuss our research efforts.

We would like to thank Commissioner of City Development Lafayette Crump, Commissioner of Public Works Jerrel Krushcke, and Finance and Administration Manager David Schroeder for their partnership throughout the course and for sharing valuable information with us that formed the basis of this report. We hope that our recommendations inform ongoing policy debate and provide a path towards a strong future for the City of Milwaukee.



Joshua D. Rauh

Senior Fellow, Hoover Institution
Ormond Family Professor of Finance, Stanford Graduate School of Business

Executive Summary

Economic Development

- The City of Milwaukee uses tax increment financing (TIF) extensively to attract firms and spur investment in the city; a thorough analysis of TIF should be conducted to assess its effect on economic growth, property values, job creation, and more
- Increased graduate retention can produce strong spillover effects, increasing wages for even non-graduates in a city; Milwaukee should partner with its higher education institutions to tailor its economic development strategy to retain graduates
- Brokering relationships between private sector firms in Milwaukee and academic institutions can lead to opportunities for city residents to upskill or reskill for future roles

Public Pensions

- Unfunded pension liabilities present a real risk to the City of Milwaukee, as evidenced by a recent downgrade of the city's credit rating which cited growing cost pressures associated with pensions; serious reforms, however, can improve the city's financial outlook
- Because the legacy liability of a pension plan must be amortized no matter what, city officials should only consider the forward-looking economic cost of plans when considering pension alternatives
- A soft closure of Milwaukee's Employee Retirement System is recommended, and new employees should be enrolled in the Wisconsin Retirement System to reduce costs to the city
- The amortization of the unfunded accrued liability should reflect its true market value cost; a 35-year level-dollar annuity is recommended

Infrastructure

- The cost of infrastructure is rising across the United States, making it crucial for Milwaukee to allocate infrastructure funding wisely and prioritize projects that have high return on investment, namely, maintenance of existing infrastructure
- Using innovative new technology and artificial intelligence for data collection and assessment of current infrastructure conditions can lower the cost associated with maintenance and streamline prioritization decisions
- Milwaukee officials are interested in utilizing infrastructure as a tool for growth, but this should be done with caution so as to avoid projects with high initial capital costs and uncertain returns; thorough cost-benefit analyses of projects are recommended
- Bus rapid transit is a more cost-effective alternative to streetcar transit and can have significant benefits for transit-related metrics like commute times as well as economic development outcomes like employment

Introduction

As home to nearly 570,000 people, more than 8,500 employer firms, and 13 Fortune 1000 companies headquartered in the metropolitan area, Milwaukee is the economic hub of Wisconsin. The city is also a cultural center with a diverse population, a variety of annual ethnic, music, and arts festivals, and multiple professional sports teams. Bordering Lake Michigan and intersected by the Milwaukee River, Milwaukee also has an abundance of natural resources and outdoor amenities.

Despite its many attractions, the city has faced challenges in recent years. Over the past several decades, Milwaukee, like many other post-industrial cities across the country, has experienced a decline in population and difficulty in adapting to an evolving economic landscape. The city has also maintained relatively high poverty rates compared to the rest of Wisconsin, as shown in Figure 1.

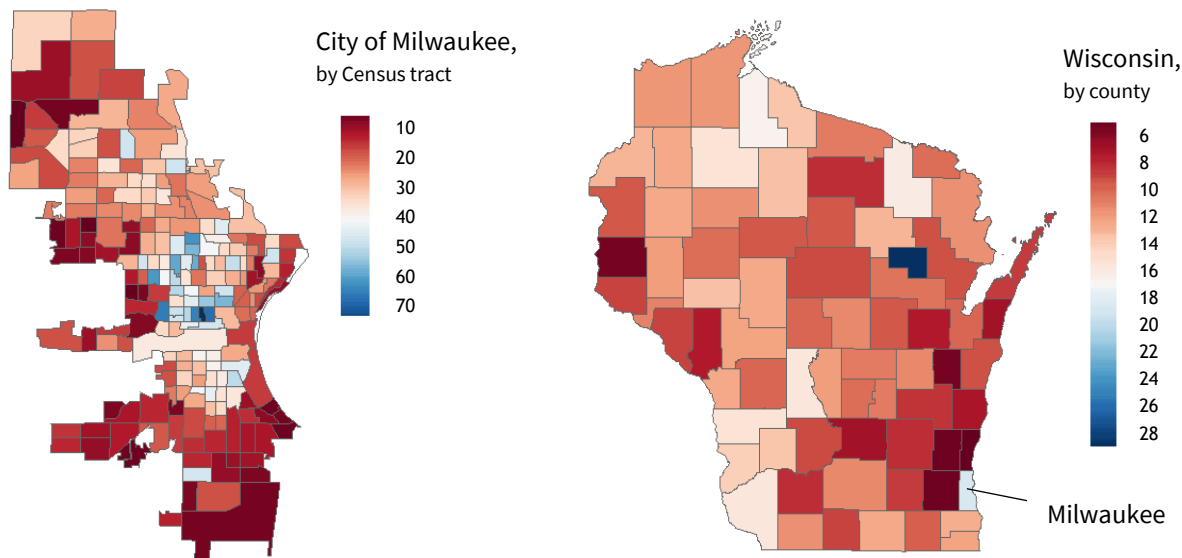


Clockwise from top left: Lake Park, Milwaukee Riverwalk, Fiserv Forum, Henry W. Maier Festival Grounds. Source: Visit Milwaukee

From a governance perspective, Milwaukee's fiscal condition has been a perennial cause for concern owing to limited revenue raising capabilities and growing long-term liabilities (Stein, 2022). Unlike most other cities of similar size, Milwaukee has historically been unable to levy a municipal sales tax. Instead, the city has relied mainly on state shared revenue and property tax revenue for funding. While the former has remained largely flat for almost two decades, the latter is capped due to state levy limits which tie rate increases to the rate of net new construction in a municipality.

These stagnant revenue streams have put pressure on Milwaukee's ability to fund services like infrastructure maintenance, economic development, public safety, and other capital investment. Meanwhile, the city's long-term pension liabilities have continued to grow, and required contributions are projected to increase greatly in coming years due to full-funding mandates. All of these factors were key drivers in a recent decision to downgrade Milwaukee's credit rating by Fitch Ratings (Gillers 2023). However, a new bill was recently passed by the Wisconsin State Legislature that would allow the City of Milwaukee's Common Council to enact a 2 percent sales tax in Milwaukee, the revenue from which would go towards funding the city's pension obligations. While we are reluctant to advocate for an increase in taxes paid by Milwaukeeans, this new revenue-raising mechanism could help alleviate the fiscal strain facing the city and put it on better financial footing moving forward if it is used as part

Figure 1: % of Households below Poverty



Source: US Census Bureau, 2020 American Community

of a plan to prevent the further growth of unfunded pension liabilities. To be good stewards of taxpayer money, though, the City of Milwaukee should focus its efforts on finding efficiency gains in all policy areas regardless of its decision on sales tax legislation.

In this report, we focus on economic development, public pensions, and infrastructure in the City of Milwaukee. Combining information from our conversations with the city's Department of Public Works, Department of Administration, and Department of City Development with academic research and analysis, we make policy recommendations in each of these areas in turn. In terms of economic development in Milwaukee, we consider tax increment financing and recommend a comprehensive analysis of the city's Tax increment financing districts. We also explore potential approaches to workforce development. For public pensions, we discuss cost-saving efforts in the face of growing liabilities and required contributions, ultimately arguing for a soft-closure of the city's public pension system and enrollment in the state plan. Finally, with regards to infrastructure, we emphasize the importance of maintenance and recommend innovative strategies for data collection and maintenance prioritization. Throughout the report, we underscore cost-effectiveness and the importance of data collection and analysis in addressing Milwaukee's fiscal challenges.

1. Economic Development

JILLIAN LUDWIG

The author would like to thank Stanford GSB Public Policy Lab students Sarah Anderson, Abhi Satyavarapu, and Ryan Zepeda for their contributions to this chapter.

Jillian Ludwig is a Research Analyst at the Hoover Institution.

Executive Summary

- The City of Milwaukee uses tax increment financing (TIF) extensively to attract firms and spur investment in the city; a thorough analysis of TIF should be conducted to assess its effect on economic growth, property values, job creation, and more
- Increased graduate retention can produce strong spillover effects, increasing wages for even non-graduates in a city; Milwaukee should partner with its higher education institutions to tailor its economic development strategy to retain graduates
- Brokering relationships between private sector firms in Milwaukee and academic institutions can lead to opportunities for city residents to upskill or reskill for future roles

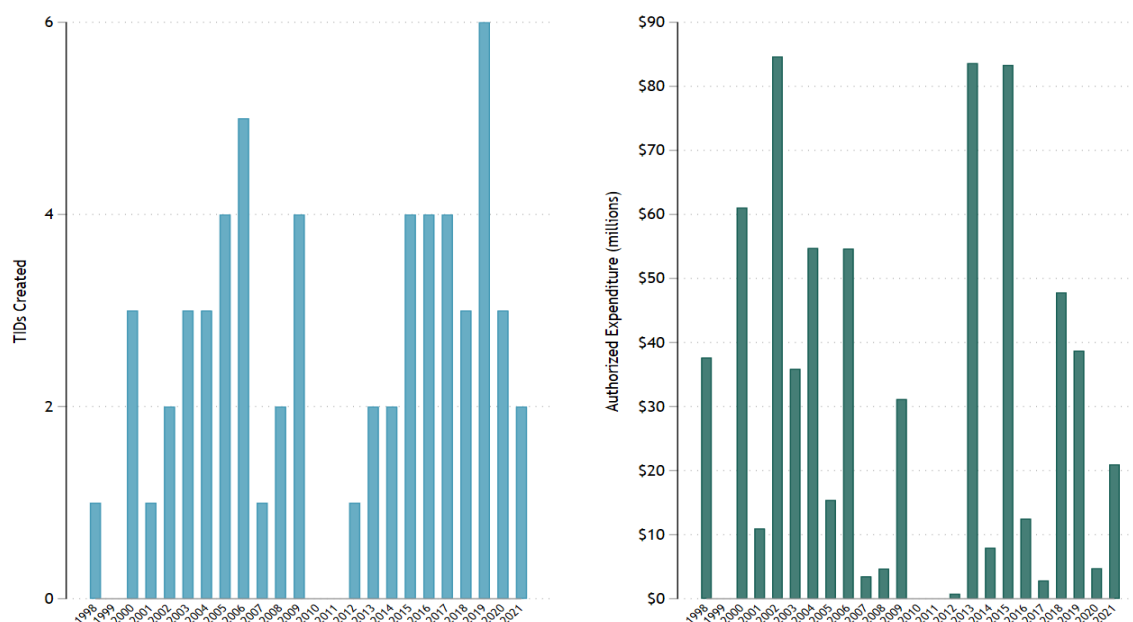
Introduction

Broadly speaking, economic development seeks to increase economic growth, enhance the productivity of firms and workers, foster innovation, and improve the standard of living in a community (Liu 2016). Like many historically industrial cities, Milwaukee has experienced declines in population in recent decades, relatively higher unemployment rates than the surrounding region, and growing disparities in outcomes amongst the city's different populations. As the economic landscape evolves, these challenges highlight the city's need to prioritize an economic development strategy that promotes growth and improves economic prospects for city residents and Milwaukee as a whole.

To that end, officials in Milwaukee remain committed to growing the city and are eager to reverse these trends and adapt to a constantly evolving economic landscape. The city has concentrated its effort on attracting private investment, leveraging infrastructure and amenities to draw in workers and stimulate growth, and creating economic mobility for all residents through high-paying jobs.

A key challenge to economic development in Milwaukee is that the city has a relatively limited toolbox for pursuing these goals. The city is uniquely constrained financially due to growing pension liabilities and historically narrow revenue-raising capabilities, but the city is also unable to use a lot of the economic development incentives that many similar-sized cities employ. Working within these tight constraints, we focus on strategies the city can use to efficiently attract and retain business and

Figure 2: Tax Incremental Districts by Year of Creation



Note: This figure displays the number and authorized expenditure of tax incremental districts in Milwaukee as of December 31, 2021, by creation year. Source: Milwaukee Department of City Development.

nurture its workforce, placing an emphasis on data collection and analysis to better understand current policies.

Retaining and Attracting Business and Workers

Business attraction and retention is generally the most traditional approach to economic development, and localities often use a variety of tools to incentivize new and existing firms to locate or expand within the city, create jobs, or make other capital investments. Many cities offer tax abatements or credits to specific companies or industries in exchange for a promised level of job growth or investment within the city. Ideally, these incentives stimulate activity in the municipality that would not occur but for the subsidy, although it is unclear how often this is truly the case (Bartik 2019).

In Milwaukee, business incentives take a different form than the standard property and sales tax credit or abatement due to Wisconsin statute. Instead, Milwaukee frequently makes use of tax increment financing (TIF) to attract firms and spur investment in certain areas of the city. The TIF mechanism allows the city to provide grants to firms and spur investment in certain areas of the city. The TIF mechanism allows the city to provide grants to firms or developers or fund development upfront. Tax revenues on property value growth resulting from the development are then earmarked to pay off the initial project cost over a longer time horizon. In this way, TIF is in theory a self-financing method for investment. The implicit cost of TIF, however, is that taxing entities like school districts forego their share of the increased revenue resulting from higher property values in the tax incremental district (TID) for the length of the TIF designation – as long as 27 years in Milwaukee. As of 2021, the city

reported that it had 60 active TIDs in operation (see Figure 2), covering projects like the development of the Northwestern Mutual headquarters and The Couture residential tower as well as restoration in the Bronzeville neighborhood (Milwaukee DCD 2021).

Although TIF has been a popular method for leveraging private investment in Milwaukee, research on the efficacy of TIF across a variety of metrics is mixed. Because the TIF mechanism is dependent on incremental growth in property taxes and therefore property values, much of the academic research evaluates the impact of TIF on property values both within the TIF district and outside of it. TIFs are often used to develop real estate in a particular area of the city, so assessing the impact of investment on property values is particularly important in those cases. While some studies find positive relationships between TIF and property values, others find that this association depends on the property type. For example, one analysis of TIF in Wisconsin municipalities found that TIF had positive effects in commercial areas but no real impact in districts where properties were primarily residential or used for manufacturing purposes (Merriman et al. 2011). Another study of TIF in Milwaukee found that designation as a TID was associated with increased property values in that area but found that TIF districts were more likely to contain high-value properties at the time of designation (Carroll 2008). In other municipalities, evidence suggests that TIF implementation may produce a substitution effect, where activity in non-TIF areas is replaced with activity in TIDs resulting in growth within the district but lower municipality-wide growth overall (Byrne 2010).

Although these results suggest that the property value impact of TIF may be minimal, very little analysis has considered whether TIF is still self-financing in practice (Greenbaum and Landers 2014). If property values in a TID are not sufficiently increased by development, a municipality may not be able to recoup the cost of its initial investment, making TIF a less desirable method for development.

Similarly, the economic development outcomes associated with TIF are also mixed. Studying the effects of TIF districts in Illinois municipalities, one report finds that TIF was not a useful tool for increasing employment overall, particularly in retail sectors, but rather may have shifted employment within municipalities. This is consistent with the idea that TIF might induce a substitution effect within an area. TIDs that had an industrial development focus, however, saw a somewhat stronger impact on employment (Byrne 2010). In Chicago specifically, another paper finds that TIF designation did not lead to the desired economic development benefits in employment or business creation, suggesting that the city did not see the desired return on their initial investment (Lester 2014).

Yet, even if job creation, business growth, or property values increase following TIF designation, it is important to consider whether this growth would have occurred even without the city's investment. This is known as the "but-for" question. Evidence on other economic development incentives suggests that they rarely produce effects that would not have come about without the subsidy, meaning that much of the spending on incentives is indeed inefficient (Bartik 2019). This remains a somewhat more open question, however, for TIF projects.

While academic research shows that TIF implementation has had varying levels of success, the efficacy of TIF as an economic development tool in Milwaukee is yet to be determined. Milwaukee is unique in that the city has relatively limited options in terms of business incentives, making TIF particularly important for the city as it competes for private investment. A comprehensive analysis of current and

historical TIDs is necessary to determine their impact on measures like property values, employment, and investment decisions in the city. Such a study would require granular data on TIF project plans, property values and property tax assessments in and around TIDs. This data could then be matched to a variety of outcome variables such as measures of economic activity, consumption patterns, the number of new building permits, employment, etc. to determine the impact of TIF implementation. Armed with new data, Milwaukee can better tailor its TIF strategy to achieve the city's goals efficiently, avoiding potentially wasteful spending.

Aside from TIF, a variety of other approaches that build on Milwaukee's existing comparative advantage can be used to attract and retain firms. Home to companies like Komatsu Mining Corp. and Rockwell Automation, the city is a manufacturing hub, with both large and small manufacturers headquartered there. Customized business services like manufacturing extension partnerships that offer access to high-quality business advice to companies can help small- and medium-sized manufacturers in the city increase their productivity. Milwaukee can play a vital role in facilitating manufacturing extension by connecting these firms with consultants or faculty at local universities to equip them with knowledge about new technologies and markets, thus fostering economic growth (Bartik 2018).

As previously mentioned, Milwaukee is also rich in amenities, from beautiful lakefront parks to bustling downtown districts and entertainment centers, and these are a major selling point for the city, especially for young adults who increasingly make location decisions based on these features (Lee et al. 2019). In fact, the Trust for Public Lands estimates that 90% of Milwaukeeans live within a ten-minute walk of one of the city's 250 parks. Urban amenities have been shown to influence firms' location decisions (Granger and Blomquist 2019). Similarly, employees are likely to make migration decisions based on urban amenities, and this is true for both graduate and non-graduate workers (Arntz et al. 2022).

Given Milwaukee's abundance of urban features, the city should prioritize strategies that unlock the true potential value of its current infrastructure and amenities. Studies of parks in Chicago, New York, and Philadelphia show that strong basic public services around amenities can increase their value and increase property values in surrounding areas, especially in low-income neighborhoods (Albouy et al. 2020). Investing in maintenance of and public safety around Milwaukee's existing amenities could then prove a cost-effective strategy for appealing to new firms and workers who find them desirable and improve the quality of the city for potential entrants.

Workforce Development

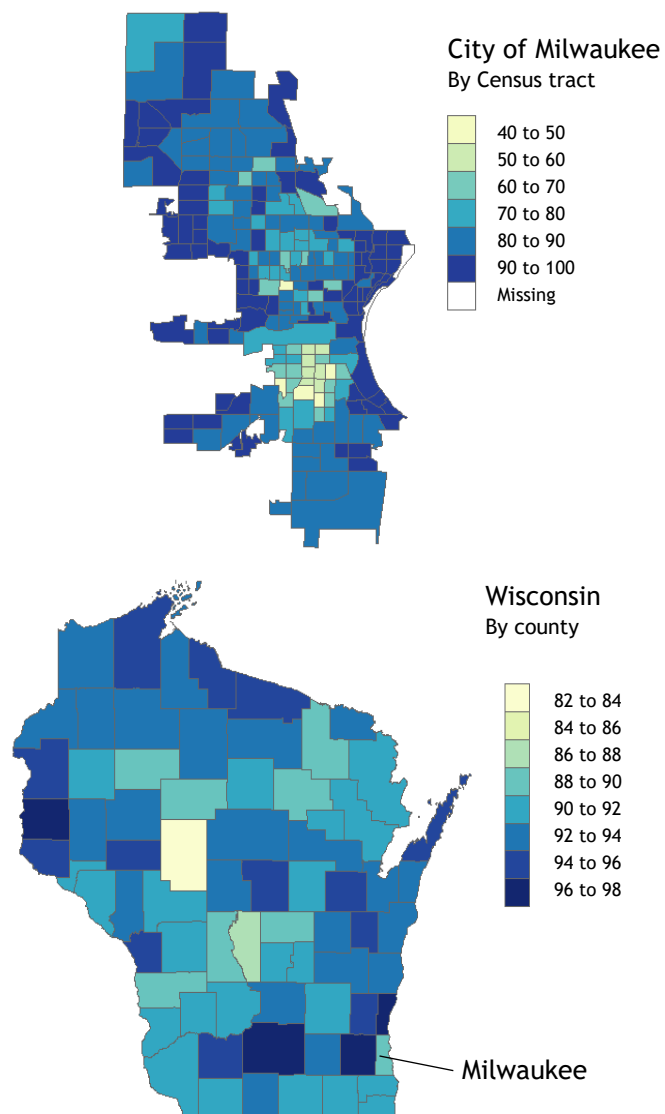
While business attraction plays a key role in boosting labor demand in a city, it is also important for Milwaukee to consider how to provide a robust and capable labor supply in an evolving labor market. Investment in human capital as part of the city's economic development strategy will not only make Milwaukee more appealing to firms that need skilled labor, but it will also help meet the city's goal of providing economic mobility for all residents. These types of investments have also been shown to be more cost-effective than typical tax incentive programs (Bartik 2019). Compared to the rest of the state, Milwaukee currently has relatively high unemployment and poverty rates and lower levels of educational attainment, as seen in Figure 3. To improve these metrics, create economic opportunity,

and get more bang for its buck, the city can play a role in both educating and reskilling its residents for the current and future labor market.

The economic benefits associated with an educated populous are well-documented in academic research, and returns to investment in human capital can be significant. We focus here specifically on approaches that can be used by the city's economic development officials but encourage collaboration between departments and agencies when it comes to improvements across the education landscape. Growth in a city is positively correlated with education levels, whereas low levels of human capital are associated with urban decline (Glaeser and Saiz 2004). Moretti (2004) similarly shows a large positive relationship between individual wages and the share of college graduates in a city even when controlling for the direct impact of individual education level on wages. This suggests that the effect of education level on wages spills over to residents of a city who themselves are not college graduates.

Based on this, Milwaukee should prioritize attracting and retaining graduates from higher education institutions like Marquette, University of Wisconsin-Milwaukee, and the Milwaukee School of Engineering. An alumni survey from 2015 found that fewer than half of Marquette graduates stayed in Wisconsin a year after graduation, and even fewer remained five years after graduation (Cyzon 2017). Yet compared to other metropolitan areas in the country, the cost of living in Milwaukee is low, and as previously stated, the city is rich in urban amenities and is home to a variety of corporate headquarters that should appeal to graduates. The question of why graduates choose to leave the city, then, remains open and should be explored by the city. To that end, Milwaukee can partner with post-secondary education institutions to administer student or alumni surveys on location decisions following graduation and tailor its development efforts to meet the needs of graduates based on their responses in

Figure 3: Educational Attainment – High School Graduate or Higher (%)



Source: US Census Bureau, 2020 American Community

the long-term. The city of Leicester, England, a midsize urban area in the center of the country, partnered with its local universities to study students' views on locating in Leicester after graduation. One of their findings was that students may not be aware of the full landscape of graduate-level jobs within the city and the surrounding area, suggesting that increased interaction between businesses and students might improve graduate retention (Browne 2020). A similar partnership between the City of Milwaukee and its higher education institutions may reveal simple, low-cost interventions that the city or schools could undertake to keep graduates in the area in the future.

There is, however, a more pressing need to address workforce development in the short term. City officials have indicated an interest in increasing the minimum wage within the city in an effort to promote economic mobility and reduce income disparities. While this may be an attractive policy on its face, academic research suggests that minimum wage increases often have adverse effects. In aggregate, the academic research largely shows that minimum wage policies produce a trade-off between higher wages for some and job loss for others. Negative employment effects are particularly strong for young adults and less-educated workers (Neumark and Shirley 2022). For example, a study of Seattle shows that following minimum wage increases in the city, workers with limited experience faced reduced employment opportunities (Jardim et al. 2022). For this reason, we caution against minimum wage policies in favor of partnerships and policies that encourage skill development and educational opportunities for residents.

Accordingly, Milwaukee can broker relationships between local businesses and its many post-secondary institutions to upskill residents for current and future roles. The city is uniquely qualified to work as an intermediary as it knows both the strengths and constraints of its academic institutions as well as the labor needs of local companies, particularly in targeted sectors. Through the partnership of Milwaukee corporations and higher education institutions, specific short-term credential programs can be created to train residents for real jobs in the city. This has been a successful model in Mesa, Arizona, where Boeing partnered with Mesa Community College to create an industry-recognized credential program to train students in wire harness assembly, resulting in a talent pipeline for the company (Sanchez 2021). Of the 355 students who have successfully completed the program, about 60% went on to receive job offers from Boeing as of 2021 with starting wages well above the local living wage (Jyotishi 2021). This partnership between industry and education institutions could be easily replicated in Milwaukee, with the city facilitating collaboration and potentially investing in grant funding for the program.

Next Steps for Economic Development

Despite recent population declines and increased disparities in income and education levels amongst residents, officials in Milwaukee have committed to prioritizing growth and economic development in the city. As policymakers pursue these goals, it is crucial to do so in a cost-effective, sustainable manner, bearing in mind the constraints the city is faced with both financially and statutorily. We place a great emphasis on data collection and analysis of current city programs and policies in order to better understand their impact on economic development outcomes and the city budget.

Moving forward, we recommend the following strategies for economic development in Milwaukee:

- Pursue a thorough and **comprehensive analysis of the city's TIF usage** and its impact on a variety of outcomes at a granular level
- Prioritize **investment in maintenance and basic services around urban amenities** and infrastructure to attract and retain residents
- **Partner with higher education institutions** to administer student and alumni surveys to understand location decisions of graduates
- Broker relationships between private sector corporations and academic institutions **to upskill residents for future roles**

2. Public Pensions

OLIVER GIESECKE AND SEAMUS DUFFY

The authors would like to thank Stanford GSB Public Policy Lab student Aurora Beauclair for her contributions to this chapter.

Oliver Giesecke is a Research Fellow at the Hoover Institution. Seamus Duffy is a Research Analyst at the Hoover Institution.

Executive Summary

- Unfunded pension liabilities present a real risk to the City of Milwaukee, as evidenced by a recent downgrade of the city's credit rating which cited growing cost pressures associated with pensions; serious reforms, however, can improve the city's financial outlook
- Because the legacy liability of a pension plan must be amortized no matter what, city officials should only consider the forward-looking economic cost of plans when considering pension alternatives
- A soft closure of Milwaukee's Employee Retirement System is recommended, and new employees should be enrolled in the Wisconsin Retirement System to reduce costs to the city
- The amortization of the unfunded accrued liability should reflect its true market value cost; a 35-year level-dollar annuity is recommended

Introduction

Underfunded pension obligations have increasingly become a factor of fiscal distress for state and local governments across the United States. To put the national cost of pensions into perspective, the required employer contribution needed to prevent unfunded pension liabilities from rising is equivalent to 21.1% of total tax revenues across US state and local governments (Giesecke and Rauh 2023). Recently, increased vigilance by governments and ratings agencies and the introduction of statutory mandates to amortize the unfunded liability has exacerbated the fiscal pressure that pension costs place on city budgets. In response, cities have increasingly started to look for ways to reform their funds and reduce costs.

While pension reforms can be made difficult by economic, political, or statutory factors, they are indeed possible. A number of cities have successfully reformed their pension plans as a result of a consensus amongst stakeholders that the status quo is not sustainable. Baltimore, Maryland, for example, enacted a large-scale reform in 2013, introducing a hybrid system for public sector employees while decreasing pension costs and increasing take-home pay for employees. Norfolk,

Virginia also undertook a major reform in 2022 by closing their city plan to new employees and enrolling them instead in the state pension system.

Like many other cities, Milwaukee currently faces challenging financial circumstances as its required pension contributions are projected to increase sharply based on a full-funding mandate. The urgency of this problem is highlighted by Fitch Ratings' recent credit rating downgrade for Milwaukee, in which the agency cited the burden of increasing long-term liabilities as a key driver of its rating decision. Enacting serious reforms, however, can help alleviate the fiscal distress caused by the city's pension system. We consider Milwaukee's pension situation in terms of five general principles, make recommendations accordingly, and conclude with brief comments on recent state legislation regarding the city's pension obligations.

General Principles

First, **defined benefit (DB) plans are often more expensive than is commonly reported**, and they constitute a serious financial risk for many state and local governments. Many assumptions made by actuaries when reporting on the costs of pension funds result in an understatement or misrepresentation of the true liability of accruing pension benefits. In fact, while the reported employer service cost under actuarial assumptions is 7.7%, Giesecke and Rauh (2023) estimate it to actually be 20.7% of payroll. This difference creates an incentive to defer payment in practice, even if the employer makes the full actuarial contribution. Insufficient contributions over time have resulted in ballooning total unfunded pension liabilities, amounting to \$6.5 trillion nationally as of 2021 (Giesecke and Rauh 2023).

Policymakers, recognizing the growing financial risk associated with pension liabilities, have responded by introducing statutory funding mandates and other oversight measures. While this increased caution contributes to the long-term stability of cities, it introduces significant financial challenges in the short term. In Milwaukee's case, the required contribution is expected to more than double from \$81 million to \$166 million between fiscal year 2022 and fiscal year 2023 due in part to the city's full funding policy. This is particularly burdensome for the city considering the constraints on Milwaukee's ability to raise new revenue.

The second principle motivating our recommendations is the assertion that **forward-looking pension cost should be the primary consideration when making policy decisions**. This is necessarily true because the legacy liability must be paid regardless of the status of the pension plan (Rauh, Stefanescu, and Zeldes 2020). For DB plans, the market value of the employer service cost, rather than the reported employer service cost, is the best representation of the true economic cost of the pension plan. As previously stated, the market value of the employer service cost is often considerably higher than the reported cost. While the idea that forward-looking costs should be prioritized when assessing policy options may be obvious given that pension benefits are often statutorily protected, our conversations with officials suggest that the status quo is often upheld due to concerns about the treatment of legacy liabilities.

Third, building from the previous principle and also in contrast to some actuarial practices, **policy choices for retirement benefits today should not affect the required speed with which unfunded**

liabilities are amortized. Whether or not the plan remains open or is closed in a soft- or hard-freeze, the unfunded pension liability must be amortized. Despite this fact, actuaries often change their assumptions in a way that quickly accelerates the amortization and increases required amortization payments when a plan closes. The actuary often shifts from a level-percent of payroll to a level-dollar amortization method. Over time, this implies an increasing payment profile as the overall projected payroll of a city is usually increasing over time, as shown in Figure 4. Likewise, the amortization period is often shortened by actuaries following the closure of a plan, increasing yearly required contributions, as shown by Figure 5. This places pressure on a city's budget in the near-term despite the fact that the expected benefit payments associated with the liability do not change in a closure scenario. Regardless of these changes in actuarial assumptions, the economics of the legacy liability are unchanged no matter the plan's status. Instead, the amortization profile should solely reflect the

risk profile and maturity of the economic liability.

Figure 4: Level-Percent vs. Level-Dollar of Payroll Amortization

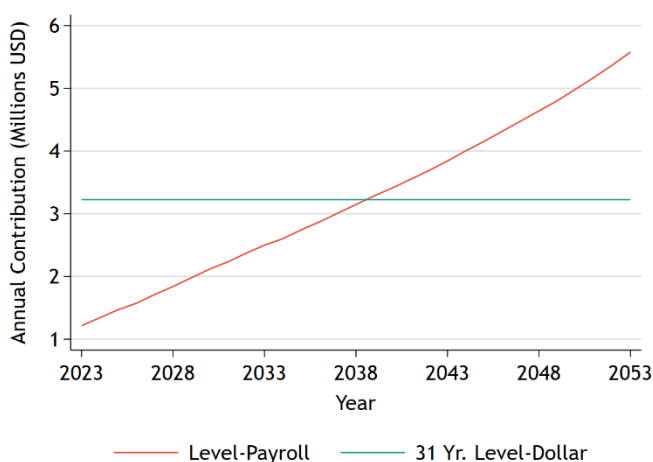
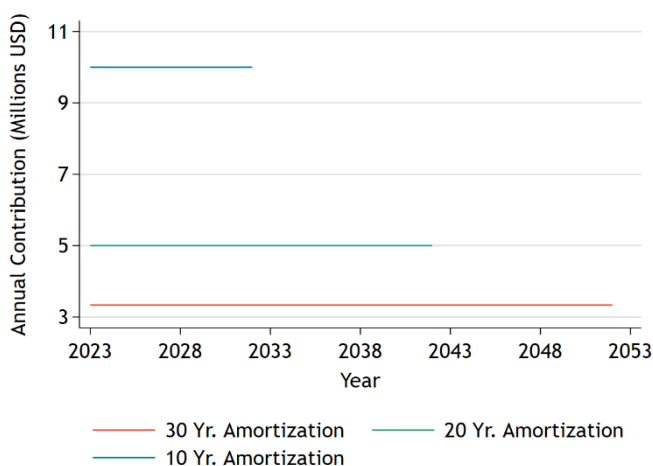


Figure 5: Amortization Period



Our fourth general principle is that **public employees are actually much more interested in participating in defined contribution (DC) plans** than is typically perceived by employers, often because public safety employees dominate the bargaining process. Survey evidence from public employees across the US shows that 89.2 percent of public sector employees are willing to accept a DC plan at a median required employer contribution of 10 percent (Giesecke and Rauh 2022). There are also numerous examples of public sector employers moving towards DC plans. For example, Birmingham, MI has a DC-only plan for employees with an employer contribution rate of 11.4 percent.² Likewise, in Baltimore, MD where employees are offered the option to enroll in a hybrid or DC plan, about 40 percent of employees actively opt into the DC-only plan.

One major benefit of DC plans is that they offer public employees the ability to re-balance their retirement benefits with take-home pay. This is particularly valuable for general employees who are often underrepresented in collective bargaining

² Birmingham, MI closed their DB plan and initiated a DC plan as a part of a pension reform enacted in 2012.

agreements. Public safety employees, on the other hand, have a disproportionate representation in negotiations due to strong union presence, despite only accounting for 19.2 percent of local government employees nationally.³ Public safety employees on average receive a higher compensation than general employees. As a result, collective bargaining agreements can be more burdensome for general employees as higher employee contribution rates cut into their lower baseline compensation. An appropriately designed DC plan, however, can allow employees to re-balance retirement benefits and take-home pay and may be more attractive to general and entry-level employees.

Finally, the fifth principle guiding our recommendations is that **risk sharing components for DB plans limit risk for pension sponsors**. In a DB plan, an employer guarantees the retirement benefits and makes investment decisions on behalf of their employees. Because the pension benefits are guaranteed, any shortfall in investment returns must be offset by the employer, meaning that all of the risk associated with the liability is borne by the employer. This can place cities in precarious financial situations, often at the expense of other public services, and can lead to bankruptcy in extreme situations. Shifting some of the risk to employees can help alleviate this strain. In practice, risk-sharing means that some of the benefit or contribution by the employee is dependent on realized asset returns of the pension fund. For example, the Wisconsin Retirement System (WRS) makes both benefits and cost of living adjustments (COLAs) dependent on the asset return of the fund. This essentially means that the pension promise made to employees relies on the performance of the fund, thus lessening risk for the employer.

Milwaukee's Pension Situation

As discussed, Milwaukee faces a pension contribution profile that requires increasing contributions in the coming years primarily as a result of a full funding mandate. Required contributions are expected to increase by \$85 million between fiscal year 2022 and 2023 – accounting for approximately one-quarter of the city's discretionary revenues. This exerts enormous strain on the city's budget, meaning cuts to other services or loss of public employment are real possibilities in Milwaukee. Consequently, finding a sustainable path forward for the city's pension system is a top policy priority. We will evaluate and provide perspective on the soft-freeze of the City of Milwaukee Employees' Retirement System (CMERS) and the enrollment of new employees into WRS, as this is one of the policy options that is under active discussion per our conversations with city officials. As discussed in our general principles, many of the perceived impediments about the treatment of the legacy liability in a soft-freeze scenario are unwarranted. Following these principles, we analyze the possible scenarios based on our discussions with and information provided by city officials, focusing on the forward-looking cost of Milwaukee's pension system and the importance of the legacy liability in policy decisions.

(1) Pension policy decisions should be based on the forward-looking pension cost.

As alternative retirement options are being considered, a first order question for policymakers is what fiscal impact each option has on city finances. To compare forward-looking costs of alternative

³ In Milwaukee, 20.3 percent of all public employees are public safety employees, yet public safety unions are the sole representatives in benefit negotiations.

policies, we use the true economic cost, specifically the market value of the employer service cost, which deviates from the reported employer service cost. This adjustment is particularly salient in Milwaukee's case as it changes the final policy recommendation.⁴ On a reported-cost basis, the service cost of a soft-close + WRS option exceeds the service cost of CMERS; under market valuation, however, the opposite is true.

Service cost represents the value of future pension benefits that an employee earns in the fiscal year and is consequently sensitive to the applied discount rate. Importantly, the true economic cost disregards actuarial assumptions. We follow the convention in financial economics to discount future cash flows at the risk equivalent discount rate. Pension benefit payments in CMERS then should be discounted at a default-free interest rate (Brown and Wilcox 2009; Novy-Marx and Rauh 2009, 2011a,b; Brown and Pennacchi 2016). WRS, conversely, is an interesting exception among pension plans in the United States because the plan provides performance-linked annuity adjustments (PLAAs) with a nominal floor of the initial formula benefit.⁵ In simple terms, investment returns are shared in good times but capped in bad times, thus resulting in partial risk sharing between the pension sponsor and employees. This risk sharing warrants the use of a higher discount rate which we apply in the subsequent analysis. Because of this, the market value of service cost will be lower in WRS compared to CMERS even if reported service costs were the same.

The risk associated with the promised pension benefit is the main differentiating characteristic between CMERS and WRS, and this, in part, drives our results. Concretely, we build on the normal cost profile as disclosed in an actuarial assessment of the scenarios in which future employees remain enrolled in CMERS and the alternative in which new employees are enrolled in WRS and CMERS is soft-closed.⁶ Normal costs for CMERS are adjusted to market values using the adjustment factors of Giesecke and Rauh (2023) and for WRS using adjustment factors from Novy-Marx and Rauh (2014) which are updated to the end of fiscal year 2021.⁷ Expressing the normal cost in terms of market value makes the cash flow profile directly comparable by implicitly normalizing the underlying actuarial assumptions and differences in the funding policy.

Overall, we find projected service cost under the soft-close + WRS scenario to be lower than under a continuation of CMERS as Figure 6 demonstrates. Yearly savings are continuously increasing over the time horizon though most of the cumulative savings originate from the initial savings one year into the projection horizon. This should be interpreted with caution, however, as Milwaukee's actuary could

⁴ Our policy recommendation is based on the plan that has the lowest employer cost.

⁵ Besides the risk sharing aspect, WRS uses a conservative discount rate assumption in comparison to the average discount rate across state and local pension plans in the US. WRS uses a 5 percent discount rate for retired participants, 5 percent for active and inactive participants following retirement, and 6.8 percent for active and inactive participants prior to their retirement (Gabriel, Roeder, Smith & Company 2021). We use a weighted discount rate of 6 percent for the analysis.

⁶ There are many other differences between CMERS and WRS – for example, the treatment of overtime and the provision of COLAs. Our analysis assumes these differences in provisions are accurately reflected in the projected normal cost.

⁷ Our calculations, which build on Novy-Marx and Rauh (2014), show that the risk-sharing component of WRS requires a valuation of the liability with a discount rate that is 113 basis points above the risk-free rate. While this seems to be a small risk premium, it has qualitatively important implications on the market.

not explain the cause of these initial savings and the remaining uncertainty regarding the reported service cost under WRS. The savings from the service cost should be understood as a lower bound for total potential savings. Over time, administration and investment management services for the pension plan could be consolidated which has the potential for additional savings of \$10 million annually.

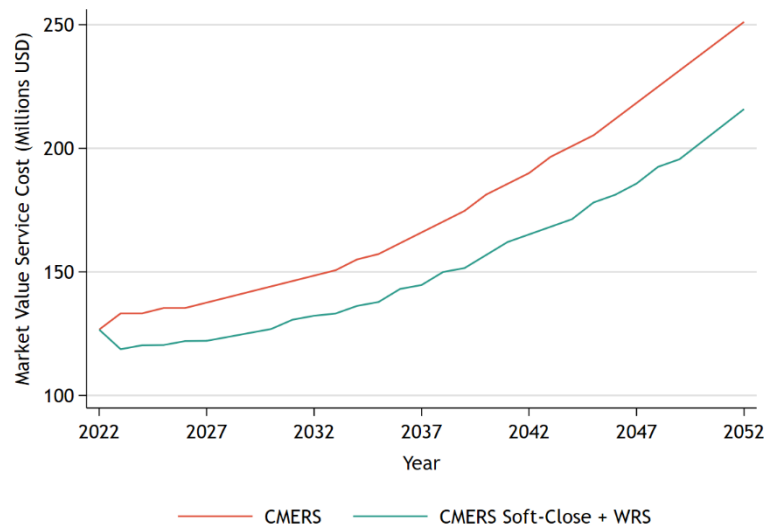
To further assess the source of the anticipated saving in service cost, we analyze the annual employer service cost per employee for the two main employee groups and for the city combined, as shown in Figure 7.

The normal cost for general employees remains relatively constant under both CMERS and WRS. While the reported/projected service cost as a percent of payroll increases from 4.68 percent to 6.8 percent, the increase is offset by the risk sharing component of WRS. As a result, the market value of service cost remains almost unchanged. The largest change is visible for public safety employees. The reported/projected service cost as a percent of payroll is expected to decrease under WRS. This change is even greater after considering the market value adjustment, which lowers service cost from 42.38 percent and 26.96 percent of payroll. For the city as a whole, the anticipated overall savings amount to about \$3,000 per person per year. Purely from a cost standpoint, then, a soft-closure scenario of CMERS in which new employees are enrolled in WRS is preferable to the status quo scenario where CMERS remains open.

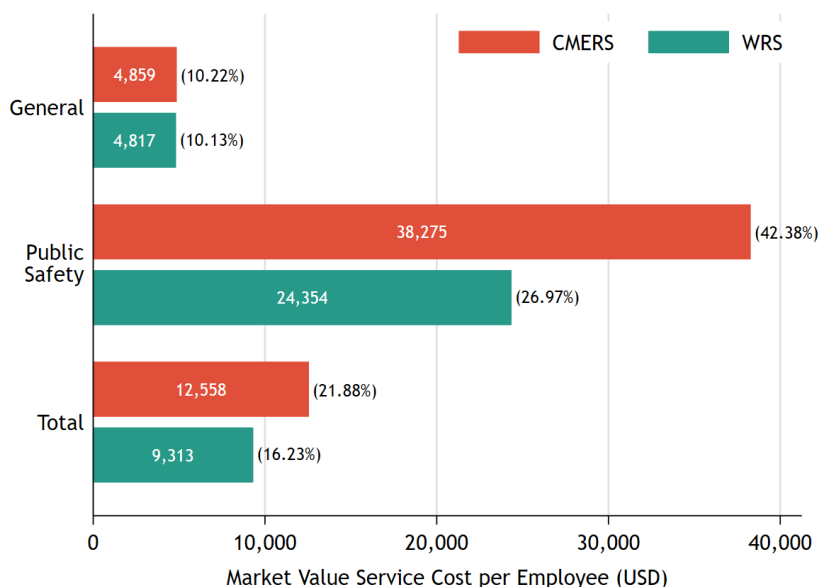
(2) The unfunded accrued liability should not affect the policy decision.

Regardless of the decision to continue CMERS or close the plan and enroll new employees in WRS, the legacy liability of CMERS must be amortized. We have heard from our city partners that in practice, however, the amortization under the two different scenarios is under discussion and may differ across them. Our analysis shows that the treatment of the legacy liability should remain unchanged and should not be factored into decisions about which pension plan the city of Milwaukee should adopt. From an economic perspective, we argue that the amortization profile should reflect the properties of the promised benefit payments which remain unaffected by pension reform. A 35-year annuity is closest to the true economic liability and should relieve some of the financial strain the city may face due to large projected amortization payments.

Figure 6: Normal Cost under Alternative Scenarios



Note: This figure shows the projections of service cost for a scenario in which CMERS remains open and a scenario in which CMERS closes to new employees and incoming employees are enrolled in WRS. This figure utilizes the service cost figures provided by the actuary, adjusting them to reflect each plan's true economic liability.

Figure 7: Employer Normal Cost by Employee Group

Note: Market values of service cost represent the service cost for a representative employee in each member group. For the calculation, we assume that the employee obtains the average payroll among the member group. For the city-wide average, we assume that the current distribution of member among active employees is representative of the future distribution. Values in parentheses represent the market value of service cost as a percentage of payroll.

Amortization Period – The amortization period reflects the amount of time needed to repay the unfunded actuarial accrued liability. Figure 8 displays the payment profile for several proposed amortization periods as reported by the city’s actuary. In the scenario of where CMERS remains open, the legacy liability is amortized over 21 years with an increasing cash flow profile. Under the soft-freeze scenario, the actuary recommends an adjusted amortization profile which accelerates amortization and increases the required contribution of the city in the near term.

We propose instead that the amortization profile is measured by its duration,

which reflects the length of the payment period as well as the cash flow profile and represents the time-weighted amortization profile. The duration of the amortization profile in a scenario where CMERS remains open, based on the results of a recent experience study and the estimated \$5.5 billion market valuation of assets, is 10.14 years.

In contrast, the baseline scenario under a soft-close, as defined by the city’s actuary, is a level-dollar annuity of 10 years which has a duration of 5.05 years. This essentially shortens the repayment profile of the unfunded accrued liability by half and comes with the side-effect of higher contribution payments. Alternative amortization scenarios under consideration are a 20-year and 30-year level-dollar annuity, which have a duration of 9.02 and 12.44 years, respectively. If we instead match the duration of the current amortization profile with a duration of 10.14 years, the equivalent level-dollar annuity has an amortization period of about 24 years.

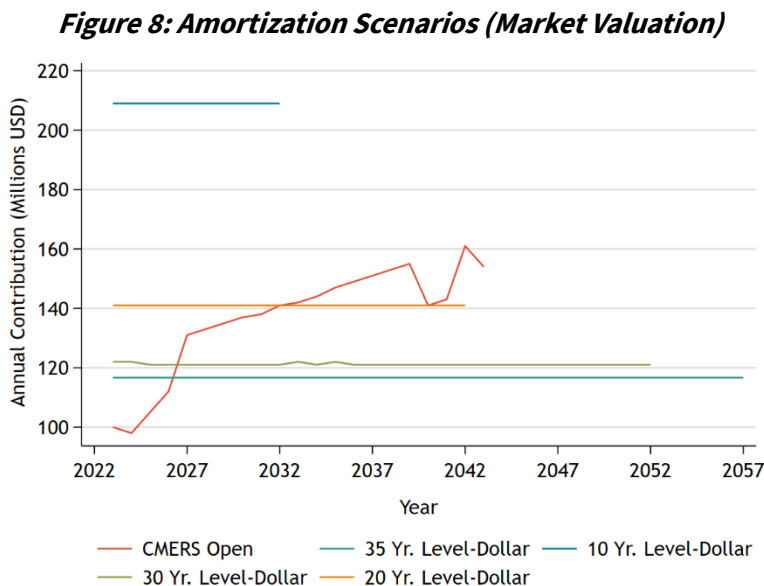
From an economic perspective, an important benchmark for the determination of the appropriate amortization period is the duration of future pension benefits. The basic idea behind this is that the required benefits are paid equally from the pension fund’s stock of assets as well as from additional employer contributions for the unfunded accrued liability. Based on the expected benefit payments disclosed by the actuary and modeling the benefit stream after 2052 with a typical survival model that

approximates the member profile, we estimate a duration of the benefit profile of 12.92 years. The economic liability, therefore, has a duration that is considerably longer than the current amortization plan and the scenarios that are currently being considered for a soft-freeze.⁸ This duration is approximately matched by a level-dollar annuity with an amortization period of about 35 years. Thus, even under the longest amortization period that is being considered, the economic duration of the liability surpasses the duration of the amortization payment.

Level-Dollar vs. Level-Percent of Payroll – Related to the amortization period is the amortization profile. The amortization profile determines whether most of the repayment is front- or back-loaded. As such, it determines the level of contributions made in the near term versus further in the future. Like many other plans, CMERS uses a “level-percent” of payroll amortization method, wherein recommended contributions are expressed as some constant percentage of payroll. Because payroll is projected to increase over time, so is the amortization payment. This method backloads the amortization payments, resulting in near term payments that are more palatable for the city.

In contrast, in a soft closure scenario, the amortization method is shifted to a “level-dollar” amortization based on GASB accounting standards. That is, the liability is spread into nominally equal payments across the amortization horizon. The 20-year annuity shown in Figure 8 serves as the closest comparison to the original amortization profile as the amortization period is very similar.

We understand that the near-term contribution increase from about \$100 million under a level-percent amortization profile to about \$140 million under the level-dollar amortization method is a significant



Note: This figure displays the reported annual contribution schedule for the continuation under CMERS and level-dollar annuities with an amortization period of 10, 20, 30, etc. years under a soft-close of CMERS. The 35-year annuity is added by the authors.

jump for Milwaukee given the city’s revenue constraints. It is important to note, however, that while GASB standards require the shift in amortization method should a DB plan close to new members, GASB does not determine the funding policy and therefore does not determine the level of contributions the city must make. Rather, the state or pension board is solely responsible for setting the funding policy (Costrell, 2012).

The choice of the amortization profile is independent from the choice of the best economic pension policy, and as such, it should not be considered in the

⁸ All calculations are performed under the treasury curve from 02/01/2023.

selection of the pension plan going forward. Instead, the amortization profile should be tailored to reflect the properties of the economic liability. As stated above, we suggest a 35-year annuity amortization profile, which is approximately equivalent to the 12.92-year duration of the benefit payment. In principle, the city could choose to tailor the annuity profile even closer to the actual profile of the economic liability which results in a hump-shaped repayment profile.

Discount Rate – The discount rate used to determine the liability is also lowered by the actuary when a plan closes. Because the discount rate and the actuarial liability have an inverse relationship, as the rate decreases, the liability rises. As a result, the required contributions set forth by the actuary rise, and this often impedes efforts to enact reforms. The change in discount rate assumption is made despite the unchanged economic liability – benefit payments, as noted, still must be paid to the same members in the future. The rationale for this change is founded on the premise that the funding policy will necessarily change when a plan closes. However, as we discussed previously, the valuation and the funding policy should be treated independently. No matter the policy decision, the principles of financial economics require that statutorily-promised benefit payments be discounted at the risk-equivalent discount rate (Brown and Wilcox, 2009; Novy-Marx and Rauh, 2009, 2011b; Novy-Marx 2013; Brown and Pennacchi, 2016). CMERS should then be discounted at a default-free interest rate for valuation purposes, regardless of the decision to continue or close the plan.

Next Steps for Milwaukee’s Pension System

Early policy intervention is key to controlling the fiscal challenges that arise from ballooning unfunded pension liabilities. Full funding mandates have resulted in sharp increases in required contributions, threatening city services and employee bases or even leading to bankruptcy in some circumstances. At the same time, credit rating agencies are increasingly focused on cities’ pension conditions, frequently citing pensions as the primary reason for downgrading cities’ credit ratings. While pension-related fiscal pressures continue to compound in many cities, current actuarial valuation practices for pension liabilities often dissuade cities from adopting sound policy reforms.

Given the financial risks of DB plans and the growing fiscal challenges resulting from these plans, now is a critical time for Milwaukee to enact meaningful pension reform. We urge the city to remember the five general principles that we have outlined:

1. The true economic cost of DB plans is often higher than recognized due to several actuarial assumptions that misrepresent the true liability of accruing pension benefits.
2. When evaluating pension alternatives, policymakers should consider only the forward-looking economic cost regardless of the legacy liability.
3. Amortization of the unfunded liability should not be affected by policy choice.
4. Public employees are more interested in DC plans than employers often perceive.
5. Risk sharing components of DB plans or fixed contribution plans help to limit risk for pension sponsors.

Milwaukee is currently in a precarious financial situation due to large and increasing required pension contributions and is actively weighing pension and other policy alternatives to alleviate strain on the

city's budget. Bearing these principles in mind, we make the following recommendations for Milwaukee:

- **Opt for a soft-close scenario** where CMERS is closed to new members and new employees are enrolled in WRS in order to reduce costs
- Select an amortization period and amortization profile based on the true economic cost of the unfunded accrued liability; **a 35-year level-dollar annuity** reflects Milwaukee's true economic liability

As mentioned previously, a bill recently passed by the Wisconsin State Legislature, 2023 Assembly Bill 245, allows the Milwaukee Common Council to implement a 2 percent sales tax to fund its pension obligations and reduce some of the related stress on city finances. Stipulated in the bill is a requirement to close CMERS to new employees should the city pass a sales tax ordinance and instead enroll new employees in WRS. The legislation also calls for a 30-year amortization period of the legacy liability, slightly shorter than the one recommended here. While generally we hesitate to recommend a potentially distortionary tax increase, we acknowledge that the ability to raise this additional revenue may improve the city's financial condition and facilitate a preferable shift in pension policies. We think this is an acceptable policy tradeoff given the city's current financial state, and we maintain our recommendation for a soft-closure of CMERS even if this occurs in conjunction with the passage of a sales tax ordinance.

3. Infrastructure

DEAN BALL AND JILLIAN LUDWIG

The authors would like to acknowledge Stanford GSB Public Policy Lab students Nancy Liao, Katherine Miller, Louise White, and Colin Woolway for their contributions to this chapter.

Dean Ball is the Senior Program Manager for the State and Local Governance Initiative at the Hoover Institution. Jillian Ludwig is a Research Analyst at the Hoover Institution.

Executive Summary

- The cost of infrastructure is rising across the United States, making it crucial for cities to allocate infrastructure funding wisely and prioritize projects that have high return on investment, namely, maintenance of existing infrastructure
- Using innovative new technology and artificial intelligence for data collection and assessment of current infrastructure conditions can lower the cost associated with maintenance and streamline prioritization decisions
- Milwaukee officials are interested in utilizing infrastructure as a tool for growth, but this should be done with caution so as to avoid projects with high initial capital costs and uncertain returns; thorough cost-benefit analyses of projects are recommended
- Bus rapid transit is a more cost-effective alternative to streetcar transit and can have significant benefits for transit-related metrics like commute times as well as economic development outcomes like employment

Introduction

Across the United States, the provision of high-quality infrastructure, including roadways, transportation, water systems, and more, is a major priority for local governments. The Congressional Budget Office estimated in 2017 that government spending on transportation and water infrastructure across the United States totaled \$441 billion, with nearly 80% of that investment coming from state and local governments (CBO 2018). Since then, the federal government has increased its infrastructure spending considerably, passing the Infrastructure Investment and Jobs Act (IIJA) and the Inflation Reduction Act (IRA) in 2021 and 2022, respectively. Taken together, these bills amount to \$1.25 trillion in investment, much of which will flow to state and local governments in the form of grants to repair, modernize, and build new infrastructure (Tomer, George, and Kane 2023).

Milwaukee, like cities across the country, faces a dual infrastructure challenge, balancing a pressing need to maintain and repair its existing network with a desire to undertake new projects in an effort to facilitate growth and improve service for residents. The Department of Public Works reports that the

city currently manages almost 1,500 miles of roadways, delivers water to residents through nearly 2,000 miles of water mains, and operates about 2,500 miles of sewers. This network and its proper functioning is crucial to the safety and quality of life of Milwaukee residents. While certain components of the city's infrastructure are in good condition, like the sewer system, other components are in need of repair, with nearly three-quarters of roads reportedly in poor or mediocre condition (Groth 2023).

As previously discussed, however, the city operates under fiscal constraints that put pressure on Milwaukee's ability to provide services like road repaving and garbage removal, and this highlights the need for a cost-efficient approach to infrastructure investment. Based on this, we focus on strategies that minimize infrastructure costs, emphasize maintenance prioritization methods, and explore potential opportunities for efficient growth. Regardless of the city's revenue-raising capabilities, we stress the importance of practical, cost-effective infrastructure investment as a matter of good stewardship of taxpayer money.

Cost Management and Maintenance Prioritization

Building and maintaining infrastructure in the United States is undoubtedly expensive. While there is relatively limited evidence on the overall cost patterns of infrastructure, the academic research thus far shows that expenditures on infrastructure across the country are indeed rising. The per-mile cost of interstate highway construction grew significantly over the late 20th century, and similarly, interstate maintenance costs have also grown in recent years (Brooks and Liscow 2023; Turner, Mehrotra, and Uribe 2019). For the construction sector as a whole, research indicates that material prices have not exhibited significant real growth over time, yet labor costs have risen substantially, suggesting that costs increases may extend to a variety of infrastructure projects (Swei 2018). There is also evidence which shows that higher costs are related to greater citizen demand for higher quality or more expensive infrastructure (Brooks and Liscow 2023).

Rising infrastructure costs present a particularly difficult challenge for Milwaukee considering the city's tight budget and the poor condition of its infrastructure, especially roads. Research shows, however, that maintenance of existing infrastructure, rather than new construction, offers a greater return on investment (Gramlich 1994). Therefore, we recommend that Milwaukee focuses its limited resources on repairing and improving its current stock of infrastructure in a cost-effective and efficient manner. Frequent snow, temperature swings, and other inclement weather exacerbate wear and tear on all of Milwaukee's infrastructure, weakening road surfaces and increasing the number of large potholes throughout the city. To efficiently monitor these maintenance needs as they arise, Milwaukee can employ innovative approaches to collect data, make objective repair decisions, and save on time and labor costs.

Many cities make use of tech-based methods to assess road conditions and other key infrastructure components. Towns like South Bend, IN and Dublin, OH, for example, employ RoadBotics technology, which channels imagery and GPS information collected from dashboard-mounted cameras or smartphones into artificial intelligence algorithms to generate maintenance and construction plans (Goldsmith 2017). Cities like Tuscaloosa, AL use City Detect technology, which mounts GPS sensors to garbage collection vehicles, to monitor blight and disrepair in the city. Academic researchers have also made use of vertical acceleration data collected by Uber to assess road roughness in cities like

Chicago, and this data could likely be used in Milwaukee to analyze road conditions and make maintenance decisions (Glaeser, Kriendler, and Currier 2021).

Apart from road maintenance, innovative technologies have been used to improve and repair water systems as well. Prince William County, VA uses satellite technology paired with algorithmic analysis to detect leaks in water transmission and distribution lines. They found that this technology was far more efficient than a traditional approach, detecting four times as many leaks in less than half the number of crew-days (Gagliardo 2019).

All of these strategies would reduce the amount of personnel, vehicles, and time Milwaukee needs to obtain data on infrastructure conditions, thus lowering costs of data collection. With this data, the city can better prioritize maintenance projects according to need. To carry out these projects then, Milwaukee should employ a design-build project delivery method as opposed to design-bid-build. A study of highway projects in Florida shows that design-build streamlines the design and construction of projects and has proven to be effective for road resurfacing and rehabilitation projects, resulting in lower cost growth and schedule growth (Tran et al. 2018).

Armed with objective high-quality data, the city can focus its limited resources on infrastructure upkeep in areas where it is most necessary and avoid wasteful repair costs while better serving residents through responsive, efficient maintenance. As mentioned in previous sections, improvements to existing infrastructure and amenities are valuable to residents and firms and increase property values in surrounding areas (Albouy et al. 2020). Maintenance can then be used both as a cost-effective way to improve infrastructure and as a method to promote growth in Milwaukee.

Infrastructure Investment for Growth

While we believe that Milwaukee's focus should remain on maintenance as opposed to new construction based on the city's budgetary constraints, we acknowledge that city officials are interested in pursuing a variety of infrastructure projects, outlined in the City's Downtown Area Plan, as a method for stimulating additional growth. Notable project plans include extension of Milwaukee's streetcar system, called The Hop, expansion of bus rapid transit (BRT), and removal of the I-794 Lake Interchange. Each of these proposals represents a significant investment by the city, so it is crucial that Milwaukee assesses the impact of these projects on city finances over the long term.

It is important to consider if the city can reasonably expect infrastructure investment to produce the growth that Milwaukee officials desire and whether potential growth can offset the costs of investment. Research on the effects of infrastructure spending on economic activity is mixed. Many studies find that transportation infrastructure is an important determinant of where people locate and, to a certain extent, where economic activity occurs (Duranton, Nagpal, and Turner 2020). Evidence suggests that both highway construction and subway expansion increase decentralization of city residents, although subways have a somewhat smaller impact (Baum-Snow 2020; Gonzalez-Navarro and Turner 2018). At the same time, subway expansions have essentially zero effect on population growth (Gonzalez-Navarro and Turner 2018). There is some evidence that proximity to public transit options like light rail stations increases residential property values but has no impact on commercial properties (Billings 2011). With regards to employment effects, Duranton and Turner

(2012) show that a 10 percent increase in the stock of roads in a city causes a 1.5 percent increase in employment over 20 years, but they also estimate that overall welfare benefits from new roads are significantly smaller than the cost of their construction.

It is ultimately unclear whether new transportation infrastructure investment in Milwaukee would result in the desired growth effects and justify the significant cost of development to the city. Because of these costs, we caution against spending on potential white elephant projects with large upfront costs and uncertain returns and urge the city to conduct thorough cost-benefit analyses of all infrastructure projects.

City officials have emphasized their intention to expand The Hop streetcar system in all directions, into neighborhoods like Walker's Point, Bronzeville, and the East Side as well as to the Lakefront district. This would constitute a massive expansion of the system which currently runs on a 2.1-mile loop through parts of Downtown and the Historic Third Ward. The initial cost of constructing the existing loop, including the cost of each of the streetcars, was \$124 million, and the city estimated that extension of the network would come at a rate of \$70 million per mile in 2019 (McIlheran 2023). At present, The Hop does not charge a fare for riding, but according to Federal Transit Administration reports, the operating cost of the network is over \$15 per passenger trip or about \$13 per passenger mile.

Despite relatively low ridership numbers, city officials maintain that The Hop has had significant economic development benefits, causing new commercial and residential construction along its current route. A comprehensive statistical analysis of development throughout the city that controls for development incentives like TIF funding and other grants would be required to determine if that claim is accurate in Milwaukee.

Research from other cities with streetcar networks, though, suggests that a causal relationship between a streetcar network and economic development is not always evident. In Portland, OR, for example, development effects were observed after their initial streetcar network was built as measured by growth in residential and commercial permits. When the city expanded the network, however, development activity in the service area was not significantly different than development activity in other areas. In fact, streetcar service areas saw similar levels of development as non-service areas that received some other development incentive, even though these incentives came at significantly lower cost to the city (Mendez and Brown 2019). Streetcar expansion, therefore, does not guarantee economic development, and it is an expensive gamble for a city to take. Based on this, we recommend that Milwaukee not pursue further expansion of The Hop at this time given the current fiscal state of the city.

As a transit alternative, BRT represents a far less costly and more flexible system for transportation. The Milwaukee County Transit System (MCTS), in collaboration with the City of Milwaukee, rolled out its East-West BRT route in June 2023. The 9-mile route travels from Wauwatosa to the west through downtown and to lakefront attractions to the east and features dedicated bus lanes on about 50 percent of the route, signal priority, and 33 stops in total. The total price tag for this project was \$55 million, a fraction of the cost of streetcar construction, because it mainly relies on infrastructure that already exists – roads.

Evaluation of Milwaukee's BRT system will take time, but in other cities, BRT has been shown to reduce commute times and improve employment outcomes of residents near the BRT network (Tsivanidis 2022; Scholl et al. 2019). Studies have also found that low-cost feeder bus systems that connect to BRT and zoning policies that accommodate development around BRT stops can further increase welfare gains from the system, thus offering a city a better bang for its buck (Tsivanidis 2022). Based on this evidence, from a cost-benefit perspective, BRT intuitively seems like a better investment in Milwaukee than streetcar expansion, particularly if it is coupled with other low-cost policies, dedicated bus lanes, and frequent service. As plans for the North-South BRT system are made, the city should advocate for these features and a holistic transit policy to ensure that the system is as effective as possible.

Besides public transit, the city is also advocating for the removal of the I-794 Lake Interchange which flows through downtown Milwaukee in favor of a traditional at-grade connected grid, pending a study by the Wisconsin Department of Transportation (WisDOT). We urge the city to consider the potential impact of removal of the interchange on metrics like congestion and employment, which may produce considerable costs for the city and its residents. The costs associated with redevelopment after removal should also be factored in. Should WisDOT recommend removal, Milwaukee should avoid undertaking projects in its redevelopment efforts that may have low returns on investment compared to initial costs.

Where investment in infrastructure is appropriate, it is important that the city considers available funding sources and programs through the federal government. The Infrastructure Investment and Jobs Act (IIJA) offers an historic opportunity for the city to address its infrastructure needs and improve its existing assets. The law authorizes \$1.2 trillion for transportation and infrastructure spending with \$550 billion of that figure going toward new investments and programs. Some of the new programs funded by the bill could provide the resources needed to address a variety of infrastructure needs at the local level. For example, the IIJA allocates \$40 billion for bridge repair, replacement, and rehabilitation; \$65 billion for broadband deployment; \$55 billion for water infrastructure; \$21 billion for environmental remediation; \$5 billion for electric vehicle charging stations; and \$3 billion for weatherization assistance. These funds could help the city upgrade its existing infrastructure to meet current and future demands.

Next Steps for Infrastructure

The City of Milwaukee, like most cities, would benefit most from focusing on keeping its infrastructure stock in a state of good repair. While new infrastructure is often conceived as a means of attracting new residents and businesses, cities can achieve these goals more efficiently by getting the basic government services right. Reducing costs and delivering timely maintenance are key steps toward success for Milwaukee, particularly given the city's unique fiscal constraints. Inasmuch as expansion of infrastructure is desirable and appropriate, preference should be assigned to projects that maximize benefits to residents and consumers while minimizing short- and long-term costs for the city.

Moving forward, Milwaukee should consider the following strategies for infrastructure maintenance and development:

- Invest in **innovative data collection technologies** to better prioritize and respond to maintenance needs
- Conduct **thorough cost-benefit analyses** on infrastructure projects to avoid wasteful spending on projects with large upfront costs and uncertain long-term returns
- Advocate for a **well-designed expansion of bus rapid transit** with complementary zoning policies over extension of the city's streetcar line
- **Take advantage of federal funding** for infrastructure investment where appropriate

Conclusion

While the City of Milwaukee boasts fantastic amenities and a strong business environment, it also faces pressing financial challenges that are typical of many metro areas throughout the country. Unemployment remains relatively higher than in the surrounding area and education and income disparities between different populations in the city have grown. Unfunded pension liabilities continue to grow, with required employer contributions eating up a larger portion of the city's budget each year. Investment in infrastructure maintenance is critical, but funding for it is limited. Meanwhile, Milwaukee's unique revenue constraints and statutory limitations exacerbate these problems and highlight the need for an innovative, cost-effective approach to infrastructure, pensions, and economic development in the city. Although Milwaukee faces some financial challenges at present, novel approaches and smart investments can improve the city's fiscal standing, help realize efficiencies, and ultimately stimulate growth.

For economic development, we consider both business retention and attraction methods as well as workforce development strategies. To assess the efficacy and impact of current economic development approaches, we recommend a complex analysis of Milwaukee's TIF projects on a variety of different outcomes. We emphasize the importance of maintenance when it comes to the city's amenities to attract new workers and retain residents. In terms of workforce development, retention of college graduates in the city could be improved and we advocate for partnership with higher education institutions to study location decisions of college graduates. We also suggest customized training programs created in partnership with corporations and post-secondary institutions to develop the workforce and encourage economic mobility.

For Milwaukee's public employee pension system, we analyze two scenarios – a continuation of CMERS as well as a soft-close of CMERS where new employees are enrolled in WRS. After outlining five general principles that motivate our recommendations, we advocate for the soft-closure scenario based on forward-looking pension costs as well as the risk-sharing components of WRS. We then recommend tailoring the amortization period and profile to fit the true economic cost of the unfunded liability. These recommendations will help to alleviate the fiscal burden associated with the city's retirement system.

Finally, in terms of infrastructure, we focus on investment in maintenance projects rather than net new infrastructure development. To efficiently tackle maintenance work, Milwaukee should make use of innovative data collection methods and new technologies to reduce costs and shorten maintenance project times. Milwaukee should carefully assess all new infrastructure projects, considering both their short-term and long-term costs to the city to avoid projects that ultimately cost more than they generate for the city. From a cost-effectiveness standpoint, we recommend that the city pursue an expansion of its BRT system rather than an extension of its streetcar network.

The City of Milwaukee faces significant fiscal challenges, but smart, cost-effective policies can move the city forward. Enacting the approaches outlined in this report will help Milwaukee achieve its goals of growth, development, and financial stability in the long-term.

References

- Albouy, David, Peter Christensen, and Ignacio Sarmiento-Barbieri. 2020. "Unlocking Amenities: Estimating Public Good Complementarity." *Journal of Public Economics* 182, no. February (February): 104110.
- Arntz, Melanie, Eduard Brüll, and Cäcilia Lipowski. 2023. "Do Preferences for Urban Amenities Differ by Skill?" *Journal of Economic Geography* 23, no. 3 (May): 541–76.
- Bartik, Timothy. 2018. "What Works to Help Manufacturing-Intensive Local Economies?" *Upjohn Institute Technical Reports* (May).
- Bartik, Timothy J. 2019. *Making Sense of Incentives: Taming Business Incentives to Promote Prosperity*. WEFocus Series. Kalamazoo, Michigan: W.E. Upjohn Institute for Employment Research.
- Baum-Snow, Nathaniel. 2020. "Urban Transport Expansions and Changes in the Spatial Structure of U.S. Cities: Implications for Productivity and Welfare." *The Review of Economics and Statistics* 102, no. 5 (December): 929–45.
- Billings, Stephen B. 2011. "Estimating the Value of a New Transit Option." *Regional Science and Urban Economics* 41, no. 6 (November): 525–36.
- Brooks, Leah, and Zachary Liscow. 2023. "Infrastructure Costs." *American Economic Journal: Applied Economics* 15, no. 2 (April): 1–30.
- Brown, Jeffrey R., and George G. Pennacchi. 2016. "Discounting Pension Liabilities: Funding versus Value." *Journal of Pension Economics and Finance* 15, no. 3 (July): 254–84.
- Brown, Jeffrey R., and David W Wilcox. 2009. "Discounting State and Local Pension Liabilities." *American Economic Review* 99, no. 2 (April): 538–42.
- Browne, Adele. 2020. "How to Make a City Sticky for Graduates." *Wonkhe* (blog). March 4, 2020. <https://wonkhe.com/blogs/how-to-make-a-city-sticky-for-graduates-2/>.
- Byrne, Paul F. 2010. "Does Tax Increment Financing Deliver on Its Promise of Jobs? The Impact of Tax Increment Financing on Municipal Employment Growth." *Economic Development Quarterly* 24, no. 1 (February): 13–22.
- Carroll, Deborah A. 2008. "Tax Increment Financing and Property Value: An Examination of Business Property Using Panel Data." *Urban Affairs Review* 43, no. 4 (March): 520–52.
- Congressional Budget Office. 2018. "Public Spending on Transportation and Water Infrastructure, 1956 to 2017 | Congressional Budget Office." October 15, 2018. <https://www.cbo.gov/publication/54539>.
- Costrell, Robert M. 2012. "'GASB Won't Let Me'—A False Objection to Public Pension Reform." Houston, TX: Laura and John Arnold Foundation. https://www.legis.state.pa.us/WU01/LI/TR/Transcripts/2013_0125_0011_TSTMNY.pdf.
- Cyzone, Sydney. 2017. "Economic Opportunities Could Keep Graduates in Milwaukee." *Marquette Wire* (blog). September 2017. <https://marquettewire.org/3976000/news/economic-opportunities-could-keep-graduates-in-milwaukee/>.

- Durantón, Gilles, and Matthew A. Turner. 2012. "Urban Growth and Transportation." *The Review of Economic Studies* 79, no. 4 (October): 1407–40. <https://academic.oup.com/restud/article-lookup/doi/10.1093/restud/rds010>.
- Durantón, Gilles, Geetika Nagpal, and Matthew Turner. 2020. "Transportation Infrastructure in the US." w27254. Cambridge, MA: National Bureau of Economic Research. <http://www.nber.org/papers/w27254.pdf>.
- Gabriel, Roeder, Smith & Company. 2021. "Wisconsin Retirement System, 41st Annual Actuarial Valuation and Gain/Loss Analysis." <https://etf.wi.gov/boards/etf/2022/06/23/etf4ar/download?inline=>.
- Gagliardo, Paul. 2019. "Proof Through Pilot Testing." WaterWorld. January 24, 2019. <https://www.waterworld.com/home/article/14071015/proof-through-pilot-testing>.
- Giesecke, Oliver, and Joshua D. Rauh. 2022. "How Much Do Public Employees Value Defined Benefit versus Defined Contribution Retirement Benefits?" SSRN Scholarly Paper.
- Giesecke, Oliver, and Joshua Rauh. 2023. "Trends in State and Local Pension Funds." *Annual Review of Financial Economics* 15, no. 1 (November).
- Gillers, Heather. 2023. "Milwaukee Downgraded by Fitch." *WSJ*, May 30, 2023. <https://www.wsj.com/livecoverage/stock-market-today-dow-jones-05-30-2023/card/milwaukee-downgraded-by-fitch-VyzMmYaqUU7Gt2kvkatf>.
- Glaeser, Edward, Gabriel Kriendler, and Lindsey Currier. 2021. "Does America Invest Too Little in Road Maintenance?" American Economic Association. https://www.aeaweb.org/conference/2021/preliminary/1002?q=eNqrVipOLS7OzM8LqSxIVbKqhnGVrJQMIWp1BKLi_OTgRwlHaWS1KJcXAgrJbESKpSZmwphlWWmloO0FxxUUXDAFTA1AegsS00GyhkAOXDcMpB5E.
- Glaeser, Edward L., and Albert Saiz. 2004. "The Rise of the Skilled City." *Brookings-Wharton Papers on Urban Affairs* 2004, no. 1: 47–105.
- Goldsmith, Stephen. 2017. "A Do-It-Now Approach to Getting Roads Fixed." *Governing*. December 11, 2017. <https://www.governing.com/archive/col-milwaukee-high-impact-paving-program.html>.
- Gonzalez-Navarro, Marco, and Matthew A. Turner. 2018. "Subways and Urban Growth: Evidence from Earth." *Journal of Urban Economics* 108, no. November (November): 85–106.
- Gramlich, Edward. 1994. "Infrastructure Investment: A Review Essay." *Journal of Economic Literature* 32, no. 3 (September): 1176–96. <https://www.jstor.org/stable/2728606>.
- Granger, Maury D., and Glenn C. Blomquist. 1999. "Evaluating the Influence of Amenities on the Location of Manufacturing Establishments in Urban Areas." *Urban Studies* 36, no. 11 (October): 1859–73.
- Greenbaum, Robert T., and Jim Landers. 2014. "The Tiff over TIF: A Review of the Literature Examining the Effectiveness of the Tax Increment Financing." *National Tax Journal* 67, no. 3 (September): 655–74.
- Groth, Alex. 2023. "Why Are There so Many Potholes? Milwaukee Has Some of the Worst Road Conditions in the Country, Study Says." *Journal Sentinel*, May 23, 2023. <https://www.jsonline.com/story/news/local/2023/05/23/milwaukee-has-some-of-the-worst-road-conditions-in-country/70245153007/>.

- Jardim, Ekaterina, Mark C. Long, Robert Plotnick, Emma Van Inwegen, Jacob Vigdor, and Hilary Wething. 2022. "Minimum-Wage Increases and Low-Wage Employment: Evidence from Seattle." *American Economic Journal: Economic Policy* 14, no. 2 (May): 263–314.
- Jyotishi, Shalin. n.d. "This Employer-Aligned & Stackable College Bootcamp Delivers." New America. <http://newamerica.org/education-policy/edcentral/employer-aligned-stackable-college-bootcamp-delivers/>.
- Lee, Yongsung, Bumsoo Lee, and Md Tanvir Hossain Shubho. 2019. "Urban Revival by Millennials? Intraurban Net Migration Patterns of Young Adults, 1980–2010." *Journal of Regional Science* 59, no. 3 (June): 538–66.
- Lester, T. William. 2014. "Does Chicago's Tax Increment Financing (TIF) Programme Pass the 'But-for' Test? Job Creation and Economic Development Impacts Using Time-Series Data." *Urban Studies* 51, no. 4 (March): 655–74.
- Liu, Amy. 2016. "Remaking Economic Development: The Markets and Civics of Continuous Growth and Prosperity." Brookings Institution. <https://www.brookings.edu/research/remaking-economic-development-the-markets-and-civics-of-continuous-growth-and-prosperity/>.
- McIlheran, Patrick. 2023. "Legislature Protects Milwaukeeans from \$15-per-Rider Fare-Free Trolley Folly." *Badger Institute* (blog). May 11, 2023. <https://www.badgerinstitute.org/legislature-protects-milwaukeeans-from-15-per-rider-fare-free-trolley-folly/>.
- Mendez, Joel, and Jeffrey R. Brown. 2019. "The Relationship between Streetcars and Development Activity: An Examination of Portland and Seattle." *Transportation Research Record: Journal of the Transportation Research Board* 2673, no. 2 (February): 172–82.
- Merriman, David F., Mark L. Skidmore, and Russ D. Kashian. 2011. "Do Tax Increment Finance Districts Stimulate Growth in Real Estate Values?: Do TIF Districts Stimulate Growth in Real Estate Values?" *Real Estate Economics* 39, no. 2 (June): 221–50.
- Milwaukee DCD. 2021. "City of Milwaukee - Tax Incremental Districts Annual Status Report." Department of City Development. <https://city.milwaukee.gov/DCD/BusinessToolbox/bids/TaxIncrementalFinancing>.
- Moretti, Enrico. 2004. "Workers' Education, Spillovers, and Productivity: Evidence from Plant-Level Production Functions." *American Economic Review* 94, no. 3 (May): 656–90.
- Neumark, David, and Peter Shirley. 2022. "Myth or Measurement: What Does the New Minimum Wage Research Say about Minimum Wages and Job Loss in the United States?" *Industrial Relations: A Journal of Economy and Society* 61, no. 4 (October): 384–417.
- Novy-Marx, Robert. 2013. "Logical Implications of the GASB's Methodology for Valuing Pension Liabilities." *Financial Analysts Journal* 69, no. 1 (January): 26–32.
- Novy-Marx, Robert, and Joshua D. Rauh. 2009. "The Liabilities and Risks of State-Sponsored Pension Plans." *Journal of Economic Perspectives* 23, no. 4 (November): 191–210.
- Novy-Marx, Robert, and Joshua Rauh. 2011a. "Public Pension Promises: How Big Are They and What Are They Worth?" *The Journal of Finance* 66, no. 4 (August): 1211–49.
- Novy-Marx, Robert, and Joshua D. Rauh. 2011b. "The Crisis in Local Government Pensions in the United States." In *Growing Old: Paying for Retirement and Institutional Money Management after the Financial Crisis*, 47–74. Nomura Institute of Capital Markets Research; Brookings Institution Press.

Novy-Marx, Robert, and Joshua Rauh. 2014. "The Revenue Demands of Public Employee Pension Promises." *American Economic Journal: Economic Policy* 6, no. 1 (February): 193–229.

Rauh, Joshua D., Irina Stefanescu, and Stephen P. Zeldes. 2020. "Cost Saving and the Freezing of Corporate Pension Plans." *Journal of Public Economics*, no. 188 (August).

Sanchez, Olivia. 2021. "Business Partnerships with Community Colleges Funnel Workers to Better Jobs." The Hechinger Report. July 2, 2021. <https://hechingerreport.org/business-partnerships-with-community-colleges-help-funnel-workers-into-better-jobs/>.

Scholl, Lynn, Daniel Martinez, Oscar A. Mitnik, Daniel Oviedo, and Patricia Yanez-Pagans. 2018. "A Rapid Road to Employment? The Impacts of a Bus Rapid Transit System in Lima." IZA DP 12019. Institute of Labor Economics. <https://docs.iza.org/dp12019.pdf>.

Stein, Jason, and Rob Henken. 2022. "Nearing the Brink: An Independent, Third Party Review of the City of Milwaukee's Fiscal Condition." Wisconsin Policy Forum. <https://wispolicyforum.org/research/nearing-the-brink-an-independent-third-party-review-of-the-city-of-milwaukees-fiscal-condition/>.

Swei, Omar. 2018. "Long-Run Construction Cost Trends: Baumol's Cost Disease and a Disaggregate Look at Building Material Price Dynamics." *Journal of Construction Engineering and Management* 144, no. 7 (July): 04018058.

Tomer, Adie, Caroline George, and Joseph W. Kane. 2023. "The Start of America's Infrastructure Decade: How Macroeconomic Factors May Shape Local Strategies." *Brookings* (blog). February 1, 2023. <https://www.brookings.edu/research/the-start-of-americas-infrastructure-decade-how-macroeconomic-factors-may-shape-local-strategies/>.

Tran, Dai Q., Guru Diraviam, and R. Edward Minchin. 2018. "Performance of Highway Design-Bid-Build and Design-Build Projects by Work Types." *Journal of Construction Engineering and Management* 144, no. 2 (February): 04017112.

Tsivanidis, Nick. 2022. "Evaluating the Impact of Urban Transit Infrastructure: Evidence from Bogota's Transmilenio." *American Economic Review* Forthcoming.

Turner, Matthew, Neil Mehrotra, and Juan Pablo Uribe. 2023. "Does the US Have an Infrastructure Cost Problem? Evidence from the Interstate Highway System." w30989. Cambridge, MA: National Bureau of Economic Research.