MFI STUDENT FELLOW

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Decrease in Income Tax Revenue due to AI and Automation

Written by Jack Stelpflug
December 20th, 2023

There has been extensive debate regarding the potential job losses due to AI and automation. One prominent prediction, originating from an Oxford study conducted in 2013, suggested thatup to 47% of U.S. jobs might be vulnerable to AI and automation by 2030, causing widespread concern a decade ago. As we reflect on this alarming prediction a decade later, it begs the question: Has it begun to materialize?

The answer, in simple terms, is no. When we closely analyze various job sectors in the United States, including those initially identified as high-risk for automation, a consistent pattern of job displacement has not emerged. Data from the Bureau of Labor Statistics (BLS) underscores this point. Both STEM jobs and roles classified as "high risk for AI and automation" have experienced growth during the 2008-2018 period.

Job Title (STEM)	2008-2018 absolute job change (In thousands)	2008-2018 percent change
Computer programmers	-176.4	-41.30%
Computer user support specialists	106.1	18.80%
Computer and information research scientists	2.8	9.70%
Database administrators and architects	-3.5	-2.90%
Software engineers, applications	429.4	84.30%
Computer occupations, all other	203.4	97.20%
Actuaries	5.3	26.80%
Mathematicians	-0.1	-1.90%
Operations research analysts	46.7	47.10%
Statisticians	21.8	96.70%
Architecture, engineer, life, physical sciences	141.4	4.00%

Job Title (Jobs considered high risk for automation)	2008-2018 absolute job change (In thousands)	Actual 2008-2018 percent change
Personal financial advisors	63.3	30.40%
Interpreters and translators	25.2	49.40%
Surgeons, except ophthalmologists	-16.3	-30.00%
Fast food and counter workers	957.3	29.70%
Janitors and cleaners	29.1	1.20%
Maids and housekeeping cleaners	-3.8	-0.30%
Landscaping and groundskeeping workers	-0.6	0.00%
Heavy and tractor-trailer truck drivers	160.4	8.90%
Industrial truck and tractor operators	4.6	0.80%
Laborers and freight/stock/material moving	636.5	27.50%

While we haven't witnessed the anticipated declines, there's a consensus that AI will inevitably bring about significant changes to our job market. Prominent American entrepreneurs Elon Musk and Mark Cuban have expressed their views on this matter. Musk has stated, "There certainly will be job disruption. Because what’s going to happen is robots will be able to do everything better than us… All of us." Cuban shares a similar sentiment: "Literally, who you work for, how you work, the type of work you do is going to be completely different than your parents within

the next 10 to 15 years." I share the belief that we'll encounter job disruptions due to AI in the near future. The exact extent of these disruptions remains uncertain, but it's prudent for us to prepare and comprehend why this technology differs from past innovations.

When we encounter groundbreaking technologies of this magnitude, we often observe two competing effects. First, there is a disruptive effect that compels workers to shift their employment focus. As these novel technologies take over tasks once performed by humans, those who previously held these positions must seek alternative career paths. Second, there is the capitalization effect, whereby the entry of more companies into high-productivity industries leads to an expansion of employment in those sectors, potentially counteracting the disruptive impact.

Fortunately, throughout history, the dominant influence has generally been the capitalization effect. This is primarily attributed to our capacity to acquire new skills through education (Goldin and Katz, 2009). However, as computerization advances at an increasingly rapid pace and infiltrates more cognitive domains, there is the possibility that the capitalization effect may not prevail as it has in the past. Prominent economists from earlier eras foresaw a time when our technological advancements might outpace our ability to adapt. For instance, in 1933, John Maynard Keynes discussed the concept of technological unemployment, stating, "This means unemployment due to our discovery of means of economizing the use of labor outrunning the pace at which we can find new uses for labor" (Keynes, 1933). This highlights the potential challenges posed by rapid technological progress.

We've never witnessed technology advancing as rapidly as we're currently experiencing with AI. The exponential growth of new AI discoveries is clearly illustrated in the accompanying graphic. Given this unprecedented pace of development, it might not be well-founded to assume that the capitalization effect will continue to dominate in our present circumstances.

Following previous innovations that displaced jobs, there was typically a long enough period for workers to transition into different fields. However, this may not be the case in the future. It's also possible that the jobs created by AI will be of lower quality than the ones people were displaced from.

In the past decade, research findings have highlighted a concerning trend: despite the growing number of highly educated workers, there has been a decline in the demand for skills in various job markets. These studies have revealed that many highly skilled workers have shifted down the occupational ladder, taking on roles that were traditionally performed by less skilled workers. This shift has had the effect of pushing less skilled workers even further down the occupational ladder and, to some extent, out of the labor force altogether (Beaudry, 2013).

This situation prompts two important questions: First, can human labor keep pace with technology through education and adapt to these changes effectively? Second, what might be the extent of technological unemployment in the face of an increasingly rapid pace of technological progress, leading to higher job turnover and potentially resulting in a higher natural rate of unemployment? These questions underscore the challenges and uncertainties posed by the evolving relationship between technology and the labor market.

Considering the economic principles of the destructive and capitalization effects, and the potential for innovation to outpace our ability to find new labor, it is possible that AI will disrupt our labor force in a profound way. While this is still quite speculative, we would be wise to prepare ourselves.

In light of these considerations, it's clear that our approach to managing the labor market in this era of rapid technological advancement must be proactive and multifaceted. Policy interventions, particularly in the realm of unemployment benefits, seem vital. For instance, states could extend unemployment benefits to individuals involuntarily working part-time, reflecting a more nuanced understanding of the evolving job landscape. Funding for such expansions could be sourced from increased corporate tax contributions, especially from those corporations that substantially benefit from AI-enhanced productivity. This is crucial because, as history has shown, corporations, including notable ones like Amazon and Chevron, have often found ways to minimize their tax burdens. A fairer tax system, where these entities contribute their due share, could provide the necessary resources to support workers transitioning in a rapidly changing job market.

Educational reform and the promotion of lifelong learning are also essential in preparing our workforce for the future. A shift in educational focus is required, one that encourages adaptability and a strong proficiency in technology. Young Americans, in particular, should be equipped not only with the ability to use AI systems but also with foundational skills in coding and other relevant technologies. This preparation will empower them to thrive in a job market increasingly characterized by automation and AI.

As we look towards the future, the profound impact of AI and automation on our labor market and broader economy seems inevitable. The progression of AI in recent years points to a future where no sector is untouched by these technologies. With this in mind, we must brace ourselves for the potential disruptions that lie ahead. By embracing policy changes, corporate responsibility, and educational reforms, we can mitigate the challenges and harness the opportunities presented by these groundbreaking technological advances. Preparing now for these inevitable changes will ensure that we are not only able to adapt to the new landscape of work but also thrive in it.

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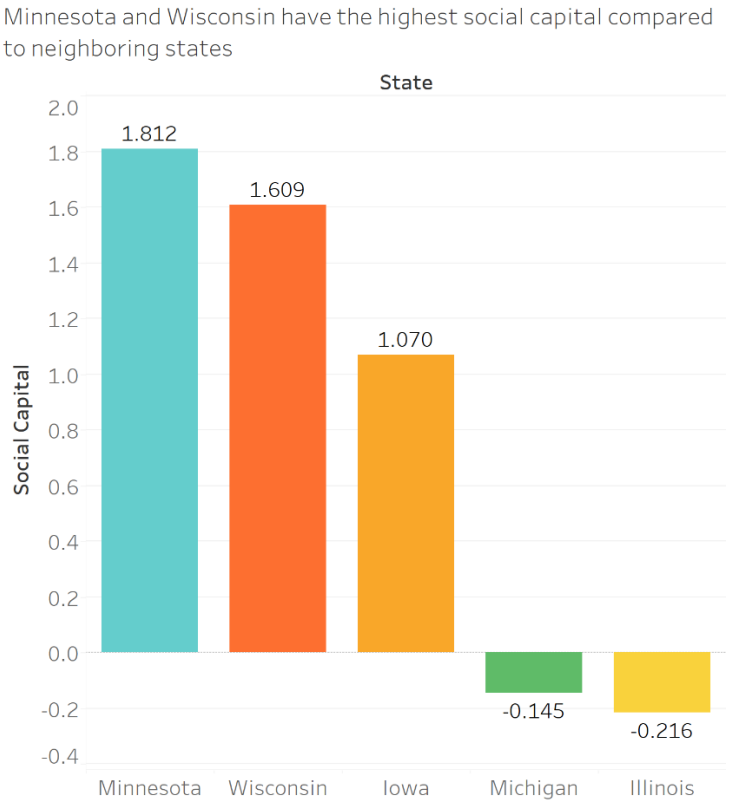
Building Stronger Communities: Unpacking the Social Capital Success of Minnesota and Wisconsin

Written by Lindsey Scheurer
December 20, 2023

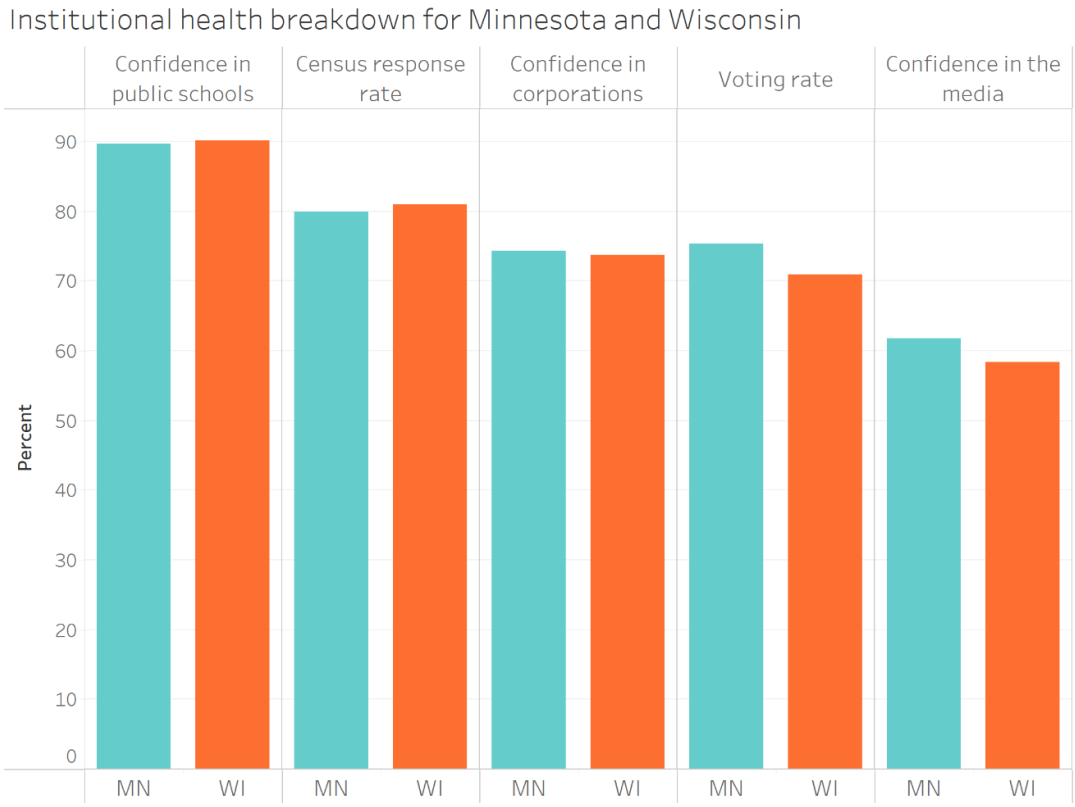
In today's interconnected world, social capital plays a pivotal role in shaping our society and economy. Trust and connections in a society fuel everything from creativity and collaboration to innovation and entrepreneurship. It's no wonder that social capital has become a key metric for measuring the health of a community.

In 2018, The United States Congress Joint Economic Committee introduced a Social Capital Index that aimed to quantify this crucial resource. This index delved into various aspects of social capital, including voting, marriage, political involvement, trust, support, volunteering, and crime. Minnesota and Wisconsin have been emerging as the standout performers of all fifty states and the District of Columbia.



Minnesota secured the second spot, while Wisconsin claimed an impressive third place in the overall rankings. What's particularly noteworthy is that these two states outperformed their neighboring counterparts by a significant margin. Iowa ranked ninth, Michigan was twenty-seventh, and Illinois came in twenty-eighth, highlighting the exceptional social capital of Minnesota and Wisconsin within the region.

When exploring the subindices, both states excelled in institutional health, social support, and philanthropic health. Minnesota even held the top position nationwide in institutional health. This subindex considers factors like census response rate, voting rate, and confidence in various institutions such as the media, public schools, and corporations.



The strongest part of institutional health for both Wisconsin and Minnesota is the percentage of the population with confidence in public schools, about 90%. Institutional health, however, isn't without its challenges, particularly in terms of media trust. Both Minnesota and Wisconsin have room for improvement in this area, with only about 60% of the population expressing confidence in the media. This trust deficit may stem from the prevalence of misinformation, a pressing issue in our information age.

One strategy to combat misinformation is through media transparency. This includes media outlets being upfront about their writing process, including fact-checking. Implementing stricter fact-checking policies could bolster credibility and trust in the media, curbing the spread of misinformation.

Furthermore, Media and news outlets could also increase diversity in their processes. This could avoid intentional or unintentional biases through groupthink. Groupthink can result in poor decision making, skewed thinking, and echo chambers. Echo chambers are when people's thoughts and beliefs are confirmed with no alternative perspective. This can be dangerous and

increase the risk of spreading misinformation. By nurturing a more inclusive media landscape, we can encourage healthy discourse and informed decision-making.

In conclusion, it's imperative that we establish and uphold higher ethical standards for journalism. Our media should be treated with the utmost care, as it plays a pivotal role in shaping our society. As we raise reliability and public confidence in the media, we'll foster productive public communication and education, ultimately boosting our collective social capital. This, in turn, will pave the way for increased collaboration, creativity, innovation, and trust, all of which are the cornerstones of a thriving society and economy.

ARPA Op-Ed: A Bold Response to an Unprecedented Crisis

Written by Mitchell Kocialkowski
December 20, 2023

In the face of the devastating economic impact wrought by the COVID-19 pandemic, the United States Congress enacted a historic measure: the American Rescue Plan Act (ARPA) in March 2021. This ambitious legislation, channeling a staggering $1.9 trillion into the heart of state and local economies, represented more than a financial injection; it was a bold statement of support and recovery. ARPA's objectives, as stated by the U.S. Treasury, were multifaceted: replace lost public sector revenue, respond to public health needs and negative economic impacts of the pandemic, provide premium pay to essential workers (like nurses), and upkeep public infrastructure.

However, the journey to recovery, though paved with good intentions, was fraught with challenges. One of the most pressing concerns that emerged was inflation. Data from the Federal Reserve Economic Data (FRED) revealed a worrisome trend: inflation rates spiking from 4.7% in 2021 to a concerning 8% in 2022, triggering debates about the potential long-term economic repercussions of such a massive fiscal stimulus.

The implementation of ARPA further complicated the landscape. A survey conducted by the Illinois Municipal League illuminated a significant challenge: confusion over fund allocation and reporting procedures. This uncertainty underscored the complexities inherent in administering such an unprecedented relief effort.

Wisconsin has had a case of misusing ARPA funds, starting with Governor Tony Evers' decision to funnel ARPA funds into constructing a soccer stadium and a railroad museum. Mark Lisheron of the Badger Institute lambasted these projects as examples of fund misallocation, arguing that they would contribute to inflationary pressures while bypassing more urgent community needs. These funds could alternatively have been spent on more affordable housing, premium pay for essential workers, public infrastructure, and assistance to small businesses.

The need for oversight and transparency is essential to the effectiveness of ARPA. Tools like the Local Government ARPA Investment Tracker, a collaborative effort by the National League of Cities, Brookings Metro, and the National Association of Counties, were developed. This tool offers a window into how ARPA funds were being allocated across various states as of June 2023.

The data painted a revealing picture: Minnesota, Michigan, and Wisconsin primarily focused their funds on revenue replacement, a reflection of the acute financial distress faced by these states. Illinois, on the other hand, allocated funds towards both revenue recovery and bolstering

public health initiatives. Iowa, in a marked contrast, directed a substantial portion of its funds towards infrastructure development and addressing negative economic impacts.

However, the ARPA Investment Tracker's data only scratches the surface. Without detailed insights into the specific projects funded, it's challenging to draw definitive conclusions about the effectiveness or appropriateness of these expenditures. A deeper examination reveals a diverse range of projects, from essential infrastructure upgrades to leisure and recreation-focused endeavors, reflecting the unique priorities and challenges of each state. Another example is the crossing of premium pay and revenue replacement in terms of funding wages.

Iowa's significant investment in infrastructure is particularly noteworthy, given the state's significant agricultural economy. In a state where efficient transportation and logistics are vital for the agricultural sector, such infrastructure investments are not just beneficial but essential. This focus may also be partially attributed to other federal initiatives, such as the Coronavirus Food Assistance Program, which provided targeted support to the agricultural sector, potentially reducing the need for direct revenue replacement.

Contrastingly, Wisconsin's more diverse economic composition, with significant manufacturing and service sectors, necessitated a different approach. The substantial investment in revenue replacement hints at efforts to cushion the broader economic shocks experienced across various sectors, from manufacturing to small businesses and services. This strategy underscores a recognition of the multi-faceted nature of the economic challenges posed by the pandemic.

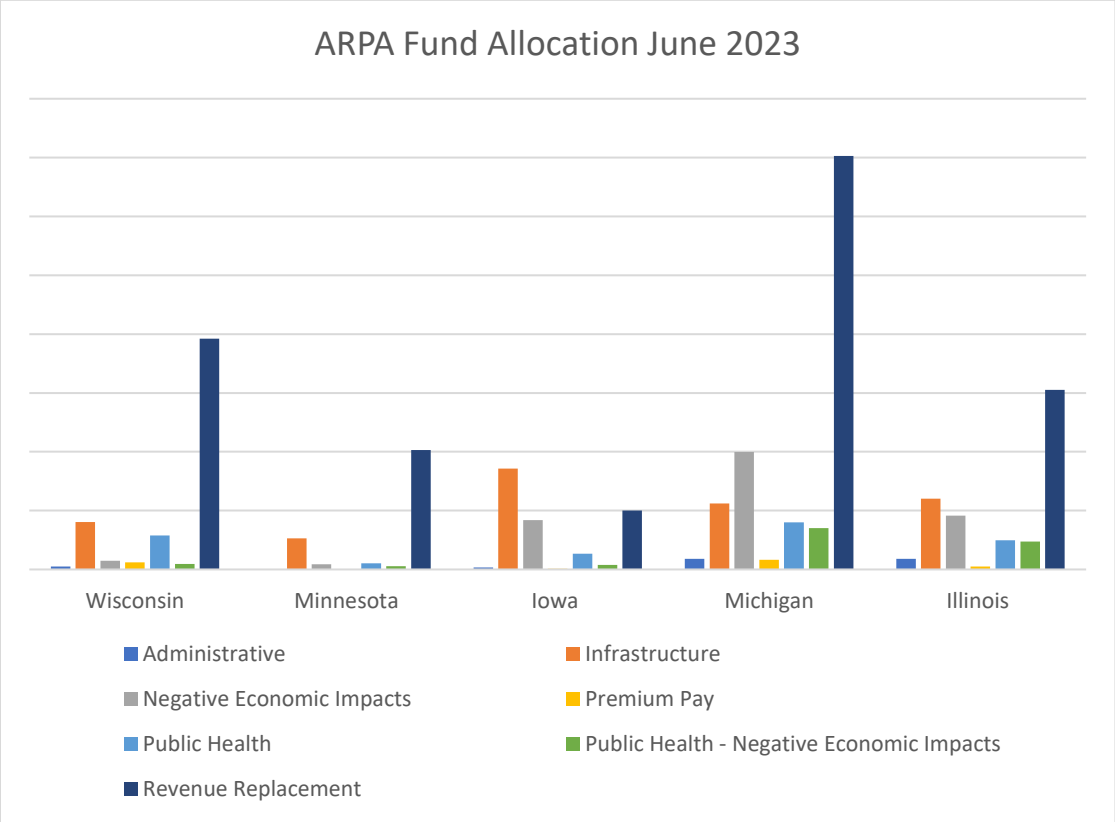
The divergent approaches taken by states like Iowa and Wisconsin highlight the inherent ambiguities and flexibilities within ARPA's framework. These differences underscore the importance of context-specific strategies in economic recovery efforts. ARPA’s broad parameters, while allowing states the flexibility to address their unique challenges, have also opened doors to debates over the optimal use of these funds.

As communities in Wisconsin and beyond grapple with these questions, guidance from entities like the Local Government Education at UW – Madison becomes crucial. Their emphasis on prioritizing "critical infrastructure" for its long-term benefits and non-recurring nature provides a valuable perspective in these discussions. The Local Government Education at UW – Madison also promotes using the ARPA funds for short term fixes to aid in economic recovery.

The complexities and challenges revealed through the allocation of ARPA funds highlight an undeniable need for enhanced transparency and strategic foresight. As we move forward, it is imperative to establish robust policies and mechanisms that not only facilitate efficient tracking of such massive funds but also ensure that they are channeled towards initiatives that yield sustainable benefits.

Protecting core industries from future economic shocks, fostering affordable housing, and promoting employment growth must be the focus of these efforts. Thoughtfully deployed, ARPA funds have the potential to be more than just a temporary relief measure; they can be a catalyst for long-term economic resilience and growth. As policymakers, stakeholders, and citizens navigate this complex terrain, the lessons learned from ARPA's implementation will undoubtedly shape the contours of future economic recovery efforts in the United States.

Figure 1



(Cohen, 2023)

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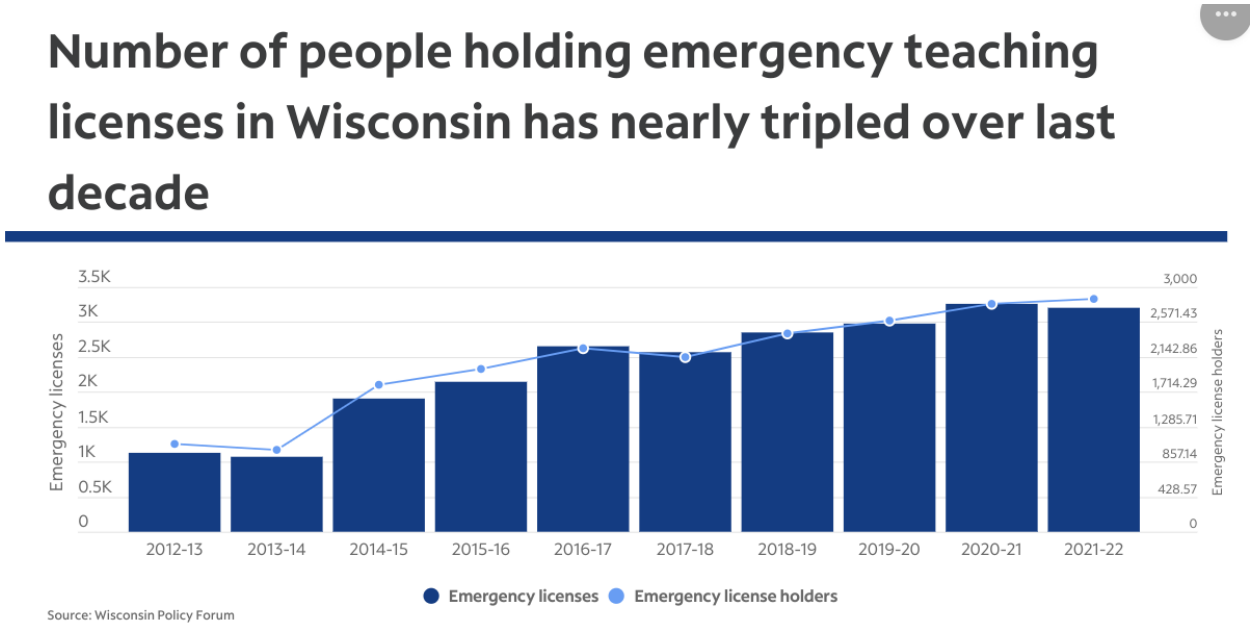
Reining in Excessive Teaching Licenses: A Call for Reform

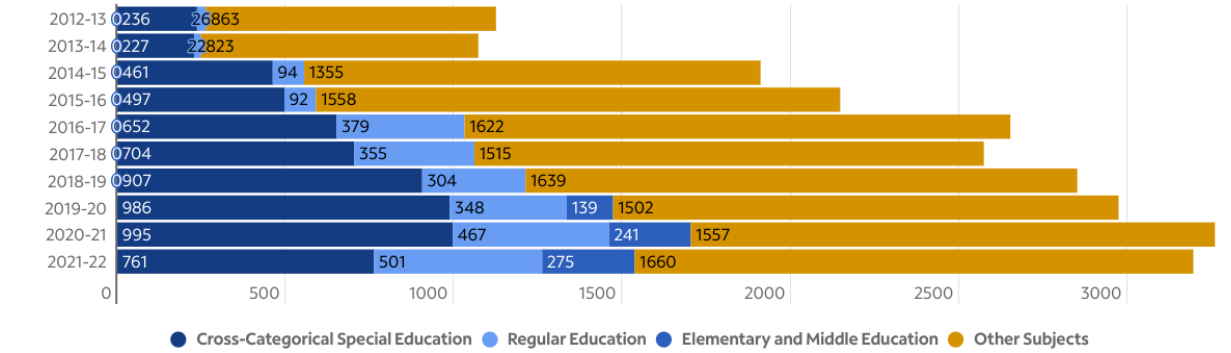
Written by Scott Rosendahl
December 22, 2023

The education landscape in Wisconsin is undergoing a profound transformation, highlighted by a startling increase in the amount of emergency teaching licenses that are currently being issued. According to a report by the Wisconsin Policy Forum, the Department of Public Instruction (DPI) granted 3,197 emergency teaching licenses during the 2021-2022 school year – an increase of over 180% from a decade ago. While these licenses are intended to address teacher shortages, they bring deeper issues within Wisconsin's education system to light, revealing the damaging impact being felt by both teachers and students.



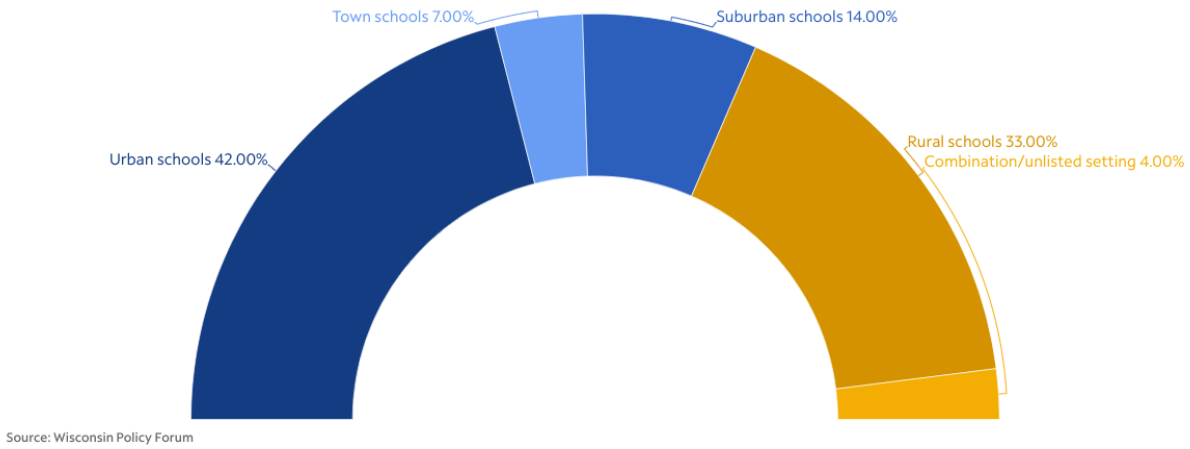
Students are heavily impacted by this shortage. As of 2018, the minimum requirement for obtaining a teaching license in Wisconsin is a bachelor's degree in any subject, but this is still not sufficient to address the teaching shortage. The issuance of emergency teaching licenses has morphed into a long-term strategy, with some teachers holding them for more than three years. A report by the Wisconsin Policy Forum reveals that licenses are not a response to immediate needs but have become integral to addressing hiring difficulties. Obviously, this calls into question the quality of education that students are receiving. If teachers increasingly do not have the education traditionally required to do their job, it's easy to question whether teachers remain capable of doing their job well. Additionally, this shortage has had a disproportionate impact on Special Education, Elementary Education, and Middle School Education, which make up over 60% of the increases in emergency licenses over the past decade. Students who receive these types of education are most in need of quality, nurturing teachers, and these shortages make it less likely for them to learn from competent professionals.

Cross-Categorical Special Education, Regular Education and Elementary and Middle Education account for 61.5% of emergency license increase



The impact these shortages have on students is a genuine concern, but the proliferation of emergency licenses is also indicative of larger issues faced by would-be teachers. Out of all students enrolling in educator preparation programs, only about 75% complete them. The median salary of teachers has also declined despite high rates of inflation, which has likely encouraged potentially excellent teachers not to pursue a career in education. There are significant barriers towards becoming a teacher, which are having snowball effects on the education system.

Schools in urban and rural areas are most likely to employ people with emergency teaching licenses



This problem is not faced by every school district. Certain regions face more significant difficulties in hiring and retaining qualified educators - schools in urban and rural regions are

more likely to employ people with emergency teaching licenses, whereas schools in suburbs and small towns are less likely to face this issue.

The teaching shortage in Wisconsin has far-reaching business and economic implications. Schools with an abundance of teachers with emergency licenses may face issues with skill gaps, pay disparities, and lower educational quality. Over time, these issues can impact long-term economic development, affecting things like workforce preparedness and even real estate value.

It is evident that boosting private or public expenditure on education and teaching programs is a crucial step towards resolving the challenges we currently face. By investing in higher teacher salaries and comprehensive training initiatives, we can effectively combat the issues posed by the ongoing crisis. When teaching becomes a more rewarding profession, it not only attracts more individuals to the field but also ensures that educators are well-prepared, highly motivated, and committed to a long-term career in teaching. This approach holds the promise of not only addressing immediate concerns but also fostering a brighter future for our educational system.