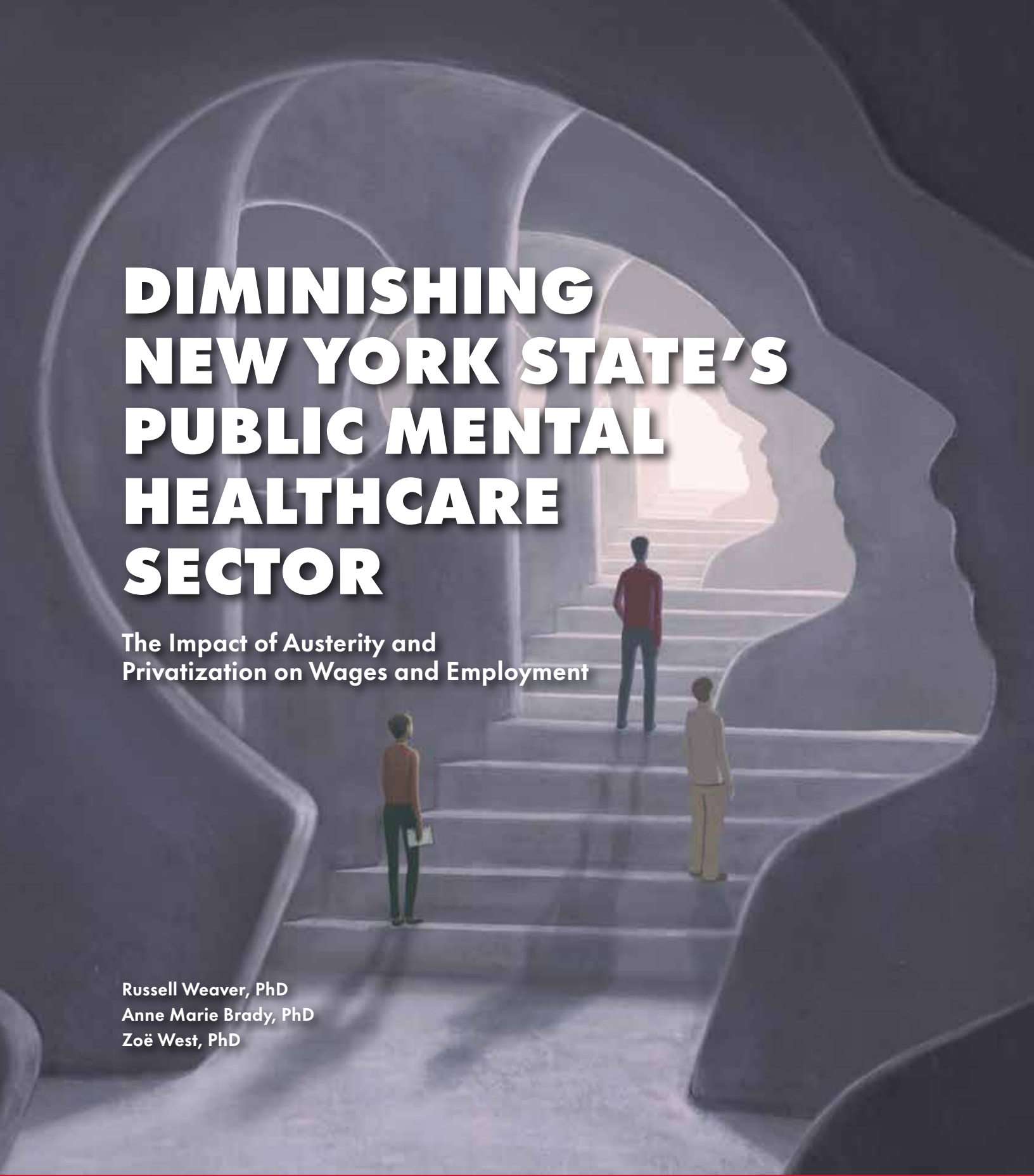

DIMINISHING NEW YORK STATE'S PUBLIC MENTAL HEALTHCARE SECTOR

The Impact of Austerity and Privatization on Wages and Employment

Russell Weaver, PhD
Anne Marie Brady, PhD
Zoë West, PhD

ILR Buffalo Co-Lab

ILR Worker Institute

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This report was authored by Russell Weaver, Anne Marie Brady and Zoë West. The opinions, findings and/or interpretations of data contained herein are the responsibility of the authors and the authors take responsibility for any remaining errors and shortcomings.

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EXECUTIVE SUMMARY

Decades of austerity measures and privatization have reduced funding for public sector employees across all agencies in New York State. Increasingly, state agencies have outsourced work traditionally done by public sector employees to private contractors, and localities have been forced to cut or limit services on account of budget cutbacks or shortfalls, resulting in a loss of public sector jobs. The mental healthcare sector exemplifies this trend, as policymakers' goals of reducing public spending and healthcare costs have intersected with changing models of care provision, ultimately shrinking the public sector mental healthcare workforce.

This report explores the effects that privatization and austerity have had on mental healthcare capacity in New York State and the employment and wages of public sector mental health workers. Our research finds that both the public sector mental healthcare workforce and the state's mental healthcare capacity have decreased significantly between 1990 and 2021. The findings strongly suggest that ongoing contraction of the state's public sector mental health workforce—and the concomitant privatization of mental health work—likely has had (and will potentially continue to create) disparate and negative impacts on mental health workers, their families, and their communities. These negative impacts disproportionately affect women, people of color, and working-class New Yorkers. The analysis strongly suggests that public sector mental health facilities in New York State create good, well-paying union jobs, at all skill levels, and for residents of all racial-ethnic backgrounds; all while more dedicated mental health capacity (e.g., specialized mental health providers and facilities) might mean fewer suicides, fewer instances of hospitalization due to self-harm, and an overall stronger state of mental health across New York.

The "Background" section of this report traces the political and ideological roots of austerity and privatization in public service provision, and reviews key policies at the state and national levels that have institutionalized austerity and privatization in New York State's mental health sector.

The "Methods" section describes the sources of data used in this research and the quantitative analysis methods the research team employed to carry out the analysis. The research questions examined the impact that cuts to public sector budgets (austerity) and a shift from public to private provision of services have had on the number of public sector jobs; the quality of the public sector jobs in terms of wages and benefits compared to jobs outsourced; and the impact these changes have had on the nature of services

provided to the public. To explore these issues, Cornell University's ILR Worker Institute and the ILR Buffalo Co-Lab examined these changes using the mental health sector in New York State as a case study. To do this, researchers built a profile of changes to a variety of indicators—for example, size and composition of the mental health workforce; wages in the mental health industry; number of beds in mental health facilities per capita; and selected outcomes monitored by the Centers for Disease Control Behavioral Risk Factor Surveillance System—to document the ways in which mental health work, the mental health workforce, and different mental health outcomes in New York State have co-evolved in a time of increasing austerity and privatization of critical human and social services.

The "Findings" section provides a detailed analysis of the data, pointing toward the following key findings for the mental health sector in New York State:

- While employment in key mental health–related industries—psychiatric hospitals and residential care facilities—is trending upward, all growth has been concentrated in the private sector. Between 1990 and 2021, the number of jobs in these industries increased almost seven times faster than job growth observed in the state's economy as a whole, but the number of jobs in state government–owned mental health facilities has fallen precipitously over time.
- Contraction in New York's public sector mental health workforce is ongoing, and disproportionately affects women, workers of color, union members, and working-class New Yorkers.
- Public sector jobs in mental health industries have traditionally paid significantly higher wages than the same jobs in the private sector. Unionization is presumably one of the key reasons for these wage disparities. Thus, as mental health work shifts more and more toward the private sector, mental health workers stand to see their purchasing power decrease (if, for example, they remain in the same occupation but can only find work in the private sector). The ongoing privatization of mental health work in New York is, stated another way, likely to place downward pressure on wages in mental health–related industries.
- Despite overall growth in mental health work (courtesy of the private sector), specialized psychiatric facilities have closed in recent decades, and dedicated mental health capacity—measured as the number of psychiatric care providers per capita—has been falling across the state.
- Dedicated mental health capacity is systematically related to key indicators of population-level mental health, particularly age-adjusted suicide rates and rates of hospitalization due to self-inflicted harm.

INTRODUCTION

Funding for public sector employees has been receding across all agencies in New York State.[1] Increasingly, state agencies have outsourced work traditionally done by public sector employees to private contractors (a process referred to as privatization), and localities have been forced to cut or limit services on account of budget cutbacks or shortfalls, resulting in a loss of public sector jobs.[2] Cuts to staff and services and/or outsourcing of contracts to private providers have taken place across a range of sectors and occupations, from computer management and programming, analyst and engineers, civil engineers, and construction inspectors to healthcare providers (including nurses), social welfare service providers, and more.[3]

The change in the number of public sector jobs has been driven, on the one hand, by messaging that the private sector (both non- and for-profit) is more efficient and effective and therefore better at delivering services than the public sector. On the other hand, austerity measures, i.e., cuts to state and local budgets, have forced state and local agencies to scale back on the number of services provided, resulting in job cuts and/or outsourcing.

1 J. Parrott and A. Butel (2019). New York State's Historic Disinvestment in Human Services since the Great Recession: The Impact in New York City and Around the State. New York: The New School Center for New York City Affairs.

2 New York State Public Employees Federation. Fund Our Future and Build a Thriving New York: An Action Plan for Investing in Public Infrastructure, Services, and Workforce.

3 Ibid.

The public mental health sector in New York State clearly reflects this trend toward privatization and austerity measures, as policymakers' goals of reducing public spending and healthcare costs have intersected with changing models of care provision, ultimately shrinking the public sector mental health workforce. This report examines the impact that cuts to public sector budgets (austerity) and outsourcing of staff work have had on the number of public sector jobs; the quality of the public sector jobs in terms of wages and benefits compared to jobs outsourced; and the impact these changes have had on the nature of services provided to the public.

To explore these issues, researchers from Cornell University's ILR Worker Institute and ILR Buffalo Co-Lab analyzed changes for a variety of indicators—including size and composition of the mental health workforce; wages in the mental health industry; number of beds in mental health facilities per capita; and selected outcomes monitored by the Centers for Disease Control Behavioral Risk Factor Surveillance System—to document how mental health work, the mental health workforce, and different mental health outcomes in New York State have fared amid austerity and privatization of critical human and social services.

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The research questions, and indeed, the unpacking of the findings in section 3 of this report, are intended to first establish (1) how the mental health workforce has changed over time, (2) how the changes have taken a particular shape (one consistent with global trends toward privatization and public sector austerity), and (3) how changes in the mental health industry might connect to changes observed in mental health indicators. Therefore, the specific research questions explored in this report include the following:

- How has the size of the mental health workforce in New York State (NYS) changed since 2000?
- How has the composition of the NYS mental health workforce changed since 2000, with respect to:
- Employer type (i.e., private sector v. state government); and
- Worker demographics
- By how much have inflation-adjusted median wages in the NYS mental health workforce changed since 2000 (in the private sector and state government)?
- Are relative changes in (a) the size, and (b) wages in the NYS mental health workforce of roughly equal magnitude to corresponding changes in the overall NYS workforce? To other fields in the health and social services industries?
- Is there a systematic association between patterns of wages and employer type (private v. state government) in the NYS mental health workforce?
- How has the capacity of mental health services in NYS (e.g., the number of specialized facilities per capita) changed since 2000?

- How have selected mental health indicators in NYS changed in recent decades?
- Is there a systematic association between changing patterns of employment type in the NYS mental health workforce and selected mental health outcomes in NYS?

In the opening section entitled "Background" this report will begin with a review of the literature exploring key political and economic changes in the last 50 years that drove austerity and a move toward privatization of public services. This will include a review of key pieces of legislation at the national and state levels that institutionalized these changes in New York State. The "Methods" section will describe the methods used to analyze the data. This will be followed by the "Findings" section where we present the findings of the analysis as they relate to (1) changes in size of the mental health workforce; (2) changes in the composition of that workforce; (3) changes in the overall wages of workers in mental health–related industries; (4) wage changes in those related industries relative to comparison industries; (5) wages by employer type (private sector v. state government) for top occupations in related industries; (6) changes in selected indicators of mental health capacity; (7) changes in selected indicators of state- and county-level mental health for the population; and (8) changes in mental health workforce and capacity as compared with changes in selected mental health outcomes. This section will close with a summary of the findings and the emerging picture.

The report will close with "Key Findings and Conclusion" discussing the relevance of the findings in the context of policymaking today. Ultimately, the analysis presented in this report will offer empirical evidence to help better understand the impacts that austerity and a movement toward privatization of public services have had on mental health work and mental health workers in New York State, and how those impacts relate to changing mental health outcomes across the state.

BACKGROUND

A MOVE TOWARD AUSTERITY AND PRIVATIZATION

To understand the findings of this report, it is important to first review the context in which the movement toward austerity and privatization in public service provision gained traction, and importantly, why this change over time matters to employees, employers, service providers, and service users.

Fifty years ago, the United States was faced with an economic crisis on account of the oil embargo of 1973 and 1979. This economic crisis provided an opening for economists like Milton Friedman and the Chicago School to argue that a shift away from Keynesian economic policies to neoliberal fiscal and monetarist policies was necessary to appropriately respond to the recession—the economic stagnation, inflation, and high unemployment. Neoliberal economic orthodoxy favored austerity, among other mechanisms, as the best way to adequately respond to the economic crisis.[4] This has proved an enduring orthodoxy, as it secured universal acceptance across the political spectrum for an assumption that favors restraint in social spending, on the one hand, and a shift from public to private provision of services, on the other, as the only way to ensure economic growth over the long term.

Adherents of neoliberal economic policy promoted a free market economy by curtailing corporate (and individual) taxation needed to fund the government's provision of public services. High taxation to fund public spending on services—including healthcare, education, transportation, housing, and social welfare—was seen as an impediment to economic growth. Fiscal austerity measures were therefore perceived as a necessary response to protect the U.S. economy. The arguments for fiscal austerity are rooted in monetarism that endorses the principles of economic deregulation and emphasizes national competitiveness, rather than social

4 A. Brady (2022). SDG 10 Reduce inequality within and among countries: the politics and policies of inequality in the West, 1800-2015, in *Before the U.N. Sustainable Development Goals: A Historical Companion*. Eds. M. Gutmann and D. Gorman, Oxford: Oxford University Press. The institutional arrangements put in place to achieve neoliberal goals and restore economic growth were far reaching and included a range of policy measures such as cutting taxes for wealthy individuals and corporations; deregulating national oversight of business, banks, labor markets as well as consumer and environmental protections; and weakening the welfare state through austerity, retrenchment, privatization and devolution. See also K. Farnsworth and Z. Irving (2015). *Social Policy in Times of Austerity: Global economic crisis and the new politics of welfare*. Bristol: The Policy Press. Blyth, M. (2013). *Austerity: The History of a Dangerous Idea*. Oxford: Oxford University Press.

protectionism. This is achieved by, among other things, applying policies that seek to restrict public spending.[5]

Moreover, the fallout from the global financial crisis of 2007-08 reaffirmed the trend toward fiscal austerity, hastening a tightened form of monetarism that resulted in increased economic austerity in public finance. In response to the crisis, policymakers advocating a monetarist neoliberal response persuaded governments to bear down on their fiscal deficits, but to do so by cutting or limiting public spending, rather than raising taxes.[6]

While a case was being made for cutting government spending on public services, the government's role in providing public services paid for with public funds (tax dollars) also was being brought into question. Here a parallel case was being made for transforming the provision of public services to reflect a more effective and efficient and therefore modern service delivery. It was argued that public services were overly bureaucratic, excessively expensive, and unresponsive to individuals' needs. Applying market mechanisms to the provision of public services was seen as the most efficient and cost-effective form of provision. And to solve the problem of ineffective and inefficient public service delivery, it was argued that private—not public—providers should deliver public and human services—a phenomenon typically referred to as privatization.[7] Privatization generally involves three characteristics: (1) the introduction or extension of market principles in the delivery of public and human services that have traditionally been publicly provided; (2) a shift of responsibility for service provision from the public to the private sector; and (3) incorporation of market criteria, such as profitability and the ability to pay, in the allocation of services and benefits.[8]

Importantly, privatizing public services was seen as a necessary response to tightened public budgets—tight budgets that were a result of fiscal austerity measures. While the idea to privatize public services was not new, it was taken seriously by the Reagan Administration in the 1980s, though with limited success, but expanded greatly under the Clinton Administration in the 1990s. It was during this time that many public services for which government was responsible were contracted out to private providers (both non-profit as well as for-profit). This included public-private partnerships in which private sector companies were involved jointly with the government in managing public service delivery. In practice, all sorts of compromises may be struck in terms of the balance between government and market provision of public goods, and in the United States, these vary from state to state and locality to locality and by sector.[9]

But why should we care if public services are provided by the public sector, the private sector, or a combination of both? The reason rests with what can happen to the amount, type, and quality of service delivery and provision after market criteria are incorporated into the management

5 P. Krugman (2015). The austerity delusion. *Guardian*, 29 April. Monetarist policies also seek to control inflation by restricting the money supply through the control of interest rates, and adopt supply-side management policies that stimulate productivity rather than consumption. Monetarist policies tolerate a certain amount of unemployment.

6 In the aftermath of the global pandemic and the unprecedented—and arguably much needed—stimulus, we see this argument being used again as we turn away from stimulus and return to monetarist policies to spur economic growth resulting in cuts to, or at a minimum, a return to pre-pandemic spending on social welfare. We see the vestige of old arguments being recycled in today's debate about the role the coronavirus rescue packages of December 2020 and March 2021 have played in causing inflation, for example. Too much stimulus, too much spending on "social programs", it is argued, will cause the economy to shrink, increase inflation and stymie competition.

7 J. LeGrand and R. Robinson (1984). *Privatization and the Welfare State*. London: Routledge.

8 C. Smith (1989). Privatization and the Delivery of Mental Health Services. *Urban Geography*, 10:2, pp. 186-195.

9 H. Dean (2019). *Social Policy*. Cambridge: Polity Press. Applying a strict neoliberal interpretation, Dean argues that the government should provide only the goods or amenities that nobody can be excluded from using, and which would never under normal circumstances be provided for by the private market, privately for sale. For example, the government might be permitted to provide a public sewage system (or at least commission them under public/private partnership arrangements) so as to prevent disease. But the market should be the preferred method for providing individual healthcare services in order to treat disease.

of public services. Privatizing public services was formalized through the adoption of New Public Management (NPM),[10] which is the application of private sector tools and methods—such as cost-benefit analysis, top-down targets, and data-driven measurement—to determine and monitor the type and quality of services.[11] Moreover, New Public Management emphasizes performance over process and outcomes over rules and regulations as necessary to maximize competition that is results-driven.[12] At the heart of New Public Management is the idea of centering the service user as the "customer" or "client"—in the same way that businesses serve customers, and with greater efficiency designed to increase customer satisfaction.[13]

The problem with applying market tools to the provision of public goods is that public goods are not commodities that can or should be bought and sold as if they were akin to the buying and selling of candy, shoes, or appliances. At its simplest, businesses are profit-maximizing entities that will seek ways to reduce costs in order to increase revenue. If we apply this thinking to a non-profit or for-profit organization providing a public service, the service providers will look to bolster the bottom line. The ways that providers do this is through cost-cutting mechanisms, such as cutting expensive services that produce little financial return for the organization (but may produce great return in the form of needed services for the recipient), and/or "cream-skimming," i.e., shift from meeting the needs of the hardest and most costly recipients to serving the least costly. This often results in dropping costly services that serve low-income individuals and families, while increasing services for which the "rich" can afford to pay.[14]

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The second way to reduce costs and increase revenue—and the issue explored in this report—is to cut or curtail labor costs. Labor costs can be reduced through limiting wage increases and benefits and by cutting staff and/or not hiring

10 Also referred to as Managerialism. See J. Clarke and J. Newman (1997). *The Managerial State.* London: Sage.

11 B. Noveck, (2021). Theories of Managerialism. *Political Science,* October 2021.

12 Ibid. In addition to cutting costs as a way to increase revenue, powerful incentives to be profitable are built into management systems. This comes in the form of containing costs through improving efficiencies to a mission-driven organization by placing pressure on employees by management to reach productivity and financial targets. If specified targets are not met, employees do not receive bonuses. Other mechanisms include charging internal management fees to partner organizations, for example. These can force low performing partner organizations to cut services to be able to afford the management fees.

13 Ibid.

14 See a recent article as an illustrative case: R. Robins, K. Thomas and J. Silver-Greenberg (2022). Big Hospital Chain's Cuts Ignited Its Staffing Crisis. *The New York Times,* 16 December.

staff when needed. Lean staffing is perceived as a financial strength, but this also places a severe burden on the staff who remain to take on increasingly unsustainable workloads.[15]

Therefore, the movement toward austerity and subsequent privatization of public services matters to the public because applying a model of market competition to the provision of public goods does not guarantee adequate levels of protection and service for the population as a whole, with all its complexities and myriad of needs.

AUSTERITY, PRIVATIZATION, AND 'DEINSTITUTIONAL-IZATION' IN NEW YORK'S MENTAL HEALTHCARE SECTOR: A REVIEW OF KEY POLICY CHANGES

Alongside the decades-long implementation of austerity and privatization measures, two other key forces have shaped the changing landscape of New York's mental health sector over the past 50 years: the political movement toward "deinstitutionalization"—moving patients out of large state-run psychiatric institutions in favor of community-based, outpatient care—and policies at the state and national levels targeting high and rising healthcare costs. These distinct goals of improving care on one hand and reducing costs and public spending on the other have intersected in complex ways in public policy and legislation.

The national move toward deinstitutionalization began in the 1950s, spurred by public outrage at inhumane treatment and poor living conditions in large, overcrowded state-run psychiatric institutions. An emerging reform movement advocated for treatment in less restrictive, community-based settings as a more ethical and effective approach for supporting people with mental illness, bolstering subsequent legal reforms that strengthened the civil rights of people institutionalized for disability and mental illness. At the same time, new directions in psychotherapy and the development of antipsychotic medications offered new options for treatment outside institutional settings.[16]

The passage of the National Mental Health Act of 1946 marked the entry of the federal government into the field of mental health policy, funding research on psychiatric illness (including authorizing the creation of the National Institute of Mental Health), training of mental health personnel, and states' development of clinics.[17] The Community Mental Health Act of 1963 was a subsequent piece of federal legislation that prompted significant deinstitutionalization nationally by committing to the establishment of community-based mental health services nationwide. The landmark creation of Medicaid in 1965 also supported this direction, as it included a prohibition on the use of Medicaid to pay for the cost of inpatient care for adults in "institutions for mental disease" (IMDs), which are "psychiatric hospitals or other residential treatment facilities that have more than 16 beds."[18] This prohibition means that states cannot receive any Federal Medical Assistance Percentage (FMAP) for care in such

15 Ibid.

16 Fisher, W. H., Geller, J. L., & Pandiani, J. A. (2009). The changing role of the state psychiatric hospital. *Health Affairs*, *28*(3), 676-684; Grob, G. N. (1994). Government and mental health policy: A structural analysis. *The Milbank Quarterly*, 471-500; The Pew Charitable Trusts and the John D. and Catherine T. MacArthur Foundation. (2015). Mental health and the role of states. Retrieved from https://www.pewtrusts.org/~/media/assets/2015/06/mentalhealthandroleofstatesreport.pdf

17 Grob, 1994

18 Pew and MacArthur, 2015; see also National Alliance on Mental Illness (NAMI). Medicaid IMD Exclusion. Retrieved from https://www.nami.org/Advocacy/Policy-Priorities/Improving-Health/Medicaid-IMD-Exclusion

institutions,[19] thus incentivizing states to shift delivery of care to outpatient settings where possible and to move inpatient care to general hospitals, in order to access federal government funds.[20] This latter shift has generally moved operational control of spending away from New York's Office of Mental Health (OMH) and toward administrators of public and private hospitals.[21]

Policies driving the process of deinstitutionalization led to a nationwide shift away from inpatient care in large state-run psychiatric institutions toward "community care" programs in less restrictive and outpatient settings and nursing homes, operated by private non- and for-profit providers. This change has continued into recent years and has also been entwined with federal and state policies restructuring the financing of mental healthcare. From 1955 to the end of the 20th century, the number of public psychiatric beds available decreased by 95%.[22]

In New York State, the process of deinstitutionalization took shape in the 1960s and 1970s, as the government began closing large state-run institutions in favor of smaller, regional, or community-based centers.[23] Yet this movement toward deinstitutionalization often coincided with budget cuts for public mental health programs in the 1970s and 1980s,[24] and it was widely charged that inadequate funding to create and maintain community alternatives severely undermined the success of deinstitutionalization.[25] Federal funding for the creation of Community Mental Health Centers (CMHCs) steadily declined even as the scope of who they were meant to serve expanded; in the 1980s, federal mental health funding was significantly reduced and converted into a block grant for the states.[26,27] Policymakers increasingly entwined the goal of deinstitutionalization with the goals underlying austerity and privatization measures, implementing downsizing and spending cuts through the reduction of beds, closure of institutions, and other restructuring initiatives that were framed as part of the transition toward community-based care, efficiency, and efficacy.

The passage of the 1980 Civil Rights of Institutionalized Persons Act (CRIPA) further strengthened the movement toward deinstitutionalization, authorizing the Department of Justice to protect the rights of people in state-run institutions such as mental health facilities, institutions for people with intellectual disabilities, public nursing homes, and state- or locally-run jails and prisons, among others.[28]

Yet the failure to effectively support alternative systems of care in that early stage of

19 The Assistant Secretary for Planning and Evaluation (ASPE) explains FMAPs as follows: "The Federal Medical Assistance Percentages (FMAPs) are used in determining the amount of Federal matching funds for State expenditures for assistance payments for certain social services, and State medical and medical insurance expenditures. The Social Security Act requires the Secretary of Health and Human Services to calculate and publish the FMAPs each year. The 'Federal Medical Assistance Percentages' are for Medicaid. Section 1905(b) of the Act specifies the formula for calculating Federal Medical Assistance Percentages." Retrieved from https://aspe.hhs.gov/federal-medical-assistance-percentages-or-federal-financial-participation-state-assistance

20 Pew and MacArthur, 2015; New York State Nurses Association (NYSNA) (2020). A Crisis in Inpatient Psychiatric Services in New York State Hospitals. Retrieved from https://www.nysna.org/sites/default/files/attach/ajax/2020/08/Psych%20Whitepaper%20NYSNA.pdf

21 NYSNA, 2020

22 Fisher et al., 2009.

23 Nicols, C. (May 20, 2022). Deinstitutionalization of Mental Healthcare in New York. NYC Department of Records & Information Services. Retrieved from https://www.archives.nyc/blog/2022/5/20/oq2ongk62te2ht5zrnlikfg0g6gv98

24 Nicols, 2022

25 See this Op-Ed as an example of critiques of how deinstitutionalization was carried out: *New York Times* Editorial Board. (September 16, 1984). Suffering in the Streets. *The New York Times*. Retrieved from https://www.nytimes.com/1984/09/16/opinion/suffering-streets-deinstitutionalization-22-letter-mouthful-that-once-referred.html?searchResultPosition=4

26 Parks, J., Radke A.Q., & Haupt, M.B. (July 2014). The Vital Role of State Psychiatric Hospitals. National Association of State Mental Health Program Directors (NASMHPD) Medical Directors Council. Retrieved from https://www.nasmhpd.org/sites/default/files/The%20Vital%20Role%20of%20State%20Psychiatric%20HospitalsTechnical%20Report_July_2014(2).pdf

27 After Medicaid, block grants are states' largest source of federal mental health funding (Pew and MacArthur, 2015).

28 Civil Rights of Institutionalized Persons Act, 42 U.S.C. § 1997 *et seq.* (1980). Retrieved from https://www.justice.gov/crt/civil-rights-institutionalized-persons; see also National Council on Disability. (2005). The Civil Rights of Institutionalized Persons Act: Has It Fulfilled Its Promise? Retrieved from https://ncd.gov/publications/2005/08082005

deinstitutionalization was widely recognized, including by a commission appointed in New York by Governor Mario Cuomo to review the state's mental health system. The commission found that planning was "budget driven with little relationship to local needs and resources" and that the system was fragmented, unaccountable, and often hindered needed access to care.[29] In 1986, New York's Office of Mental Health (OMH) announced a 10-year plan for reducing beds in state-run psychiatric facilities and moving care delivery more fully into general hospitals (for acute inpatient care) and community care sites (for less restrictive settings). The "reconfiguration" aimed to reduce the number of beds in state psychiatric facilities from 20,335 to 13,000 by 1996, while increasing the residential alternatives available—many to be run by voluntary providers rather than the state—and moving inpatients of state psychiatric institutions into psychiatric units in general hospitals so their care would be eligible for Medicaid reimbursement.[30] As inpatient psychiatric care was increasingly provided in general hospitals, inpatient psychiatric beds would come to be considered less desirable because they generated significantly lower-than-average net patient revenue per bed.[31]

The **Supreme Court's 1999 decision in Olmstead v L.C.** was a landmark case for the disability rights movement that further cemented the move away from large state-run psychiatric facilities, as it ruled that it was a form of discrimination under the Americans with Disabilities Act of 1990 for a public entity to institutionalize individuals with disabilities without justification.[32] This required states to provide care to psychiatric and behavioral health patients in the least restrictive setting possible, furthering the move toward community-based care.[33]

While much of the reduction of inpatient beds for psychiatric and behavioral health patients had been due to the closure of large state-run psychiatric facilities or cutbacks in their numbers of beds, further reductions flowed from broader healthcare system reforms that closed down or restructured general hospitals across the state—all rooted in stated goals of efficiency and reducing public spending on healthcare (and Medicaid budgets in particular). The Commission on Health Care Facilities in the 21st Century—popularly known as the "Berger Commission"—released a report in 2006 detailing the plan for a profound restructuring of New York's healthcare system, with the aim of significantly downsizing inpatient capacity in hospitals across the state over the subsequent three years.[34] This led to roughly one-quarter of all hospitals in New York undergoing some form of "reconfiguration," including the closure of nine hospitals, the elimination of 3,500 beds, mergers and consolidations of other hospitals, closures of nursing homes, and other forms of closure and service elimination.[35] By 2014, at least 18 hospitals

29 See information on the Select Commission's findings and recommendations: Mental Hygiene Task Force. (2005). An Evaluation of the Delivery of Mental Hygiene Services in New York State. Retrieved from https://assembly.state.ny.us/comm/Mental/20050303/

30 O'Connor, J. (September 5, 1986). New York Plan Raises Fears of Deinstitutionalization. *Newspaper of the American Psychiatric Association*, Vol. XXI No. 17 (1, 31). Retrieved from https://psychnews.psychiatryonline.org/doi/pdf/10.1176/pn.1986.21.issue-17

31 NYSNA, 2020

32 Medicaid and CHIP Payment and Access Commission (MACPAC). (July 2019). Twenty Years Later: Implications of *Olmstead v. L.C.* on Medicaid's Role in Providing Long-Term Services and Supports. Retrieved from https://www.macpac.gov/wp-content/uploads/2019/07/Twenty-Years-Later-Implications-of-Olmstead-on-Medicaids-Role-in-LTSS.pdf

33 MACPAC, 2019; NYSNA, 2020

34 Commission on Health Care Facilities in the 21st Century. (December 2006). A Plan to Stabilize and Strengthen New York's Health Care System: Final Report of the Commission on Health Care Facilities in the 21st Century. Retrieved from https://nyhealthcarecommission.health.ny.gov/docs/final/commissionfinalreport.pdf

35 New York State Department of Health. (2008). Report on Implementation of the Report of the Commission on Health Care Facilities in the Twenty-First Century. Retrieved from https://www.health.ny.gov/facilities/commission/docs/implementation_of_the_report_of_the_commission.pdf. There is also a note indicating there were "nine hospitals that permanently closed during the years 2009-2014" in Elias, M. (July 26, 2017). Are New York City's Public Hospitals Becoming the Main Provider of Inpatient Services for the Mentally Ill? New York City Independent Budget Office. Retrieved from https://ibo.nyc.ny.us/cgi-park2/2017/07/are-new-york-citys-public-hospitals-becoming-the-main-provider-of-inpatient-services-for-the-mentally-ill/

had closed statewide, and acute inpatient capacity had been reduced beyond the Berger Commission recommendations. The Commission had recommended a 6.4% reduction from 2004 certified bed capacity, but by 2014, New York had implemented a 19.7% reduction.[36]

In the wake of the 2007-08 global financial crisis, further federal and state austerity policies were implemented that dovetailed with the goal of reducing public spending—particularly Medicaid costs—in the name of efficiency. Although the New York State economy has grown steadily since the global financial crisis, the state "cut state aid to localities by US$1 billion in real terms between 2007 and 2015, and local governments cut expenditures across all categories, except for employee benefits (a state-mandated expenditure item; Kim, 2018) in response."[37]

After coming into office in 2011, Governor Andrew Cuomo implemented a number of fiscal austerity policies that shifted the burden of the state's fiscal stress down to local governments by cutting state aid to localities, limiting localities' tax revenue, and moving expenditures from the state level down to the local level.[38] The 2011 "tax cap" placed a limit on increases in property tax levy of local governments and school districts outside New York City.[39] Cuomo also applied a 2% cap on increased spending for all state operating funds since FY2012, which has constrained human services spending. While the cap has been applied more flexibly to specific areas such as Medicaid and school aid, the state budgets for human services aid to localities were cut by 26% from FY2011 to FY2018.[40] Full-time state employment in health dropped 23% in New York from 2010 to 2019, while the decline was 20% for full-time local employment in health.[41]

Alongside the general austerity and privatization ideologies spurring policy, a growing concern among policymakers was the high and rising cost of healthcare in the United States—a cost that did not yield comparably high rates of wellness and quality of care. Atul Gawande's influential 2009 article in The New Yorker put a spotlight on the way the existing "fee-for-service" reimbursement system incentivized doctors to overuse testing and services for greater profits, yielding outsized spending on healthcare without any improvement in health outcomes for patients.[42] The passage of the Patient Protection and Affordable Care Act (ACA) in 2010 included various types of incentives for states to restructure their health systems in ways aligned with this critique, including through moving away from fee-for-service reimbursements toward "value-based" care, delivery models that purport to tie reimbursements to quality of care provided, and integrated care delivery systems.

Medicaid reforms have also become a key site of

36 Berger, S. (September 9, 2013). Why NYC needs hospitals to close. *New York Post*. Retrieved from https://nypost.com/2013/09/09/why-nyc-needs-hospitals-to-close/. See also: Citizens Budget Commission. (November 29, 2016). The Berger Commission: 10 Years On. Retrieved from https://cbcny.org/sites/default/files/media/files/PRESENTATION_11292016_0.pdf

37 Aldag, A. M., Kim, Y., & Warner, M. E. (2019). Austerity urbanism or pragmatic municipalism? Local government responses to fiscal stress in New York State. Environment and Planning A: Economy and Space, 51(6), 1287–1305.

38 Aldag et al., 2019, citing Kim, Y. (2018). Limits of fiscal federalism: How narratives of local government inefficiency facilitate scalar dumping in New York State. *Environment and Planning A: Economy and Space*. Epub ahead of print August 29 2018.

39 Kim, Y. (2019). Limits of fiscal federalism: How narratives of local government inefficiency facilitate scalar dumping in New York State. Environment and Planning A: Economy and Space, 51(3), 636–653.

40 Parrott, J. & Butel, A. (March 2019). New York State's Historic Disinvestment in Human Services since the Great Recession: The Impact in New York City and Around the State. The New School Center for New York City Affairs. Retrieved from https://static1.squarespace.com/static/53ee4f0be4b015b9c3690d84/t/5c82aac7104c7b6a1da01bc3/1552067277497/NewYorkHistoricDisinvestment.pdf

41 Corra, C.L. (March 26, 2021). Fact Sheet: State and Local Government Employment has been Largely Static, with Full-Time Jobs Eliminated in Critical Areas. Fiscal Policy Institute. Retrieved from https://fiscalpolicy.org/factsheet-state-and-local-government-employment-has-been-largely-static-with-full-time-jobs-eliminated-in-critical-areas. Note: the quantitative analyses in our report are performed on subsets of the overall healthcare industry. As such, the contractions in state government work in MH-related industries described below will not be identical to this -23% figure.

42 Gawande, A. (May 25, 2009). The Cost Conundrum: What a Texas Town Can Teach Us About Health Care. *The New Yorker*, June 1, 2009 Issue. Retrieved from https://www.newyorker.com/magazine/2009/06/01/the-cost-conundrum See NYSNA, 2020 for a description of the impact of this article on the public and on policy reform.

Medicaid reforms have also become a key site of restructuring in New York's mental health sector, given that the costs of care for people with serious mental illness make up a significant portion of total Medicaid spending.

restructuring in New York's mental health sector, given that the costs of care for people with serious mental illness make up a significant portion of total Medicaid spending.[43] In 2011, Governor Andrew Cuomo created a Medicaid Redesign Team (MRT) to initiate a complete overhaul of New York's Medicaid system, aiming to sharply reduce state spending while also improving the quality and coordination of care. The reforms carried out were spurred by various federal and state policies, including incentives in the Affordable Care Act (ACA) for states to transform their health systems.[44] The reform process carried the banner of the "Triple Aim" advocated by the Centers for Medicare & Medicaid Services (CMS): improving quality of care, reducing "per capita" costs, and improving health by addressing root causes.

One of the initial major changes was the implementation of the Medicaid Global Cap that established a global limit on the yearly growth of the state's portion of Medicaid spending, and gave the Commissioner of Health the power to respond to high spending by changing reimbursement rates and applying utilization controls.[45] Another reform was prompted by the ACA's incentives for states to establish "health homes"—healthcare collaboratives among different providers that integrate and coordinate care for people with Medicaid who have chronic conditions or a serious mental illness. New York began implementing health homes in 2012, creating a variety of collaboratives with different structures that could include hospitals, long-term care facilities, and outpatient care providers aiming to more effectively coordinate patients' primary, acute, behavioral health, and long-term services.[46]

In 2014, the State secured a waiver from the federal government that allowed it to reinvest $8 billion of the federal savings generated by the MRT reforms into enacting further reforms. Of this money, $6.42 billion was allocated for the Delivery System Reform Incentive Payment Program (DSRIP) plan, which sought to incentivize safety net providers—hospitals and other healthcare providers that serve a significant number of patients who are enrolled in Medicaid,

43 Castillo, E.G., Pincus, H.A., Smith, T.E., Miller, G., & Fish, D.G. (2017). New York State Medicaid Reforms: Opportunities and Challenges to Improve the Health of Those with Serious Mental Illness. *Journal of Health Care for the Poor and Underserved 28*(3), 839-852.

44 Castillo et al., 2017

45 New York State Department of Health. A Plan to Transform the Empire State's Medicaid Program: Better Care, Better Health, Lower Costs. Retrieved from https://www.health.ny.gov/health_care/medicaid/redesign/docs/mrtfinalreport.pdf

46 Castillo et al. 2017; see also the definition of "Health Homes" provided by Medicaid, retrieved from https://www.medicaid.gov/medicaid/long-term-services-supports/health-homes/index.html

uninsured, or dually eligible (enrolled in Medicaid and Medicare)[47]—to collaborate in reducing "avoidable hospital use" by 25% over five years (2015-20).[48]

The "transformation agenda" implemented by Governor Cuomo in 2014 marked a new stage of restructuring in New York's Office of Mental Health (OMH) and the Office of People With Developmental Disabilities (OPWDD). The plan, which was billed as a roadmap toward achieving the aforementioned "Triple Aim" of better care, reduced costs, and better health, spurred another concerted push to move funds away from inpatient care and toward outpatient, community-based services.[49] Central to this transformation was the OMH's three-year plan to consolidate the 24 state-run psychiatric hospitals and create 15 "Regional Centers of Excellence"—networks of inpatient and community-based services—aimed at reducing costs spent on inpatient hospitalization for those with serious mental illness.[50] This led to the closure of state-run psychiatric facilities in a number of regions.[51] Combined with the DSRIP program, this marked the continued shift of state resources away from inpatient care and toward community-based, outpatient settings.[52]

Another element of Medicaid reform that sought to lower costs by creating a more fully integrated and better coordinated system of care was moving behavioral health services into Medicaid managed care, as had previously been done with general medical services.[53] In 2015, New York began moving Medicaid behavioral health benefits away from the fee-for-service funding system and toward a system in which outpatient mental health services would be reimbursed through managed care organizations (MCOs). This did not, however, change the Medicaid "institution for mental disease" exclusion described above.[54]

The trajectory of these policies and reforms has left New York's mental healthcare system highly reliant on private, non-profit providers of community-based care and general hospitals—both private non-profit hospitals and public safety net hospitals—and with a significantly reduced capacity for inpatient psychiatric care. Because inpatient psychiatric beds bring in far less revenue for hospitals than average revenue per medical bed, private non-profit hospitals have been reducing their number of inpatient psychiatric beds, and the resulting burden is increasingly placed on strained public hospitals.[55]

The number of certified inpatient psychiatric beds statewide (across all institutions) has declined by 12% from 2000 to 2018, dropping from 6,055 to 5,419. The Downstate region has seen the majority of these reductions, with New York City representing 72% of the reduction in inpatient psychiatric beds and the Long Island region accounting for 17% of the decline.[56] The inpatient capacity at New York's state psychiatric hospitals specifically was cut by 20% between 2013 and 2018, and these facilities now comprise just under 30% of the state's inpatient psychiatric capacity, while acute-care hospitals represent over 68% of that capacity. The cost of care in

47 See specific details of how "safety net provider" was defined for DSRIP here: https://www.health.ny.gov/health_care/medicaid/redesign/dsrip/safety_net_definition.htm

48 New York State Department of Health. DSRIP Overview. Retrieved from https://www.health.ny.gov/health_care/medicaid/redesign/dsrip/overview.htm

49 New York State Office of Mental Health (OMH). (2016). Office of Mental Health (OMH) Statewide Comprehensive Plan, 2016-2020. Retrieved from https://omh.ny.gov/omhweb/planning/docs/507-plan.pdf

50 New York State Office of Mental Health (OMH). (July 2013). OMH Regional Centers of Excellence. Retrieved from https://www.north-countrypublicradio.org/pdfs/rceplan.pdf

51 OMH, 2013; The Supportive Housing Network of New York. (July 11, 2013). OMH Releases Plan to Consolidate State-Run Psychiatric Hospitals. Retrieved from https://shnny.org/blog/entry/omh-releases-plan-to-consolidate-state-run-psychiatric-hospitals

52 OMH, 2016

53 OMH, 2016

54 Castillo et al., 2017. R. Robins, K. Thomas and J. Silver-Greenberg (2022) "Big Hospital Chain's Cuts Ignited Its Staffing Crisis", The New York Times, 16 December.

55 NYSNA, 2020

56 NYSNA, 2020

state psychiatric hospitals accounts for 20% of the OMH budget, while the average daily census in these facilities represents only 1% of the total number of people receiving mental health services in New York; policymakers often point to this high cost as a reason to continue reducing those beds.[57] In response to the COVID-19 pandemic, New York hospitals closed 1,050 inpatient psychiatric beds in 2020, to accommodate the surge of COVID-19 patients. Despite the allocation of $27.5 million to restore those beds in 2022, by the end of November only approximately 200 had been restored.[58]

Despite many years of reforms having the purported goal of creating better access to and coordination of care, a recent Crain's New York investigation highlighted severe barriers to access adequate care for people with serious mental illness, stemming from reduced inpatient capacity, lack of coordination among hospitals and community-care providers, financing that disincentives the maintenance of inpatient psychiatric beds, insufficient funding, and chronic understaffing.[59] Government funding for non-profit mental healthcare providers is often inadequate, leading to low wages for staff and staffing shortages that limit their ability to provide care and lead to services being cut; the poor working conditions impact a workforce that is predominantly female and disproportionately women of color.[60] As recently as November 2022, more than 1,000 individuals with a serious mental illness were on waiting lists for community-based programs that provide comprehensive and frequent mental health and social services.[61]

The reality of these barriers to access was highlighted in November 2022 when New York City Mayor Eric Adams announced a controversial plan to expand the use of involuntary commitment for homeless individuals with mental illness as part of his broader initiatives to reduce crime rates.[62] Advocates and healthcare providers denounced Adams' conflation of mental illness and criminality, warning also that an expansion of involuntary commitment would face legal challenges for discrimination against people with mental illness and disability. Critics have also pointed to the already strained capacity of hospitals and existing community-based programs.[63]

Recognizing the negative impact of years of disinvestment in New York's public mental healthcare system, Governor Kathy Hochul has increased resources put toward mental hygiene, both in New York's FY2023 budget and with the announcement in January 2023 of a $1 billion plan to address the mental healthcare system. FY2023 spending on mental hygiene has been projected to be 30% higher than the previous year's budget and twice as high as spending in the year prior to that.[64] The FY2023 budget included adjustments to the Medicaid Global Cap, an increase in Medicaid payments, funding

57 NYSNA, 2020

58 Geringer-Sameth, E. (November 28, 2022). Despite State Budget Funding, Little Progress Bringing Psychiatric Beds Back Into Service. *Gotham Gazette*. Retreved from https://www.gothamgazette.com/state/11696-ny-state-budget-little-progress-psychiatric-beds-hochul-adams

59 Kaufman, M. (September 19, 2022). Fatal Neglect: Homeless New Yorkers with serious mental illness keep falling through the cracks despite billions in spending. *Crain's New York Business*. Retrieved from https://www.crainsnewyork.com/health-care/homeless-new-yorkers-serious-mental-illness-keep-falling-through-cracks-despite

60 Parrott & Butel, 2019; Kaufman, Sept. 2022.

61 Kaufman, M. (November 30, 2022). New Yorkers face long wait for mental health programs. *Crain's New York Business*. Retrieved from https://www.crainsnewyork.com/health-care/more-1000-new-yorkers-await-spot-serious-mental-illness-programs

62 Newman, A. & Fitzsimmons, E.G. (November 29, 2022). New York City to Involuntarily Remove Mentally Ill People From Streets. *The New York Times*. Retrieved from https://www.nytimes.com/2022/11/29/nyregion/nyc-mentally-ill-involuntary-custody.html. See also the press release from the Office of the Mayor, "Mayor Adams Announces Plan to Provide Care for Individuals Suffering From Untreated Severe Mental Illness Across NYC." Retrieved from https://www.nyc.gov/office-of-the-mayor/news/870-22/mayor-adams-plan-provide-care-individuals-suffering-untreated-severe-mental#/0.

63 Newman & Fitzsimmons, 2022; Kanu, H. (December 8, 2022). New York plan for forced 'removal' of mentally ill tests limits of the law. *Reuters*. Retrieved from https://www.reuters.com/legal/government/new-york-plan-forced-removal-mentally-ill-tests-limits-law-2022-12-08/; Heyward, G. (November 30, 2022). NYC Mayor Adams faces backlash for move to involuntarily hospitalize homeless people. *NPR*. Retrieved from https://www.npr.org/2022/11/30/1139968573/nyc-mayor-adams-faces-backlash-for-move-to-involuntarily-hospitalize-homeless-pe.

64 Kaufman, Sept. 2022

for community-based programs and mental health clinics, and a 5.4% cost-of-living adjustment (COLA) for staff in state-run facilities for mental health and developmental disabilities.[65] Yet some non-profit officials commented that the funding increases were not large enough to ease acute staffing shortages and adequately fund programming, and that the COLA is effectively negated by inflation.[66] The governor's more recent $1 billion plan includes the creation of 3,500 units of housing for New Yorkers with mental illness; measures to compel state-licensed hospitals to restore the 850 inpatient psychiatric beds that remain closed since the beginning of the COVID-19 pandemic, and to open an additional 150 beds in state-operated psychiatric hospitals; expansion of outpatient services; and expansion of mental healthcare services provided in schools.[67] The plan has the stated goal of overhauling New York's continuum of mental healthcare and addressing some of the aforementioned barriers to access to care; it remains to be seen whether the funding will be sufficient to begin reversing the entrenched impact of underinvestment and whether it will be channeled toward care that adequately meets the needs of New Yorkers with mental illness.

Government funding for non-profit mental healthcare providers is often inadequate, leading to low wages for staff and staffing shortages that limit their ability to provide care and lead to services being cut; the poor working conditions impact a workforce that is predominantly female and disproportionately women of color.

65 Sim, S., Kaufman, M. & Deffenbaugh, R. (April 11, 2022). Here's what's in the state health and mental hygiene budget bill. *Crain's New York Business*. Retrieved from https://www.crainsnewyork.com/health-pulse/heres-whats-state-health-and-mental-hygiene-budget-bill

66 Kaufman, Sept. 2022

67 See details of the plan in "Governor Hochul Announces Comprehensive Plan to Fix New York State's Continuum of Mental Health Care" (January 10, 2023). Retrieved from https://www.governor.ny.gov/news/governor-hochul-announces-comprehensive-plan-fix-new-york-states-continuum-mental-health-care. See also Ferré-Sadurní, L. & Newman, A. (January 10, 2023). Hochul to Unveil a $1 Billion Plan to Tackle Mental Illness in New York. *The New York Times*. Retrieved from https://www.nytimes.com/2023/01/10/nyregion/hochul-mental-health-plan.html.

METHODS

Tentative answers to the research questions posed in the introductory section can be achieved through a combination of descriptive and inferential statistics using the data described in the previous subsection (see Appendix A, Table 1 for a description of the sources of data used in the quantitative analysis). Table 2, on the following page, re-states each research question (RQ) from above, along with the methods used to evaluate that question (final column of the table). Following the table, this subsection provides additional details on the methods employed in the remainder of this chapter.

Research question (RQ) 1 is concerned, straightforwardly, with the magnitude(s) and direction(s) of change(s) in the size of the New York State (NYS) mental health (MH) workforce in recent decades. Ascertaining such information can be accomplished using tools and techniques of descriptive statistics, including time series plots (line graphs) of Quarterly Census of Employment and Wages (QCEW) data on employment levels over time. Other descriptive tools, such as the percent change over time, add layers of interpretation to such plots. A supplementary method of inferential statistics, changepoint modeling, can be used to determine whether the workforce patterns being described are characterized by a nonrandom changepoint, after which workforce levels or (de)growth rates tend to take on different values. More explicitly, the changepoint model (CPM) looks for shifts in the location (e.g., median) and/or scale (e.g., variability) of a temporal distribution. A detailed treatment of the CPM framework goes beyond the scope of this report and can be found in works by Hawkins and Zamba[68] and Ross et al.[69] For present purposes, note only that the research team adopted a CPM based on a nonparametric Lepage statistic that seeks to detect changes in the location (e.g., median) and/or scale (e.g., variability) of a time series.[70]

The techniques described in the preceding paragraph were applied to QCEW data for four workforce variables: the annual average number of employees employed in (a) private sector hospitals (North American Industrial Classification System [NAICS] code 622); (b) NYS-owned hospitals (NAICS 622); (c) private sector Residential Intellectual and Developmental Disability, Mental Health, and Substance Abuse Facilities (NAICS 6232); and (d) NYS-owned facilities that fall within NAICS code 6232. Importantly, NAICS code 6222, which refers specifically to Psychiatric and Substance Abuse

68 Hawkins, D. M., & Zamba, K. D. A change-point model for a shift in variance. *Journal of Quality Technology*, 2005, 37(1), 21-31, https://doi.org/10.1080/00224065.2005.11980297.

69 Ross, G. J.; Adams, N. M.; Tasoulis, D. K.; Hand, D. J. A nonparametric change point model for streaming data. *Technometrics*, 2011, 53(4), 379-389, https://www.jstor.org/stable/41714951.

70 Ibid.

TABLE 2. Quantitative Research Methods

	Research Question (RQ)	Method(s)
1	How has the size of the mental health (MH) workforce in New York State (NYS) changed since 2000?	Descriptive statistics plus changepoint modeling
2	How has the composition of the NYS MH workforce changed since 2000, with respect to: (a) employer type (i.e., public, private for-profit, or private not-for-profit); and (b) worker demographics?	Descriptive statistics plus chi-square tests
3	By how much have inflation-adjusted median wages in the NYS MH workforce changed since 2000 (in the private sector and state government)?	Descriptive statistics plus quantile regression
4	Are relative changes in (a) the size and (b) wages in the NYS MH workforce of roughly equal magnitude to corresponding changes in the overall NYS workforce? To other fields in the health and social services industries?	Descriptive statistics
5	Is there a systematic association between patterns of wages and employer type (private sector, state government) in the NYS MH workforce?	Quantile regression
6	How has the capacity of MH services in NYS (e.g., the number of specialized facilities per capita) changed since 2000 (or first year of available data)?	Descriptive statistics
7	How have selected MH indicators in NYS changed in recent decades?	Descriptive statistics
8	Is there a systematic association between changing patterns of employment type in the NYS MH workforce and selected MH outcomes in NYS?	Descriptive statistics plus correlation analysis

Hospitals, is associated with missing data in the QCEW for state-owned facilities for the years 1990 through 2010. By contrast, NAICS code 622—a more general code that contains all hospitals, including those in category 6222—features relatively complete data for state-owned facilities for the entire period from 1990 through 2021.[71] Thus, the decision to study employment in all hospitals (NAICS 622), rather than psychiatric and substance abuse hospitals more narrowly (NAICS 6222), for this RQ was a function of data availability. Importantly, for all years in which employment data for state-owned hospitals (NAICS 622) and psychiatric hospitals (NAICS 6222) are jointly available, the latter accounts for 70% to 82% of all employment in the former. It is therefore reasonable to claim that most employees in state-owned hospitals are in the mental health–related workforce.

71 The only period of data that are missing in this category is the five years between 2014 and 2018. To fill in these missing observations, the research team leveraged the data from the rest of the time series to perform imputation using an exponential growth trend.

Next, because QCEW data do not break workers out by demographic characteristics, RQ2 is investigated with Census Public Use Microdata Sample (PUMS) data. Similar to the data availability issues described above for the QCEW, only PUMS data collected after 2018 make it possible to identify workers in the specific "Psychiatric and Substance Abuse Hospitals" industry (NAICS 6222). For that reason, it is again necessary to use the broader industry code for all hospitals (NAICS 622) to perform analyses for RQ2. Additional data reporting and availability issues affect employees of Residential Intellectual and Developmental Disability, Mental Health, and Substance Abuse Facilities (NAICS 6232). Because PUMS data do not cover this industry consistently over time, it is necessary to zoom out to the broader/parent NAICS code of 623M (Residential Care Facilities, except skilled nursing). According to QCEW data, employees in state-owned facilities that fall in NAICS code 6232 make up 81% to 90% of employees in all state-owned Nursing and Residential Care Facilities (NAICS 623).[72] Thus, as was the case above, it is reasonable to claim that most employees in state-owned residential care facilities are in the mental health–related workforce (i.e., using the broader 623M category will produce relevant findings about mental health–related workers).

With that caveat in mind, this report uses PUMS data from the 2000 long-form Census (precursor to the American Community Survey, or ACS), the 2010 five-year ACS, and the 2020 five-year ACS to study the changing size and composition of the combined NAICS 622 and 623M workforce in New York State. Simple descriptive statistics (e.g., percentage changes and frequency tables) are used to document key changes in worker sector (private v. state government) and demographics over time. Subsequent to these descriptive exercises, the report uses observed changes in the private sector side of the selected workforce (from 2000 to 2020) to create an "expected" demographic profile for the state government mental health–related workforce for 2020. This profile functions as a comparator for testing the null hypothesis that the changes observed in the composition of the state government mental health–related workforce mirror the changes observed in the private sector. A chi-square test is used to evaluate that hypothesis.

With respect to pay and earnings, RQ3 is concerned with changes to inflation-adjusted wages over time. Still, the analysis for this RQ begins with descriptive time series plots from the QCEW for average nominal earnings in selected industries (NAICS 622, 6222 [2011-2021 only], and 6232), by ownership (private v. state-owned), since 1990. That simple comparison acts as a benchmark against which to interpret additional findings (e.g., are wages in state-owned facilities habitually higher than, lower than, or relatively the same as wages in private sector facilities?). However, because QCEW data cannot distinguish full-time (FT) from part-time (PT) employees, the annual average earnings data from this source offer only a limited window into changing patterns of wages over time. To supplement that partial picture, the research team once again relies on Census PUMS data for 2000, 2010, and 2020. Using the same subset of workers from the relevant parent industries under examination (NAICS 622 [Hospitals] and NAICS 623M [Residential Care Facilities]), the research team computes the median inflation-adjusted (2022$) annual wages for workers who work for at least 35 hours per week and at least 48 weeks during the year. From there, median annual wages are compared using a technique called quantile regression. Quantile regression is an inferential statistical method that, in this case,

72 PUMS data do allow analysts to distinguish Nursing Facilities (NAICS 6231) from other Residential Care Facilities (623M), in which Residential Intellectual and Developmental Disability, Mental Health, and Substance Abuse Facilities are found. The broader NAICS 623 classification code contains both facility types.

functions something like multiway analysis of variance (ANOVA). Specifically, the method—which, unlike ANOVA and linear regression, makes no assumptions about the distribution of the dependent variable (annual wages)—compares median wages by sector (private/state government) and year. The results of estimating the model can be used to make determinations about whether median wages have increased (or decreased) over time, by sector, in ways that cannot be explained by chance alone.

For RQ4, simple descriptive statistics can be used to compare observed changes in PUMS data on wages in mental health–related industries to corresponding changes in (a) the broader Health Care and Social Assistance economic sector (NAICS 62), and (b) for the state government side of the mental health workforce, all employment at state-owned facilities, regardless of economic sector or industry.

The research team's approach to RQ5 builds on and extends analyses done for RQ3 by controlling for occupation. Specifically, for each Census PUMS dataset used in this project—2000 long form, 2010 five-year ACS, and 2020 five-year ACS—the researchers identify the 20 most common occupations across the two industries under investigation (NAICS 622 and 623M). From there, quantile regression is again used to compare median earnings by occupation and employer type (private sector v. state government). Tukey's honest significant difference (HSD) tests are then used to make pairwise comparisons between the median earnings of private sector and state government employees with the same occupation, by year (2000, ~2010, and ~2020). The patterns of results generated from these tests can reveal valuable insights about the extent to which key jobs in mental health–related industries pay public and private sector workers the same (or significantly different) wages.

Tentative answers to RQ6 and RQ7 effectively function as preludes to examining RQ8. The former questions are concerned with the extent to which observable mental health capacity and indicators, respectively, have changed over time. For RQ6, descriptive statistics (rates, line graphs, etc.) can be employed to create a picture of changing MH capacity, as measured using selected capacity variables from the Area Health Resources File (AHRF) datasets. Similar techniques can be used to summarize key outcome variables from New York State Vital Statistics data for RQ7. Crucially, when disaggregated to the county level of analysis, these variables can also be used to perform correlation analyses that quantify the strength and significance of the association between key capacity indicators (e.g., providers per 100,000 residents) and outcome measures (e.g., age-adjusted suicide rates per 100,000 residents). Correlation analysis can reveal the extent to which mental health capacity and populational health outcomes are systematically related. The results from these analyses can then be interpreted within the context of trends revealed in the changing levels of the mental health workforce (which are, themselves, key indicators of a place's capacity to treat mental health patients).

Taken together, the full suite of results from the above-described attempts to engage with RQs 1 to 8—combined with findings from exploring archival information that are presented elsewhere in this report—will allow for a robust discussion of how the MH industry has changed in recent decades, and whether those changes—particularly with respect to variation in public sector mental health employment and capacity—appear to have produced (or are producing) (un) desirable outcomes for New York and its residents.

FINDINGS

This section is divided into nine parts: one each for presenting key findings from analyzing this section's eight research questions using methods summarized in Table 2, and one that offers a brief working recap of those findings. The latter functions as a lead-in to the final subsection of this report, which presents interim conclusions derived from the totality of this project's quantitative analyses.

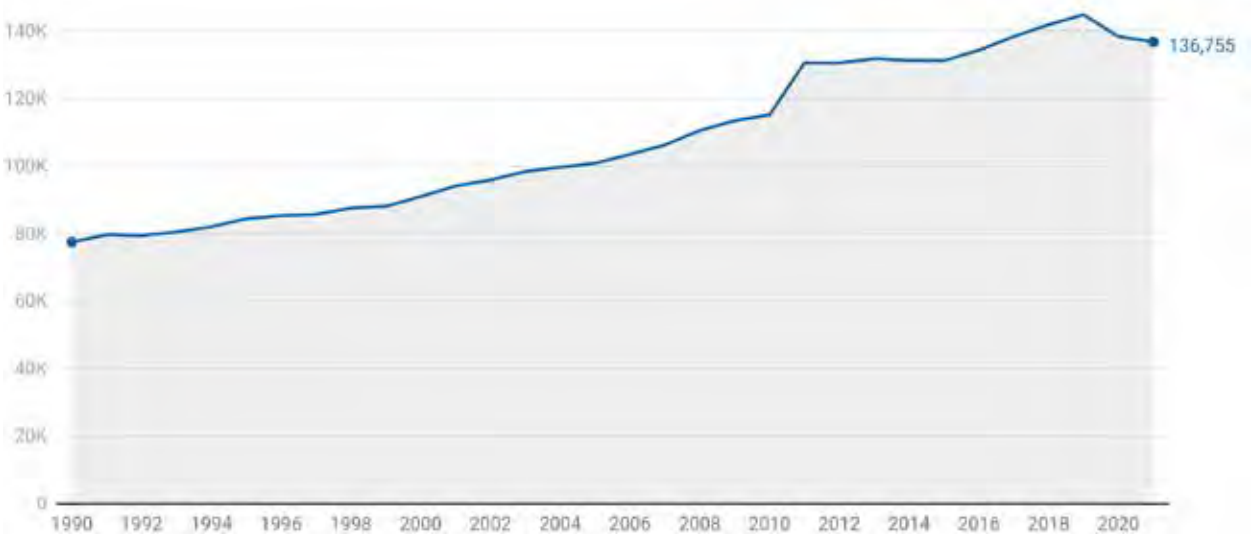
CHANGES IN THE SIZE OF THE MENTAL HEALTH WORKFORCE

Figure 1 shows the change in annual average employment levels in mental health–related industries in New York State, from 1990 through 2021. The two industries represented in the graph are Psychiatric and Substance Abuse Hospitals (NAICS code 6222) and Residential Intellectual and Developmental Disability, Mental Health, and Substance Abuse Facilities (NAICS 6232). The figure reports employment only for private sector– and state government–owned facilities in these industries.

As is evident in Figure 1, New York State's mental health–related industries have expanded steadily over the past three decades. Prior to the pandemic, employment in these industries grew at a rate of approximately 2.1% per year for 30 years (from 1990 to 2019). However, likely because of COVID-19 economic shutdowns, the mental health workforce represented in Figure 1 underwent a -4.5% year-over-year contraction between 2019—when employment peaked at more than 144,000 workers—and 2020. Employment contracted by an additional -1.1% between 2020 and 2021.

FIGURE 1. Statewide Employment Trend in Mental Health-Related Industries, 1990-2021

Annual Average Employment In Mental Health-Related Industries in New York State*



*The graph shows employment levels for Psychiatric and Substance Abuse Hospitals (NAICS 6222) and Residential Intellectual and Developmental Disability, Mental Health, and Substance Abuse Facilities (NAICS 6232). Total includes employment only at private sector- and state government-owned facilities.

Source: BLS Quarterly Census of Employment and Wages

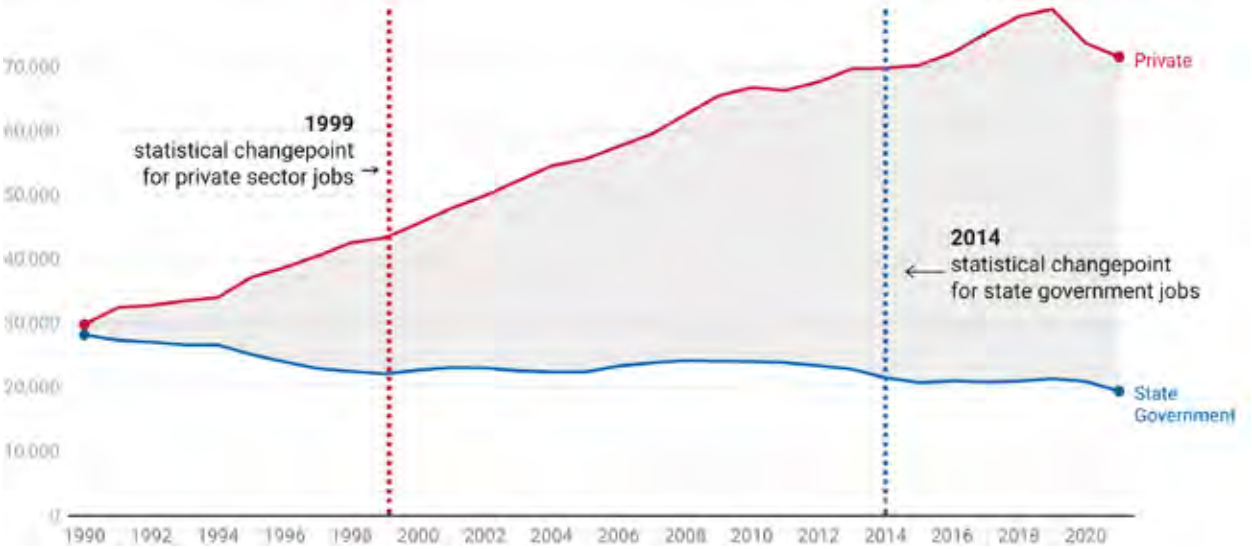
Despite these recent dips in employment levels, the general trend in the statewide mental health workforce has been one of growth. By the end of 2021, the combined number of jobs in private sector– and state government–owned mental health facilities (NAICS 6222 and NAICS 6232) was 76.6% higher than where it started three decades prior, in 1990. For comparison, the total number of private sector and state government jobs in the overall New York State economy grew by just 10.6% over the same time horizon, from roughly 6.9 million jobs in 1990 to 7.7 million jobs in 2021.

This tendency toward growth, however, is due exclusively to activity in the private sector. Mental health–related work in state government experienced substantive contraction over the past three decades. Figure 2 breaks out employment levels for jobs in Residential Intellectual and Developmental Disability, Mental Health, and Substance Abuse Facilities (NAICS 6232) by ownership type (private sector and state government). Between 1990 and 2021, private sector firms in this industry saw employment increase by nearly two-and-a-half times, from just under 30,000 jobs to more than 71,555 jobs—a 140% increase. At the same time, employment in New York State–owned facilities fell by -31.2%, from roughly 28,000 jobs in 1990 to just 19,406 jobs in 2021.

Included in Figure 2 are depictions of statistical changepoints detected in the two data series being graphed. According to the results of the research team's changepoint model (CPM) analyses, private sector employment in the NAICS 6232 industry experienced changepoint in 1999. Prior to that year, the median annual employment level in private sector residential mental health facilities was just over 34,000 jobs, with job growth occurring at approximately 4% per year for nine years (from 1990 to 1998). After the changepoint, the median annual employment

FIGURE 2. Opposing Trends in Private Sector and State Government Residential Mental Health Employment Levels, 1990-2021

Employment in Residential Mental Health Facilities (NAICS Code 6232), by Sector



The red dotted line represents the statistical changepoint detected in the private sector series. The blue dotted line is the statistical changepoint detected in the state government series. The former occurred in the year 1999, after which private sector jobs in residential mental health facilities generally increased. The latter occurred in 2014, after which state government jobs in residential mental health facilities fell to new lows.

Source: BLS Quarterly Census of Employment and Wages

level shot up to 66,329 jobs, but with growth occurring at a lower level of 2.2% per year (from 1999 through 2021). For the state government data series, a changepoint was detected in 2014. Before that year, median annual employment stood at 23,577 jobs, and job numbers were contracting at an annual average rate of -0.9% per year (from 1990 through 2013). After the changepoint, the median annual employment level fell to 20,913 jobs, with job degrowth occurring at a more severe rate of -1.3% per year (from 2014 through 2021).

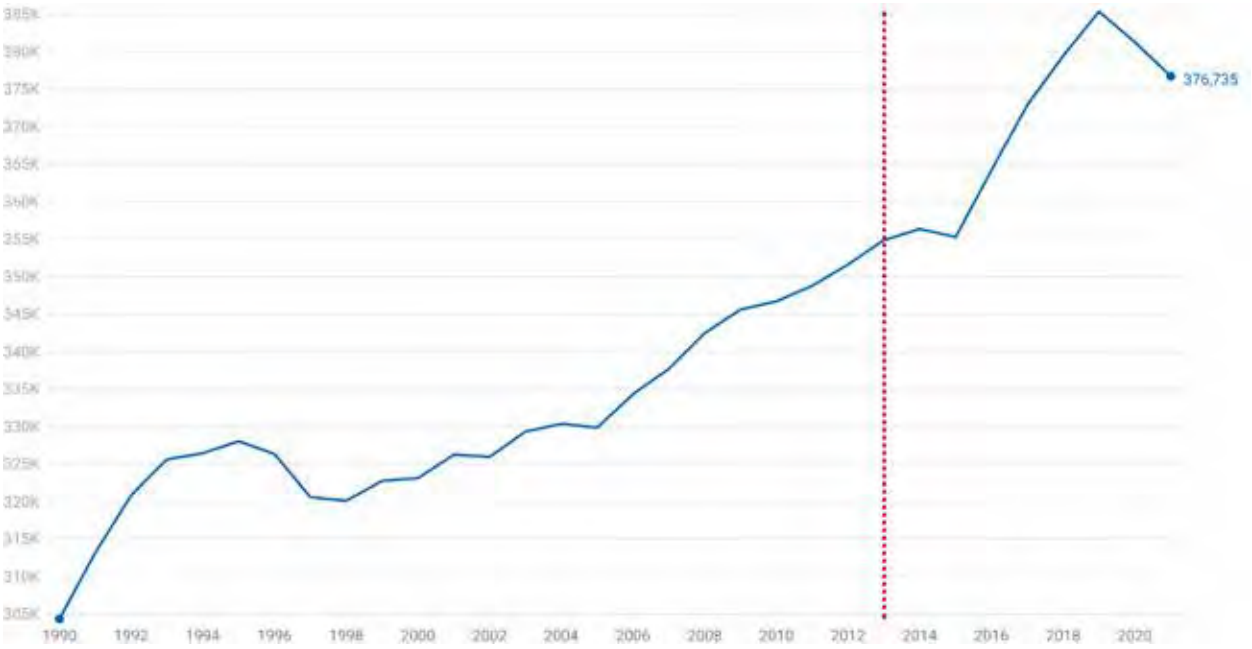
With respect to the other mental health–related industry of interest, Psychiatric and Substance Abuse Hospitals (NAICS 6222), Quarterly Census of Employment and Wages (QCEW) data for state-owned facilities is incomplete prior to 2011. However, recall that data for the broader category of state government–owned hospitals (NAICS 622) are mostly complete back to 1990.[73] Further recall that employment at state-owned Psychiatric and Substance Abuse Hospitals (NAICS 6222) account for upwards of 83% of employment at all state-owned hospitals (NAICS 622). For all these reasons, it was both necessary and reasonable for the research team to apply this portion of the analysis to QCEW data for the broader NAICS industry 622 (all hospitals).

That being said, trends in hospital employment in New York State mirror those from the residential mental health facility industry. Namely, the statewide private sector hospital workforce expanded greatly over the past three decades, while employment at state-owned hospitals was more than halved. Figures 3 and 4 show,

73 Curiously, these data are missing for the years 2014-2018. The research team interpolated these missing values from the surrounding 27 years' worth of observations (1990-2013, 2019-2021) using an exponential growth trend.

FIGURE 3. Statewide Employment Trend in Private Sector Hospitals, 1990-2021

Employment in Private Sector-Owned Hospital Facilities (NAICS Code 622)



The red dotted line represents the statistical changepoint detected in employment at private sector hospitals in NYS. The change occurred in the year 2013, after which employment levels grew rapidly up until the COVID-19 pandemic.

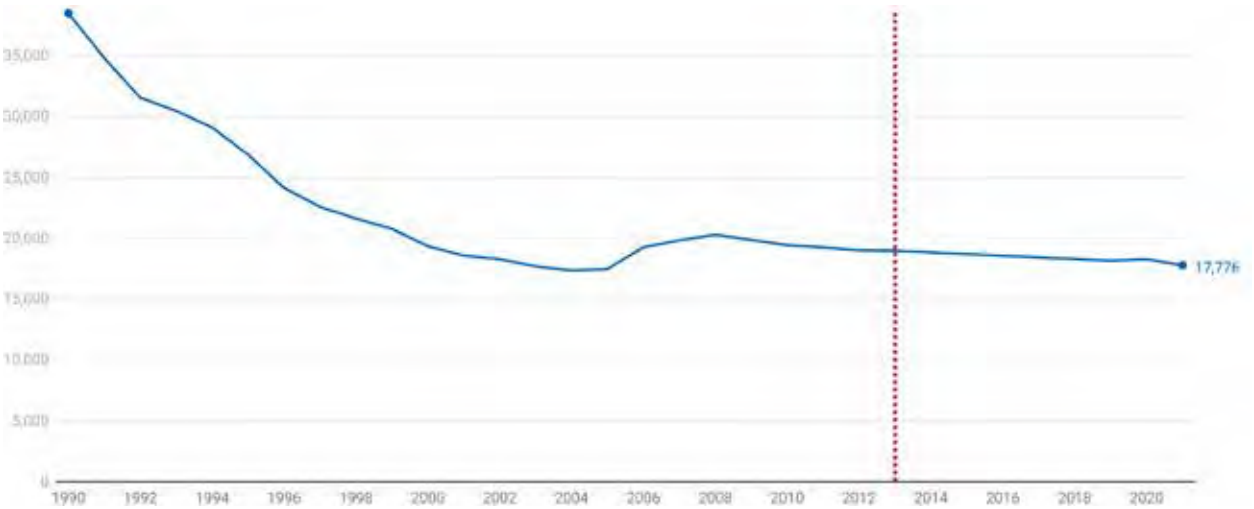
Source: BLS Quarterly Census of Employment and Wages

respectively, annual average hospital employment levels at private sector–owned (Fig. 3) and state-owned (Fig. 4) hospital facilities over time. With the exceptions of minor dips (a) in the mid-1990s (1995 to 1998), (b) between 2014 and 2015, and (c) during the recent coronavirus pandemic (2020 to present), employment at private sector hospitals has experienced steady growth in New York State for over 30 years running. Statistical analysis detected a changepoint in private hospital employment in 2013. Before that point, median annual employment in this industry was around 326,000 jobs per year, and job growth occurred at roughly 0.6% per year for more than two decades (1990 to 2012). After the changepoint, the median employment level had risen to almost 373,000 jobs, though the annual average job growth rate remained about the same (0.7% per year from 2013 to 2021). Over the entire time horizon, from 1990 to 2021, private sector hospital employment increased by 23.8%, from just over 304,000 jobs in 1990 to nearly 377,000 jobs in 2021. In that sense, private sector hospital job growth occurred at nearly double the magnitude of the overall New York State economy (10.6%) (note that this result offers a partial answer to RQ4a).

For New York State–owned hospitals, the situation is quite different. Between 1990 and 2021, employment in these facilities dropped -53.8%, from 38,451 jobs to 17,776 jobs. Results from CPM analysis suggest that 2013 marked a changepoint in state government–owned hospital employment. Before 2013, employment was falling rapidly, at -6.4% per year from 1990 to 2012. The median annual average employment level, however, was reasonably high at 29,073 jobs per year (76% of the local peak level observed in 1990 [38,451 jobs]). Since 2013, the median annual

FIGURE 4. Statewide Employment Trend in State Government-Owned Hospitals, 1990-2021

Employment in State Government-Owned Hospital Facilities (NAICS Code 622)



The red dotted line represents the statistical changepoint detected in employment at state government-owned hospitals in NYS. The change occurred in the year 1999, after which employment decreased at lower, but steady rates. Prior to the changepoint, employment fell at much faster rates.

Source: BLS Quarterly Census of Employment and Wages

TABLE 3. Quantitative Research Methods

Table 3 summarizes the key changes implicated in the preceding figures.

	Residential Intellectual and Developmental Disability, Mental Health, and Substance Abuse Facilities (NAICS 6232)		Hospitals (NAICS 622)	
Measure	**Private Sector**	**State Government**	**Private Sector**	**State Government**
Starting Employment (1990)	29,815	28,194	304,347	38,451
Changepoint	1999	2014	2013	1999
Pre-Changepoint Median	34,005	23,577	326,459	29,073
Pre-Changepoint Annual Average (De-)Growth Rate	4.0%	-0.9%	0.6%	-6.4%
Post-Changepoint Median	66,329	20,913	372,888	18,684
Post-Changepoint Annual Average (De-)Growth Rate	2.2%	-1.3%	0.7%	-0.7%
Ending Employment (2021)	71,555	19,046	376,735	17,773
Overall % Change, 1990-2021	140.0%	-31.2%	23.8%	-53.8%

level of employment in NYS-owned hospitals has been just 18,684 jobs, less than half of the 1990 employment level. Contraction has slowed, such that job loss has proceeded at just -0.7% per year since 2013. However, the overall trend since 1990 has been one of dramatic cuts to the size of the state government–owned hospital workforce.

CHANGES IN THE COMPOSITION OF THE MENTAL HEALTH WORKFORCE

Recall that, as was the case with some data in the QCEW (see above), data for specific mental health–related industries have not been reported consistently over time in the U.S. Census American Community Survey (ACS) Public Use Microdata Samples (PUMS). As such, it is necessary to again adopt second-best strategies to analyze the changing composition of the mental health workforce in New York State with PUMS data. The specific strategy used in this subsection is the same one from the prior subsection: because data are not consistently available for the specific industries of interest (NAICS codes 6222 and 6232) for the various time periods under examination (2000, 2010, 2020[74]), the research team zoomed out to relevant "parent" industries (here, NAICS 622 and 623M). Thus, herein, findings from analyses on PUMS data describe conditions for employees working in either Hospitals (NAICS 622) or Residential Care Facilities (NAICS 623M) in New York State.

Table 4 summarizes the number of workers, by sector (private v. state government), who, at the time they responded to the Census Bureau, reported that they were currently employed in one of the two mental health–related industries under examination (NAICS 622 or 623M). The trends from the PUMS data mirror the picture that emerged from the QCEW data above. Namely, the number of employees working in private sector mental health–related facilities grew markedly over the past two decades (+34.5%), with growth occurring relatively evenly before and after 2010. By contrast, the number of workers in state-owned mental health–related facilities decreased

74 Keep in mind that the 2010 and 2020 PUMS datasets contain observations that were collected during the five-year periods ending on those dates (e.g., 2010 data were collected between 2006 and 2010; 2020 data were collected from 2016 to 2020).

TABLE 4.
Opposing Trends in Number of Workers Working in Private Sector and State Government Mental Health–Related Industries in New York State, 2000-2020

Year	Private Sector	Decade-Over-Decade % Change (Private)	State Government	Decade-Over-Decade % Change (State Government)
2000	360,355	N/A	36,520	N/A
2010	421,889	17.1%	35,965	-1.5%
2020	484,801	14.9%	32,900	-8.5%
Overall % Change (2000-2020)		34.5%		-9.9%

meaningfully since 2000 (-9.9%), with the bulk of contraction happening in the most recent decade (after 2010).

Table 5 uses both QCEW and PUMS data to show the declining state government share of workers in mental health–related parent industries (NAICS 622 and 623M) since 2000.

TABLE 5.
Declining State Government Share of Employees in NAICS 622 and 623M Industries in New York State, 2000-2020

State Government Share of Workers in NAICS 622 and 623M (Combined)*

Year	QCEW	ACS PUMS
2000	8.1%	9.2%
2010	7.5%	7.9%
2020	6.6%	6.4%

*Only showing workers from NAICS 622 and 623 industries who work in the private sector or state government. Totals exclude workers who are self-employed or work for federal or local governments.

Crucially, the shrinking absolute (Table 4) and relative (Table 5) levels of state government employment in mental health–related industries do not appear to be race- and gender-neutral. Figure 5 breaks the state government totals from Table 4 out by these demographic characteristics. Observe that, from 2000 to 2020, the racial-ethnic group to experience the largest drop in its mental health–related state government workforce was Black or African American New Yorkers. More explicitly, over the past two decades, the number of Black or African American residents working in the state government side of NAICS industries 622 and 623M fell by 2,539 persons. For comparison, the number of white workers in these industries fell by nearly the same level (-2,368), but there were more than twice as many white workers than Black or African American workers in these mental health–related fields to start (i.e., in 2000). Thus, the loss of Black or African American workers in mental health–related state government industries occurred at a disproportionately high rate (-26.9% from 2000-2020) compared to white workers (-11.3%).

Accounting for gender, Figure 5 shows that Black or African American women have disappeared from the state government mental health–related workforce in the largest quantities over the past two decades. The number of workers from this group fell by 1,793 between 2000 and 2020, compared to a decrease of 1,680 white women. Once again, however, white women outnumbered Black or African American women in this workforce by more than two to one at the start of the analysis period—meaning that the latter experienced a disproportionately high rate of contraction (-26.5% between 2000 and 2020) relative to the former (-12.3%). The corresponding percentage change for Black or African American men (-27.6%) was even larger than the rate observed for Black or African American women, and roughly three times the rate observed for white men (-9.4%).

On a more positive note, the number of state government mental health–related workers who identify as either Asian (+938 workers [+39.1%]) or Hispanic/Latinx (+511 workers [+19.5%]) increased between 2000 and 2020. For Asian workers, this increase occurred for both men and women. For Hispanic or Latinx workers, the observed group-level increase was made possible only by a relatively large uptick in the number of women in NAICS industries 622 and 623M (+700 workers [+44.1%]) vis-à-vis a slight decrease in the number of Hispanic/Latinx men working in these fields (-189 workers [-18.3%]).

FIGURE 5. Breakdown of the State Government NAICS 622 and 623M Workforce in New York State, by Race-Ethnicity and Gender (2000-2020)

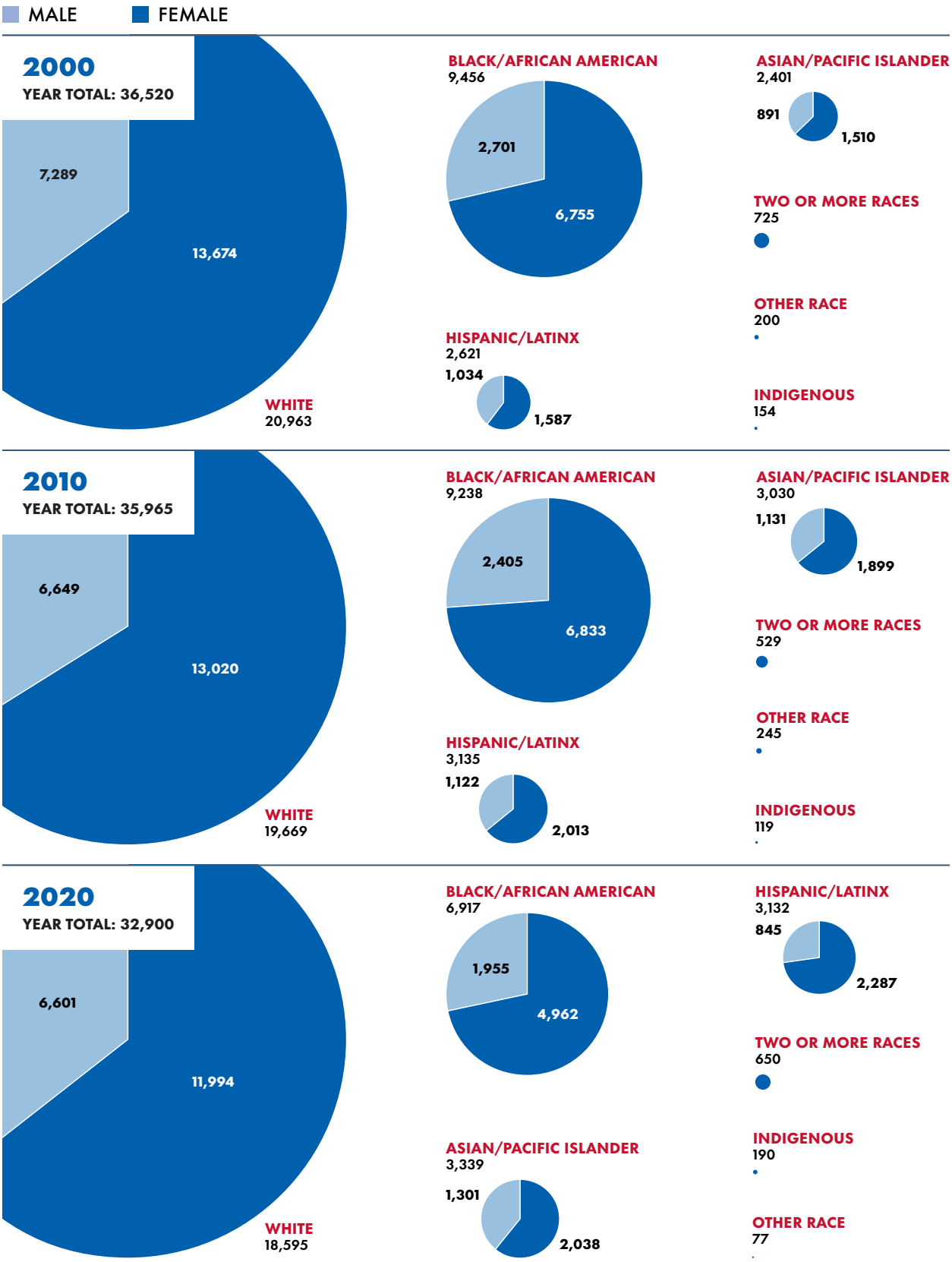
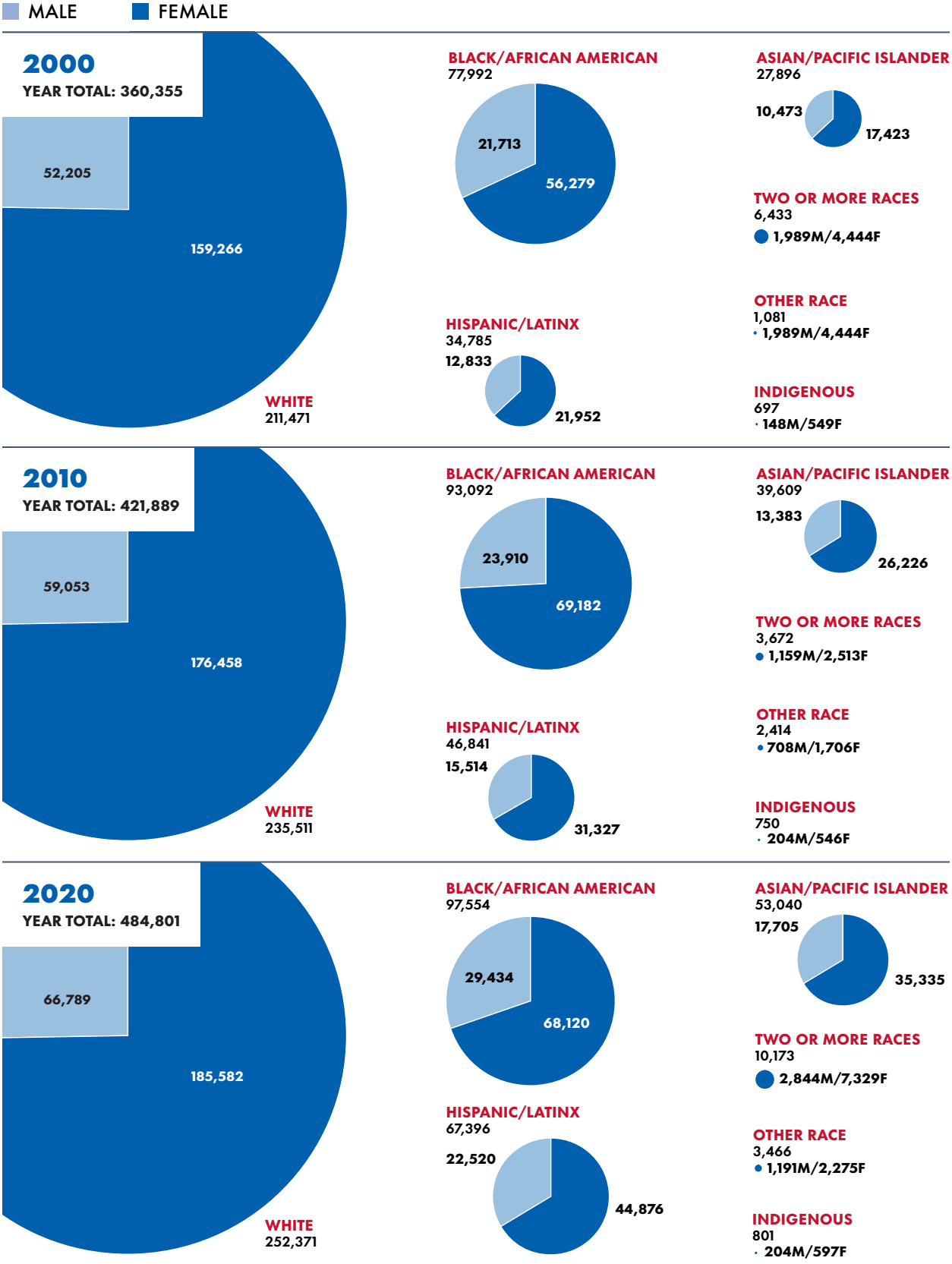


FIGURE 6. Breakdown of the Private Sector NAICS 622 and 623M Workforce in New York State, by Race-Ethnicity and Gender (2000-2020)

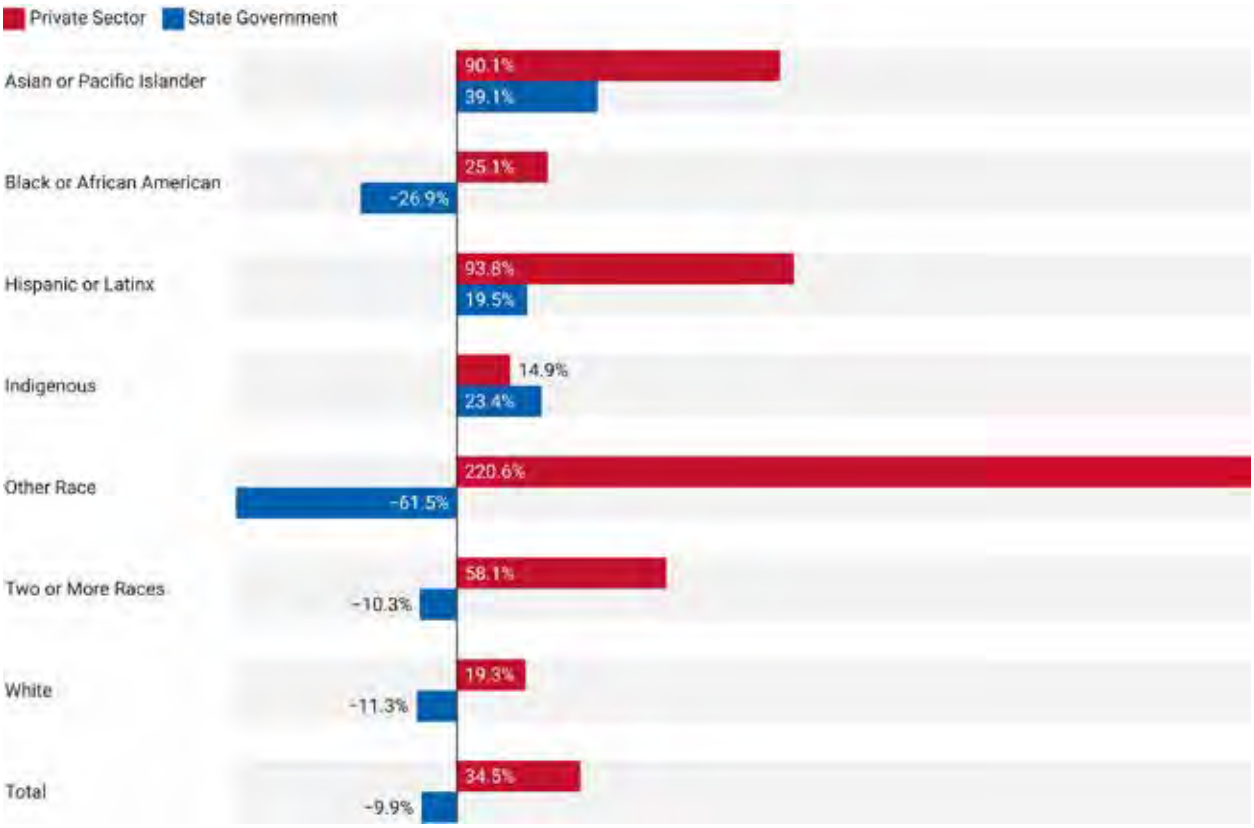


Nevertheless, the gains made in the number of state government mental health–related workers who identify as Asian or Hispanic/Latinx were far below corresponding gains observed in the private sector. Figure 6 reproduces the information shown in Figure 5, but for the private sector side of the NAICS 622 and 623M workforce. Contrasting with state government, private sector numbers in these industries increased across the board. All racial-ethnic/gender groups represented in NAICS industries 622 and 623M experienced gains in their private sector worker numbers over the past two decades. What is more, the percentage increase in the number of white workers (+19.3%) lagged well behind increases in all but one other racial-ethnic group (Indigenous workers [+14.9%]), meaning that the private sector mental health–related industries under investigation became meaningfully more racially-ethnically diverse since the start of the millennium. As expanded on below, the same is not true for the state government workforce.

Figure 7 compares the 2000 to 2020 percentage changes in mental health–related workers in private sector and state government facilities, by race-ethnicity. All information necessary to compute these percentage changes is available in Figures 5 and 6, above. Observe that, with the single exception of Indigenous workers (who,

Figure 7. Comparing Rates of Change in State Government and Private Sector Mental Health–Related Workforces from 2000 to 2020, by Race-Ethnicity

% Change in Number of Employees in Mental Health-Related Industries in New York State, 2000-2020, by Race-Ethnicity and Sector HOC



Industries shown: NAICS 622 (Hospitals) and 623 (Nursing and Residential Care Facilities)
Source: U.S. Census: 2000 Long-Form; 2006-10 ACS PUMS; 2016-20 ACS PUMS

in 2020, numbered just 801 in the private sector and 190 in state government), growth rates in the private sector mental health–related workforce significantly outperformed their counterparts in state government for all racial-ethnic groups. Even in cases where group numbers increased in state government between 2000 and 2020, gains were far outpaced in the private sector.

One consequence of the patterns illustrated in Figures 5 through 7 is that the private sector mental health–related workforce in New York State has become progressively more racially-ethnically diverse since 2000, whereas racial-ethnic diversity in the corresponding state government workforce has fluctuated up and down. Figure 8 provides a side-by-side comparison of the changing racial-ethnic composition of the NAICS 622 and 623M workforce in the private sector (left) and state government (right) over time. Following Figure 8, Table 6 reports an index of racial-ethnic diversity for each sector, by year. The diversity index, sometimes referred to as the Gini-Simpson Index,[75] essentially gives the probability that two randomly selected workers from a given workforce are members of different racial-ethnic groups. The higher the index (i.e., the closer to 100), the greater the diversity.

Note from the preceding figure and table that, in 2000 and 2010, the racial-ethnic composition of the NAICS 622 and 623M workforce in New York State was relatively similar in the private and state government sectors. In both years, though, the state government side of the workforce was slightly more diverse than the private sector. By 2020, however, patterns of employment growth in the private sector led to greater racial-ethnic diversity, whereas patterns of contraction in the state government sector left behind a slightly less diverse workforce. The takeaway is that declining state government employment in mental health–related industries is a phenomenon that has disproportionately affected workers of color—especially Black or African American men and women—to the point where the workforce has become less diverse over time.

As a final exercise, Table 7 compares the observed racial-ethnic distribution of the state government mental health–related workforce in 2020 to the distribution that one would expect if the state government sector experienced the same group-level growth rates (2000-2020) that occurred in the private sector (refer to Figure 7). Stated another way, the final column of Table 7 shows what the composition of the state government mental health–related workforce would be if it diversified in the same way that the private sector side of the industry has since 2000.[76] A final row in the table provides the observed 2020 diversity index for this workforce (see Table 6) compared to the diversity index that would have occurred if group-specific growth rates in state government followed their counterparts from the private sector.

TABLE 6.
Changing Racial-Ethnic Diversity of the New York State Mental Health–Related Workforce, by Sector (2000-2020)*

Year	Private Sector	State Government
2000	59.3	59.4
2010	61.8	62.0
2020	65.7	61.7

*The Diversity Index ranges from 0 (complete homogeneity) to 100 (maximum diversity). Higher values indicate greater racial-ethnic diversity.

75 Jost, L. 2006. Entropy and diversity. *Oikos, 113*(2): 363-375.

76 If observed racial-ethnic-group-specific growth rates from the private sector were to manifest in state government, the size of the state government MH-related workforce would be approximately one-and-a-half times larger (roughly 48,500 workers) than its observed 2020 level (32,900 workers).

FIGURE 8. Changing Racial-Ethnic Composition of the New York State Mental Health–Related Workforce, by Sector (2000-2020)

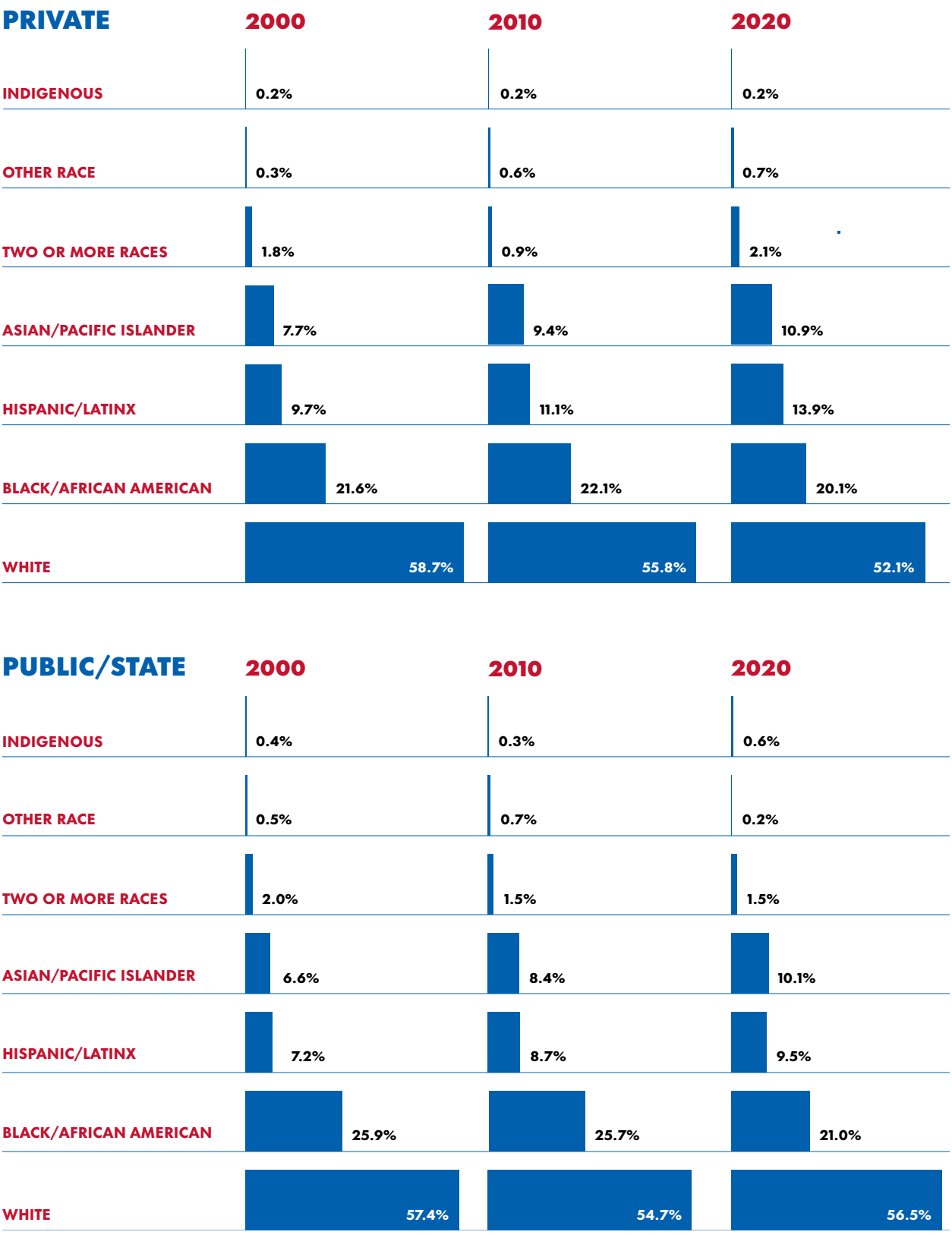


TABLE 7. Observed v. Expected Racial-Ethnic Diversity in State Government Mental Health–Related Work in 2020

Racial-Ethnic Group	Observed Share of the 2020 State Government Mental Health–Related Workforce	Expected Share of the 2020 State Government Mental Health–Related Workforce
Asian or Pacific Islander	10.1%	9.4%
Black or African American	21.0%	24.4%
Hispanic or Latinx	9.5%	10.5%
Indigenous	0.6%	0.4%
Other Race	0.2%	1.3%
Two or More Races	2.0%	2.4%
White	56.5%	51.6%
Diversity Index (Max = 100)	61.7	65.3

As shown above, if patterns of employment growth in state government mental health–related work followed the dynamics observed in the private sector, then the former workforce would be meaningfully more diverse than it presently is. The differences between observed and expected racial-ethnic compositions shown in Table 7 cannot be explained by chance alone. Namely, a chi-squared goodness of fit test of the null hypothesis that the two distributions shown in the table are the same is easily rejected in favor of the alternative that the state government mental health–related workforce is less racially-ethnically diverse than it would have been if it had followed private sector growth trends ().

In addition to contraction of state government mental health work disproportionately affecting workers of color, the phenomenon is almost certainly creating net losses in the number of union jobs in New York State. It is widely known that New York perpetually has one of the highest rates of public sector unionization in the United States.[77] Consequently, any contraction in public sector employment will have a disparate (negative) effect on union jobs, assuming that the number of union jobs lost in the public sector is not offset by equivalent gains in union jobs in the private sector. Because public sector union density in New York State tends to be about five times greater than union density in the state's private sector, it is highly unlikely that job gains in private sector mental health–related industries have offset the notable losses of union jobs on the public sector side of the workforce. According to the comprehensive payroll database of the New York State Public Employees Federation (PEF), there were 14,973 PEF members on payroll in New York mental health–related agencies (agencies with agency codes between 50000 and 54000 [see above]) in 2002 (excluding persons who were paid on a fee-for-services basis). That number grew at a rate of 1.8% per year between 2002 and

77 Statista. "Union membership rate of employees in the public sector the United States in 2021, by state." https://www.statista.com/statistics/368157/us-union-membership-rate-of-public-sector-employees-state/

2008, when it peaked at 17,007 PEF members on payroll in state mental health agencies. Since 2008, however, the number of PEF members on payroll at state mental health agencies has fallen by 2.9% per year, to the point where it sat at 11,408 workers in late 2022. In short, observable cuts in state government employment in mental health–related industries in recent decades have disproportionately impacted workers of color and union members in New York State.

CHANGES IN THE OVERALL WAGES OF WORKERS IN MENTAL HEALTH–RELATED INDUSTRIES

Recall that the Bureau of Labor Statistics' QCEW dataset reports not only employment numbers by industry and ownership type, but annual average wages. Figure 9 graphs these annual averages for NAICS industry 622 (Hospitals), by sector (private v. state government), since 1990. With the lone exception of 2020, which represents the height of the COVID-19 pandemic, average (nominal) wages in state government hospitals have exceeded those in the private sector consistently since at least 1990. The largest gaps between the two sectors occurred between 1999 and 2005, when average state government wages rose much quicker than average private sector wages. After 2005, however, average wages in state government hospitals fell, approaching (but still exceeding) the lower levels of the private sector. The seemingly anomalous spike in average annual state government wages in this industry at the end of the time series is a function of overtime pay made necessary by the COVID-19 pandemic. According to PEF records, state government agencies in the mental health sector paid employees an aggregate of approximately $141 million (or roughly $1,064 per employee) in overtime earnings in 2021.

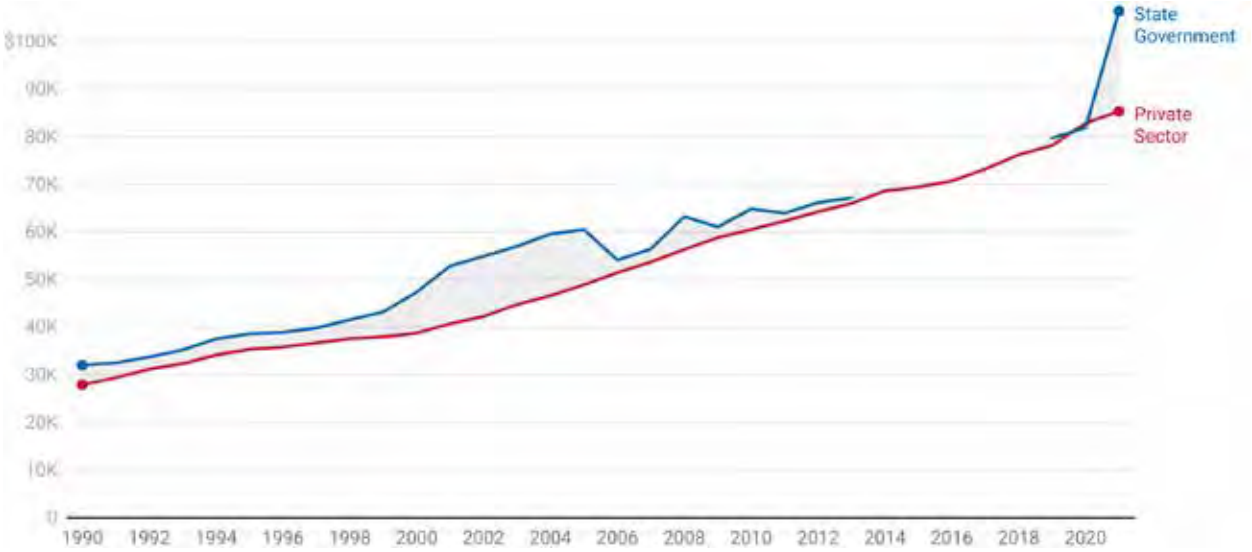
Figure 10 shows analogous QCEW data for the more specific subindustry of Psychiatric and Substance Abuse Hospitals (NAICS 6222). As discussed earlier in this chapter, data for state-owned facilities in NAICS 6222 are not included in QCEW releases prior to 2011. Consequently, these observations are missing from Figure 10. Still, the picture that emerges in the post-2010 years in Figure 10 is that annual average wages for employees at public sector hospitals are consistently higher than they are in private sector facilities. Once again, the spike at the end of the time series, in 2021, is an aberration created by atypically high levels of overtime (and, hence, overtime pay) caused by the COVID-19 pandemic.

Finally, Figure 11 shows the corresponding patterns of annual average wages for the other mental health–related sector of interest: Residential Intellectual and Developmental Disability, Mental Health, and Substance Abuse Facilities (NAICS 6232). Consistent with the prior two graphs, Figure 11 confirms that annual average wages in state government–owned residential mental health facilities are historically and consistently higher than corresponding wage levels in private sector facilities. The gap between wages in the two sectors grew most rapidly between 2005 and 2013. In 2014, however, average wages in state-owned facilities experienced a meaningful drop (in nominal dollars), which resulted in a slightly smaller gap that has remained relatively steady ever since (excepting an anomalous wage spike in state government facilities in 2021 that was due to atypically high overtime pay made necessary by the COVID-19 pandemic).

Descriptive plots of QCEW data show, with no ambiguity, that state government–owned facilities

FIGURE 9. Annual Average Wages in Hospitals (NAICS 622), by Sector, in Nominal Dollars (1990-2021)

Annual Average Wages in Hospitals (NAICS 622), by Sector, 1990-2021

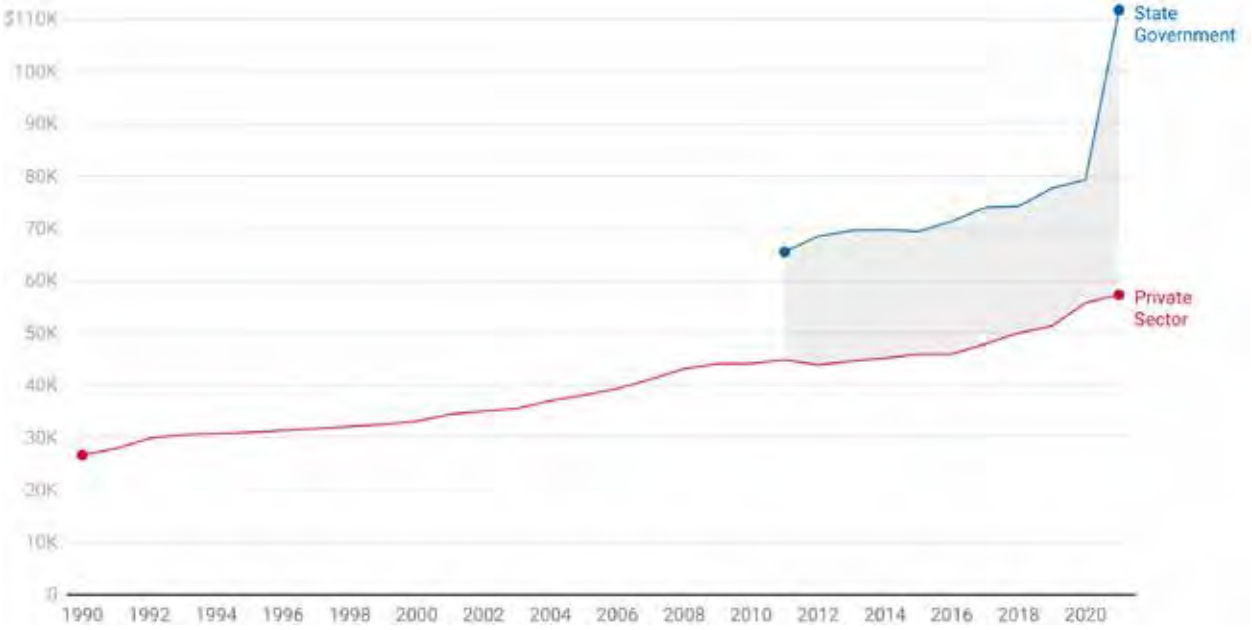


State government data are missing for the years 2014-18

Source: BLS Quarterly Census of Employment and Wages

FIGURE 10. Annual Average Wages in Psychiatric and Substance Abuse Hospitals (NAICS 6222), by Sector, in Nominal Dollars (1990-2021)

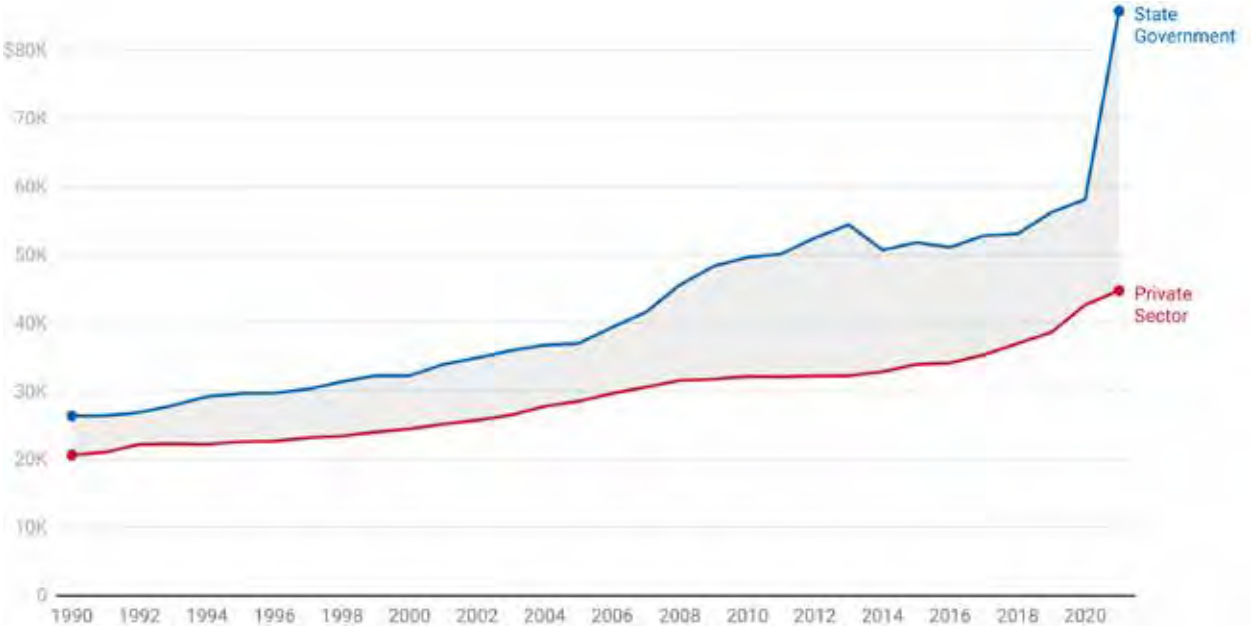
Annual Average Wages in Psychiatric and Substance Abuse Hospitals (NAICS 6222), by Sector, 1990-2021



State government data are missing for the years 1990-2010

Source: BLS Quarterly Census of Employment and Wages

FIGURE 11. Average Annual Wages in Residential Intellectual and Developmental Disability, Mental Health, and Substance Abuse Facilities (NAICS 6232), by Sector, in Nominal Dollars (1990-2021)



State government data are missing for the years 1990-2010
Source: BLS Quarterly Census of Employment and Wages

in key mental health–related industries tend to pay higher average annual wages than private sector facilities in the same industries. However, there are at least two key shortcomings with these QCEW-based descriptive plots. First, the data are reported in nominal dollars and, as such, do not allow for determinations about whether—and by how much—purchasing power for mental health workers has increased (or decreased) over time. Second, the data are annual averages computed from information on all workers. In addition to averages being sensitive to outliers, these aggregated figures do not distinguish between full- and part-time work.

To address these shortcomings and simultaneously fill in more of the mental health workforce wage picture, the Census PUMS data that were used in the preceding subsection can be subsetted to study patterns of inflation-adjusted wage changes (by sector and year) for full-time workers. Herein, full-time workers are operationally defined as employees who usually work at least 35 hours per week and at least 48 weeks per year. As was the case above, due to inconsistent industry reporting over time, the analyses in this subsection focus on the mental health–related parent industries of Hospitals (NAICS 622) and Residential Care Facilities (NAICS 623M).

Table 8 shows median annual wages, adjusted for inflation and reported in 2022 dollars,[78] for

78 The PUMS data for this project were acquired via IPUMS (Steven Ruggles, Sarah Flood, Ronald Goeken, Megan Schouweiler and Matthew Sobek. IPUMS USA: Version 12.0 [dataset]. Minneapolis, MN: IPUMS, 2022. https://doi.org/10.18128/D010.V12.0). IPUMS automatically converts dollar amounts into constant 2010 dollars. At the time of this writing (December 2022), the Bureau of Labor Statistics inflation calculator reports that $1 in 2010 is equal to $1.35 in 2022. Thus, all constant 2010 dollar figures from IPUMS were inflated by 135% to report values in 2022 dollars.

TABLE 8. Median Annual Wages for Full-Time Workers in NAICS Industries 622 and 623M in New York State, by Sector (2000-2020)

Year	Private Sector	State Government	Difference (State Government Median Less Private Sector Median)**
2000	$62,739	$60,345	-$2,394
2010	$63,125	$67,500	$4,375
2020	$70,349	$72,063	$1,714

**All sector-based differences are significant at a 99% level of confidence or better.

TABLE 9.
Change in Median Annual Wages for Full-Time Workers in NAICS Industries 622 and 623M in New York State, by Sector (2000-2020)

Decades	Private Sector	State Government
2000-2010	$386*	$7,155**
2010-2020	$7,224**	$4,563**
2000-2020	$7,610**	$11,718**

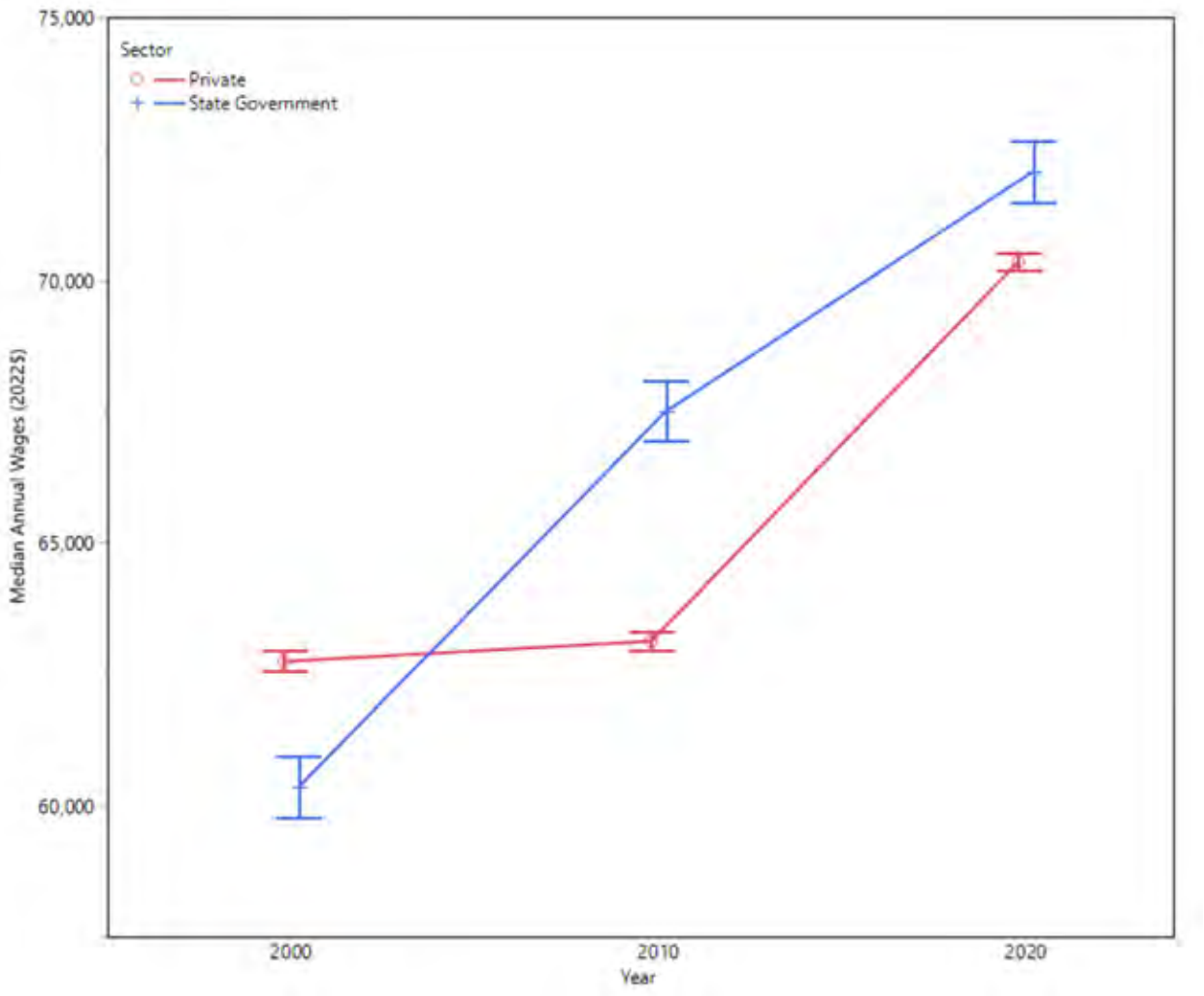
*Difference is significant at a 95% level of confidence;
**Difference is significant at a 99% level of confidence or better.

full-time workers in NAICS industries 622 and 623M, by sector (private v. state government), for 2000, 2010, and 2020. Following that information, Table 9 reports decade-over-decade changes in median wages over time, by sector. The quantities were derived and compared using a full factorial quantile regression model specification of annual inflation-adjusted wages on sector and year.

Figure 12 summarizes the essential information from Tables 8 and 9 visually. Observe that, whereas median annual wages on the state government side of the mental health–related workforce were lower than their private sector counterparts in 2000, steady and rapid growth in the former led to public sector wages becoming statistically significantly higher than private sector wages over time.

Adding to the emerging picture, contraction in state government mental health work means not only fewer workers of color in the public sector and fewer union jobs in the New York State economy, but a tendency toward lower wages in the state's mental health workforce.

FIGURE 12. Quantile Regression Results—Median Annual Wages for Full-Time Workers in Mental Health–Related Industries in New York State, by Sector and Year



WAGE CHANGES IN MENTAL HEALTH–RELATED INDUSTRIES RELATIVE TO COMPARISON INDUSTRIES

The findings presented in the preceding subsection show that wages in mental health–related industries in New York State have increased steadily and significantly for at least the past two decades, with the biggest gains coming for employees who work in state government–owned facilities. Median private sector wages and wage increases have lagged behind the public sector.

Situated in that context, RQ4 is interested in how the increases observed in median wages for full-time work in mental health–related industries compare to corresponding changes to median wages in (a) the overall healthcare and social assistance industry in New York State, and (b) the New York State economy as a whole. Table

TABLE 10. Median Annual Wages for Full-Time Workers in Selected Industries in New York State, by Sector (2000-2020) [All Values Reported in Inflation-Adjusted 2022$]

	Mental Health–Related Industries (NAICS 622 and 623M)		All Health Care and Social Assistance Industries (NAICS 62)		All Industries	
Year	**Private**	**State Gov.**	**Private**	**State Gov.**	**Private**	**State Gov.**
2000	$62,739	$60,345	$51,285	$56,927	$57,268	$67,696
2010	$63,125	$67,500	$53,195	$61,537	$58,733	$72,477
2020	$70,349	$72,063	$56,430	$66,253	$62,142	$76,067
% Change, 2000-2020	12.1%	19.4%	10.0%	16.4%	8.5%	12.4%

10 summarizes this information using the same Census PUMS data that have featured throughout this chapter.

Observe from Table 10 that increases to inflation-adjusted median wages for full-time workers in mental health–related industries between 2000 and 2020 were larger in magnitude than corresponding increases in the broader Health Care and Social Assistance industry (NAICS 62) and the New York State economy overall. Put another way, jobs in mental health–related industries in New York State have become better-paying relative to many other fields, especially in the state government side of the workforce. Thus, that the size of the state mental health workforce has been steadily contracting means that New York's workers are losing out on well-paying jobs.

WAGES BY EMPLOYER TYPE (PRIVATE SECTOR V. STATE GOVERNMENT) FOR TOP OCCUPATIONS IN MENTAL HEALTH–RELATED INDUSTRIES

Building on findings presented in relation to RQs 3 and 4 above, the results presented in this subsection speak to patterns of inflation-adjusted median wages for specific occupations in the mental health–related workforce in New York State, by sector, over time. Specifically, for each year of PUMS data under investigation (2000, ~2010, ~2020), the research team identified the top 20 most common occupations in mental health–related industries (NAICS 622 and 623M) for that year. Then, using the same quantile regression approach from the analyses for RQ3 above, the researchers estimated the median annual wage of full-time workers in that position, by sector and year. Pairwise comparisons were made across sectors to evaluate the extent

to which observed differences are statistically significant (i.e., the result of a nonrandom association between pay/wages and sector type [private v. state government]). The results of these analyses for 2000, 2010, and 2020 are presented, respectively, in Tables 11, 12, and 13, below. Table 14 summarizes the overall trends observed in these occupational analyses.

Instead of unpacking each individual result from Tables 11 through 13, by year (of which there are many), herein the focus is on overall patterns and trends. Toward that end, observe from Table 14 that there are, consistently, eight occupations for which full-time state government employees earn significantly higher median wages than their private sector counterparts. By contrast, there are only one to four occupations for which full-time private sector employees significantly out-earn their state government counterparts.

By and large, the occupations that pay significantly higher wages to state government employees tend to be working-class positions that are traditionally low-paying jobs in the private sector, such as: Maids and Housekeeping Cleaners; Janitors; Medical Assistants; Nursing, Psychiatric, and Home Health Aides; Personal Care Aides; Secretaries and Administrative Assistants; and Security Guards. Other positions where state government employees tend to out-earn private sector workers, but which tend to have higher educational and/or credentialing requirements, include Counselors and Social Workers. Importantly, these occupational categories—especially Social Workers—are highly diverse and include many types of professionals with various credentials and licensure requirements. Given how Census data are collected and published, it is not possible to distinguish between these different classes within the broader Social Worker occupation. As such, while the findings show that the median earnings of all types of Social Workers, combined, are higher for public sector compared to private sector employees, this outcome does not necessarily hold for each individual category of Social Worker. Such a possibility offers an interesting area for future, occupation-specific research.

On the other side of the equation, occupations for which private sector workers consistently out-earn state government employees tend to be comparably highly skilled, upper-income positions such as Physicians and Surgeons, Registered Nurses, and Physician Assistants. Notably, whereas private sector Medical and Health Services Managers earned significantly higher wages than their state government counterparts in 2000—which fits with the narrative of upper-level positions being better compensated in private sector facilities—this result flipped in 2010 and 2020. In those years, state government Managers out-earned their colleagues in private facilities.

The upshot is that, whereas state government employees in mental health–related industries tend to earn more than their private sector counterparts as a whole (Table 8), this result is especially true for historically working-class and lower-wage occupations. Thus, state government–owned mental health–related facilities have arguably offered a meaningful path to social and economic mobility for workers in these occupations. In that vein, contraction in mental health–related employment in state government not only undermines racial-ethnic diversity, disproportionately affects workers of color (Figure 8, Table 6), takes union jobs from the state economy, and puts downward pressure on wages in mental health–related industries; it also disproportionately affects working-class New Yorkers and their families.

TABLE 11. Median Wages for Full-Time Workers in Top 20 Occupations for Mental Health–Related Industries, by Sector (2000)

Top Occupation	Private Sector	State Government	Difference (State Less Private)
Billing and Posting Clerks	$47,866	$41,263	-$6,603
Clinical Laboratory Technologists and Technicians	$68,380	$58,464	*-$9,917***
Counselors	$47,426	$59,316	**$11,890****
Diagnostic Related Technologists and Technicians	$68,380	$72,654	$4,274
First-Line Supervisors of Office and Administrative Support Workers	$59,832	$62,226	$2,394
Health Diagnosing and Treating Practitioner Support Technicians	$49,573	$51,285	$1,712
Janitors and Building Cleaners	$47,866	$47,866	$0
Licensed Practical and Licensed Vocational Nurses	$51,285	$51,780	$495
Maids and Housekeeping Cleaners	$34,194	$39,319	**$5,125****
Medical and Health Services Managers	$89,153	$84,852	*-$4,301***
Medical Assistants and Other Healthcare Support Occupations, except dental assistants	$44,447	$52,768	**$8,321****
Nursing, Psychiatric, and Home Health Aides	$44,614	$49,340	**$4,726****
Office Clerks, General	$45,131	$42,737	-$2,394
Personal Care Aides	$34,306	$49,576	**$15,270****
Physicians and Surgeons	$136,257	$101,257	*-$35,000***
Receptionists and Information Clerks	$42,737	$37,608	-$5,129
Registered Nurses	$87,183	$85,466	*-$1,717***
Secretaries and Administrative Assistants	$48,120	$51,945	**$3,825****
Security Guards and Gaming Surveillance Officers	$51,285	$68,380	**$17,095****
Social Workers	$63,252	$75,209	**$11,957****

**Significant at a 99% level of confidence or better; bold text indicates significantly higher state government wages; italicized text indicates significantly higher private sector wages.

TABLE 12. Median Wages for Full-Time Workers in Top 20 Occupations for Mental Health–Related Industries, by Sector (2010)

Top Occupation	Private Sector	State Government	Difference (State Less Private)
Billing and Posting Clerks	$46,729	$49,367	$2,638
Clinical Laboratory Technologists and Technicians	$68,375	$71,110	$2,735
Counselors	$47,313	$61,537	**$14,224****
Diagnostic Related Technologists and Technicians	$82,337	$87,618	**$5,281^**
Health Diagnosing and Treating Practitioner Support Technicians	$49,402	$47,863	-$1,539
Janitors and Building Cleaners	$41,168	$47,863	**$6,695****
Licensed Practical and Licensed Vocational Nurses	$55,485	$53,333	-$2,152
Maids and Housekeeping Cleaners	$37,800	$36,450	-$1,350
Medical and Health Services Managers	$105,142	$113,603	**$8,460****
Medical Assistants and Other Healthcare Support Occupations, except dental assistants	$41,168	$48,195	**$7,027****
Nursing, Psychiatric, and Home Health Aides	$42,601	$49,230	**$6,630****
Office Clerks, General	$43,913	$40,500	-$3,413
Personal Care Aides	$34,306	$50,598	**$16,292****
Physician Assistants	$109,523	$105,297	-$4,226
Physicians and Surgeons	$109,523	$95,724	*-$13,798***
Receptionists and Information Clerks	$42,540	$38,424	-$4,116
Registered Nurses	$96,059	$94,920	-$1,139
Secretaries and Administrative Assistants	$45,441	$48,335	$2,894
Security Guards and Gaming Surveillance Officers	$51,111	$52,146	$1,035
Social Workers	$62,481	$72,730	**$10,249****

^Significant at a 90% level of confidence

**Significant at a 99% level of confidence or better; bold text indicates significantly higher state government wages; italicized text indicates significantly higher private sector wages.

TABLE 13. Median Wages for Full-Time Workers in Top 20 Occupations for Mental Health–Related Industries, by Sector (2020)

Top Occupation	Private Sector	State Government	Difference (State Less Private)
Billing and Posting Clerks	$48,368	$69,661	**$21,294****
Clinical Laboratory Technologists and Technicians	$68,245	$68,245	$0
Janitors and Building Cleaners	$41,919	$46,065	$4,146
Licensed Practical and Licensed Vocational Nurses	$53,113	$51,184	-$1,929
Maids and Housekeeping Cleaners	$36,806	$42,209	**$5,403****
Medical and Health Services Managers	$96,143	$107,100	**$10,957****
Medical Assistants	$46,065	$42,941	-$3,124
Medical Assistants and Other Healthcare Support Occupations, except dental assistants	$45,726	$49,244	$3,518
Nurse Practitioners and Nurse Midwives	$134,518	$132,490	-$2,028
Nursing Assistants	$42,610	$49,077	**$6,467****
Office Clerks, General	$46,065	$43,222	-$2,843
Personal Care Aides	$34,123	$51,247	**$17,125****
Physician Assistants	$132,436	$117,249	*-$15,188***
Physicians	$178,500	$181,987	**$3,487****
Radiologic Technologists And Technicians	$83,429	$57,580	*-$25,848***
Receptionists and Information Clerks	$39,154	$41,153	$1,999
Registered Nurses	$96,680	$89,856	*-$6,824***
Respiratory Therapists	$93,267	$67,107	*-$26,160***
Secretaries And Administrative, Except Legal, Medical, And Executive	$46,899	$55,277	**$8,378****
Social Workers All Other	$63,798	$72,063	**$8,265****

**Significant at a 99% level of confidence or better; bold text indicates significantly higher state government wages; italicized text indicates significantly higher private sector wages.

TABLE 14. Summary of Occupational Wage Analyses for Full-Time Workers in Mental Health–Related Industries in New York State (2000-2020)

Year	# of Top 20 Occupations for Which State Government Employees Earn Significantly Higher Wages	# of Top 20 Occupations for Which Private Sector Employees Earn Significantly Higher Wages	# of Top 20 Occupations for Which Wages are Not Significantly Different Across Sectors
2000	8	4	8
2010	8	1	11
2020	8	4	8

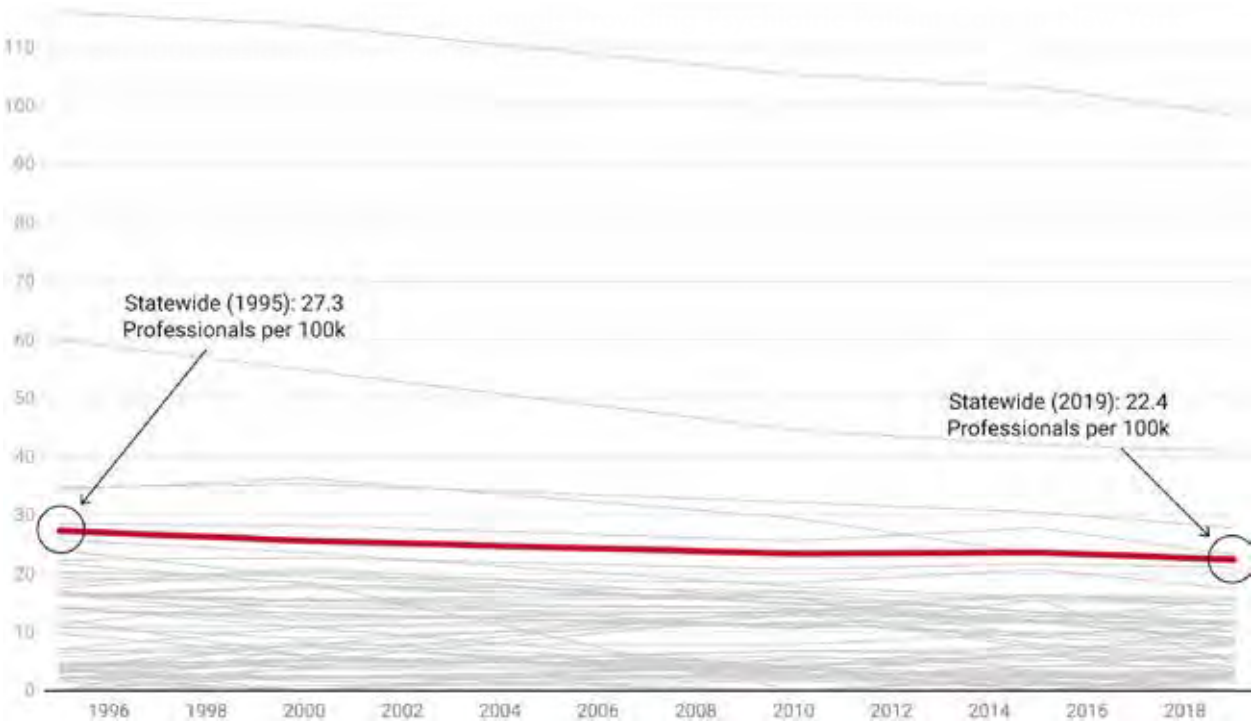
CHANGES IN SELECTED INDICATORS OF MENTAL HEALTH CAPACITY

According to the 2003 and current (2020-21) Area Health Resources Files (AHRFs) published by the U.S. Department of Health and Human Services (HHS) Health Resources and Services Administration (HRSA), the total number of healthcare professionals providing psychiatric patient care in NYS, per 100,000 residents, has been falling steadily since 1995.

As shown in Figure 13, there were roughly 27.3 total healthcare professionals offering psychiatric care per 100,000 New York State residents in 1995. (Note: the New York State Vital Statistics program provides annual county-level population estimates, such that each rate represented in the graphs that follow account for changing population levels.) That rate fell to 25.6 by 2000, continued to dip down to 23.4 in 2010, and was reported at around 22.4 per 100,000 persons in the most recent (2019) data release.

The map in Figure 14 shows the change in psychiatric care provider rates per 100,000 persons by county, from 1995 to 2019, accounting for population change. Over that time period, just 20 of the state's 62 counties experienced increases in psychiatric care capacity, measured by the number of providers per 100,000. Most counties (40 of 62) saw their capacity decrease. According to AHRF data, the remaining three counties (Essex, Lewis, and Livingston) had the same capacity (psychiatric care providers per 100,000) in 2019 that they had in 1995, which was zero. Notably, though, all three counties had nonzero rates of psychiatric care providers at various points in the past 25 years. For Essex, AHRF data show 2.6 providers per 100,000 in 2000; but that capacity had vanished from the records by 2010. For Lewis County, the provider rate was 7.4 per 100,000 in 2000. It then decreased to 3.7 per 100,000 by 2010 and reverted to zero by 2015 (where it remained in 2019). The provider rate in Livingston County, which had been at zero between 1995 and 2010, was reported at 1.6 per 100,000 in 2015. However, that figure returned to zero by 2019. Thus, even though Figure 14 suggests that these three counties were unaffected by the statewide tendency toward decreased psychiatric care provider capacity, they all appeared to experience a total loss of the capacity they had gained in the intervening years from 1995 (when all exhibited rates of zero providers per 100,000) to 2019. In that sense, effectively 43 of New York's 62 counties experienced drops in their rates of psychiatric care providers per 100,000 residents over the past 25 years. Aside from Hamilton

FIGURE 13. Declining Rates of Psychiatric Care Providers in New York State, 1995-2019



Source: AHRF 2003, 2019-20

County in the northeastern part of the state, the largest declines in this measure of mental health capacity occurred downstate (e.g., Westchester, New York, Orange, and Rockland Counties).

In addition to reporting data on the number of healthcare providers by specialization (e.g., psychiatric care), each AHRF gives a single-year snapshot of the number of facilities by specialization. Table 15 summarizes relevant facility figures from the 2003 and current (2020-21) AHRFs. According to AHRF data, the number of long-term (non-federal) children's psychiatric hospitals in New York State fell from five in 2003 to just two in 2019, though the number of such facilities classified as "short-term" rose from zero in 2003 to two in 2019. Even so, the total number of facilities in this category (long-term plus short-term) decreased by one during the period under investigation. For psychiatric hospitals more generally, the number of (non-federal) long-term facilities fell from 21 in 2003 to 17 in 2019; whereas the number of short-term facilities increased from seven to ten. Like the situation with children's psychiatric hospitals, then, the total number of facilities in this category dropped by one.

The data on specialized facilities published by AHRF suggest that dedicated mental healthcare capacity in New York State has been declining for at least the past 25 years. Due to missing establishment data for state government–owned facilities from the BLS QCEW, it is not possible to supplement the AHRF picture with more detailed and extensive counts of facilities that fall under the two mental health–related industries that have been explored thus far in this section (NAICS 6222 and 6232). However, coupled with the findings on the shrinking size of the state

FIGURE 14. Changes in the Rate of Total Psychiatric Care Providers per 100,000 Residents in New York State, by County, 1995-2019

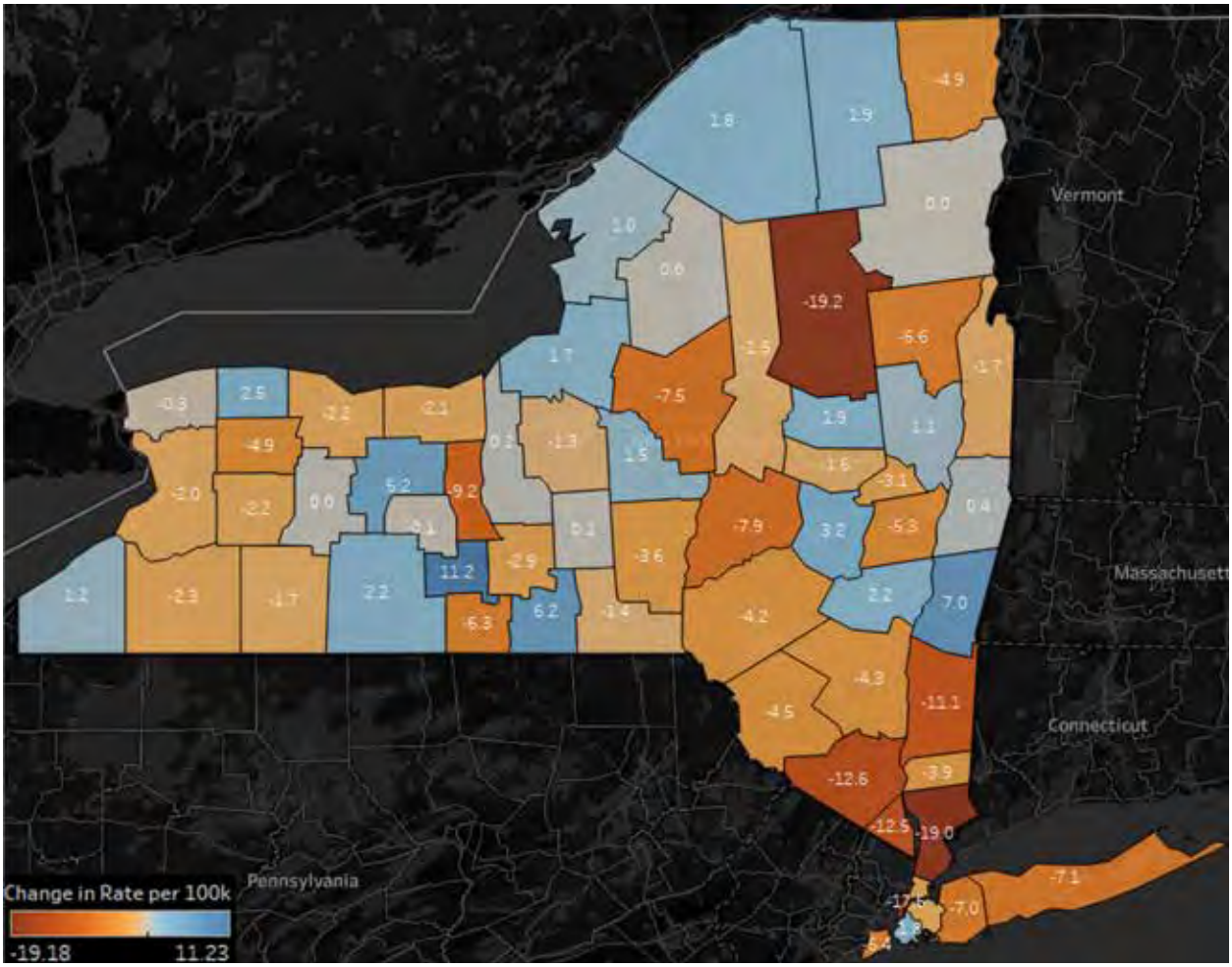


TABLE 15. Changes in Selected Specialized Hospital Facilities Numbers, as Reported in the 2003 and 2020-21 Area Health Resources Files

Type	Duration	2003	2019	Change
Children's Psychiatric Facilities	Long-term	5	2	-2
	Short-term	0	2	+2
	Total	5	4	-1
Psychiatric Facilities	Long-term	21	17	-4
	Short-term	7	10	+3
	Total	28	27	-1

government mental health workforce presented above, the partial picture painted by the AHRF data support the assertion that mental healthcare capacity—at least on the state government side—has been undergoing contraction in New York State. As shown in Figure 14, that contraction is a statewide phenomenon, though the heaviest losses are arguably occurring downstate.

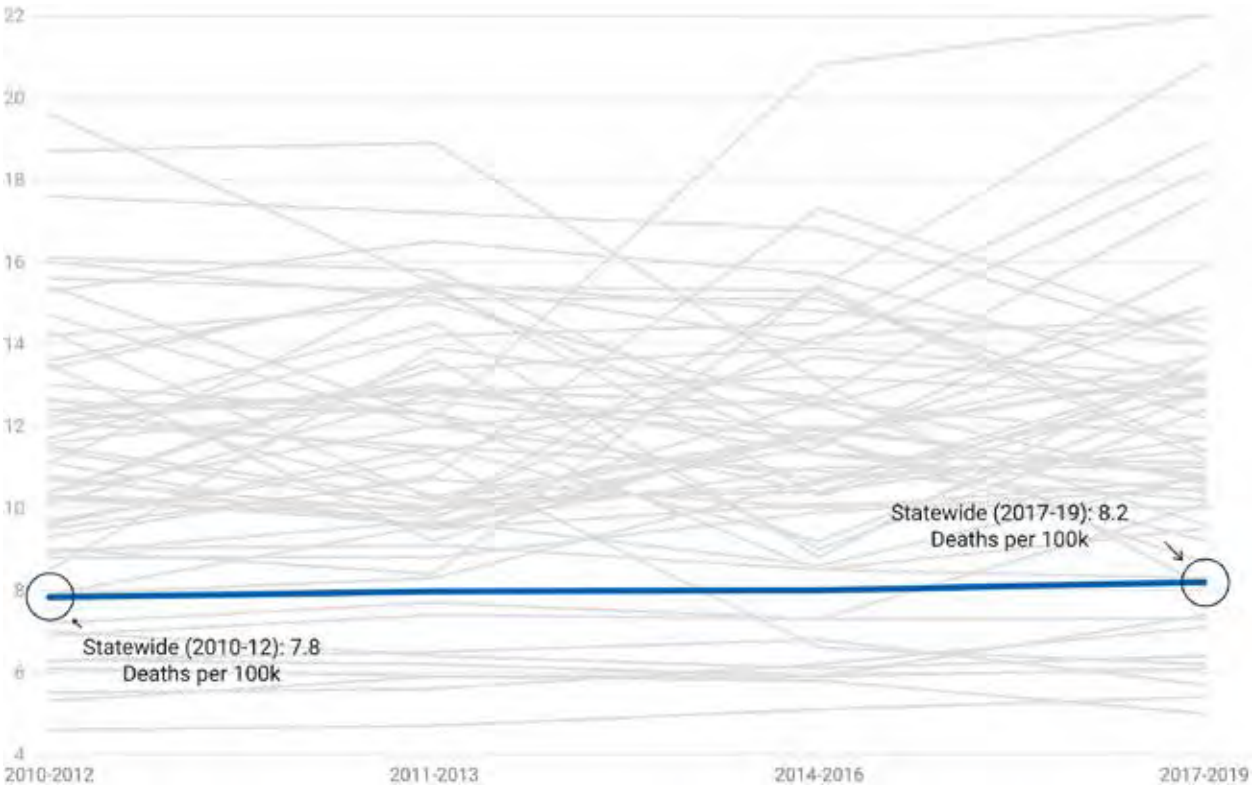
CHANGES IN SELECTED INDICATORS OF STATE- AND COUNTY-LEVEL MENTAL HEALTH FOR THE POPULATION

Two readily accessible indicators that the literature suggests are related to population-level mental health status are suicide rates and hospitalizations due to self-inflicted harm.[79] Data for these indicators are available from the Vital Statistics

79 See footnote 90.

FIGURE 15. Age-Adjusted Suicide Rates in New York State Counties Over Time

Change in Age-Adjusted Suicide Rates in New York State, per 100k Residents, by County (2010-12 through 2017-19)



Graph excludes Hamilton, Schuyler, and Yates Counties. All three counties were associated with data quality flags in more than one of the time periods under investigation

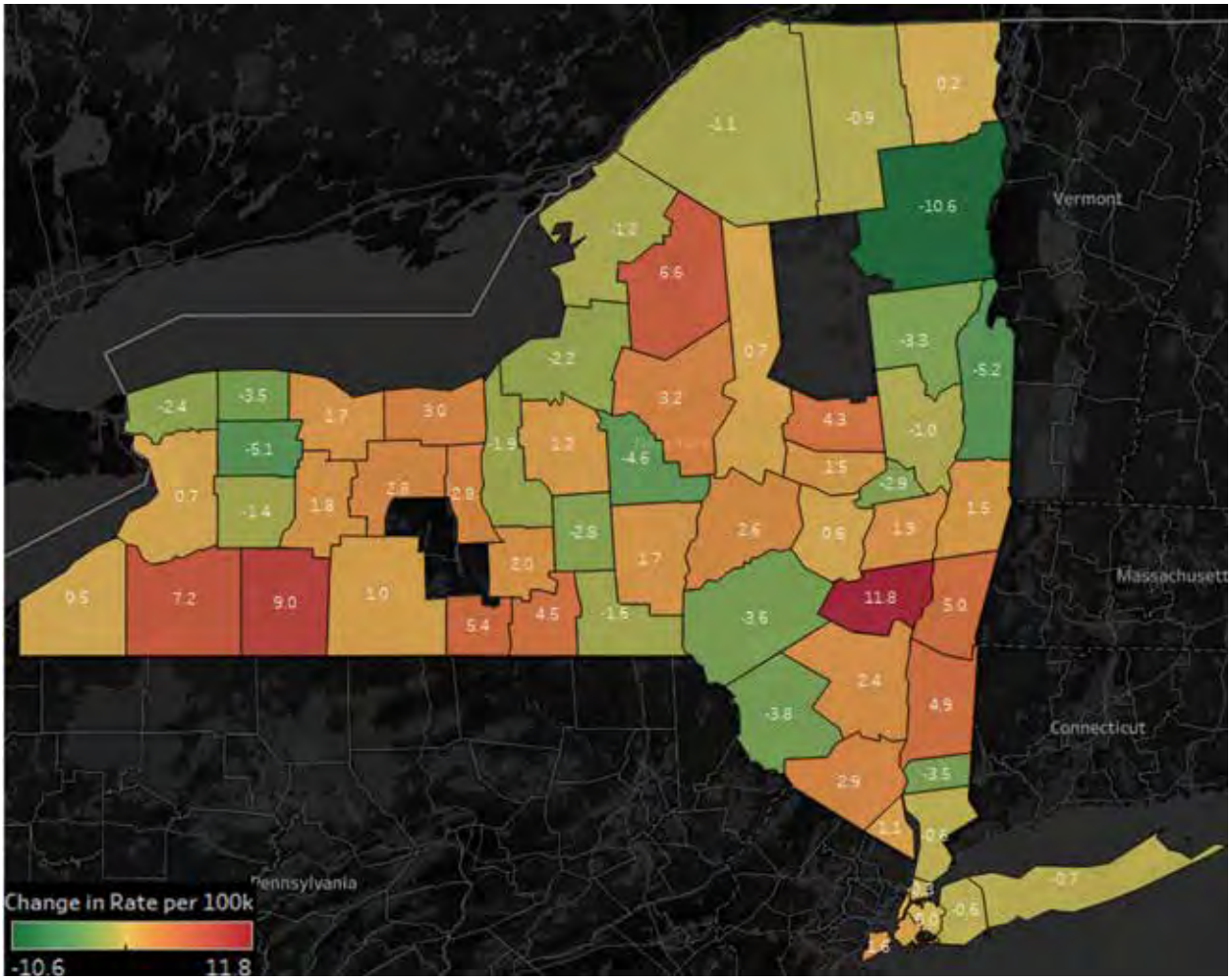
Source: NYS Vital Statistics

program via the New York State Department of Health (NYS DOH). Because annual estimates can be unstable in smaller counties, NYS DOH publishes these indicators for three-year intervals. Figure 15 (previous page) plots age-adjusted suicide rates (per 100,000 residents) for each county[80] in New York State for the four periods covered by the DOH Vital Statistics dataset. Each light gray line in the graph represents an individual county. The bold red line shows the statewide rate during each of four mostly non-overlapping time periods for which data are available. Although the statewide age-adjusted suicide rate has remained relatively constant over the past decade, it did inch up from 7.8 deaths per 100,000 in 2010-12 to 8.2 deaths per 100,000 in 2017-19. In that respect, at least one indicator of population-level mental health in New York State has been stagnant or worsening in the last decade, rather than improving.

80 The graph excludes Hamilton, Schuyler, and Yates Counties. These three counties were all associated with data quality flags (from NYS DOH) in more than one of the time periods under investigation. Essex and Orleans Counties were each associated with data quality flags in just one of the four periods. Because they were only flagged once, and not multiple times, these counties were included in the analyses.

The map in Figure 16 shows changes in age-adjusted suicide rates (per 100,000 residents) by county, from the first (2010-12) to the most recent (2017-19) period for which data are available.

FIGURE 16. Changes in Age-Adjusted Suicide Rates per 100,000 Residents in New York State, by County, 2010-12 to 2017-19



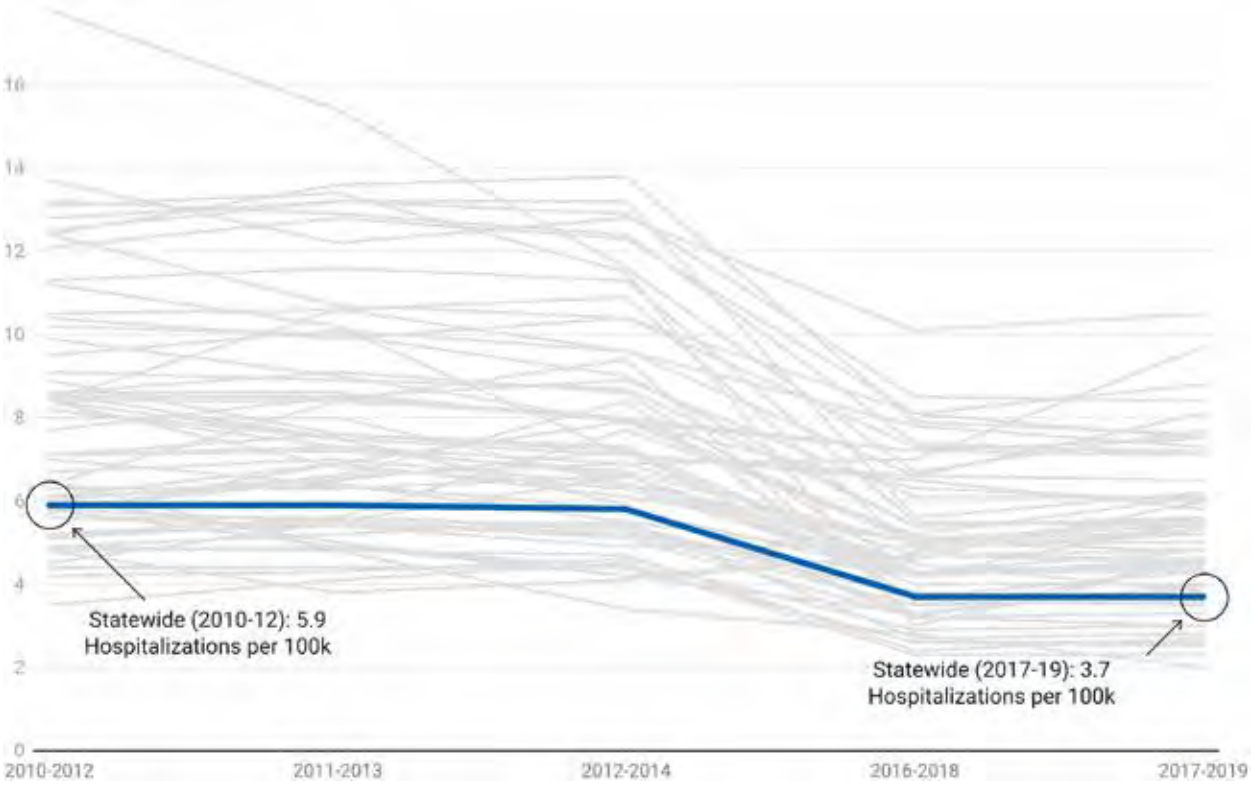
Three counties (Hamilton, Schuyler, and Yates) are excluded from the map due to data quality issues, as flagged by DOH, in multiple time periods. The majority of counties shown (34 of 59) experienced increases in age-adjusted suicide rates over [roughly] the past decade. A minority (24 of 59) saw suicide rates fall, while one county (Queens) saw no change in its suicide rate. These findings reinforce the emerging picture and working finding from above: at least one indicator of population-level mental health in New York State (suicide) has, on balance, been stagnant or worsening in the last decade. Only a minority of areas in the state were linked to improvements in age-adjusted suicide rates.

Figures 17 and 18 replicate for rates of self-harm hospitalizations per 100,000 residents, respectively, the information produced in Figures 15 and 16 above for suicide rates. Both figures exclude Hamilton County, which was associated with multiple NYS DOH data quality flags during the time periods covered in the Vital Statistics dataset.

Unlike the latter mental health indicator, the former has shown evidence of improvement over time. Statewide, the rate of hospitalizations due to self-harm (per 100,000 residents) fell from 5.9 in 2010-12 to 3.7 in 2017-19, the most recent period for which data are available. What is more, this falling trend appears to be a

FIGURE 17. Age-Adjusted Hospitalization Rates Due to Self-Harm in New York State Counties Over Time

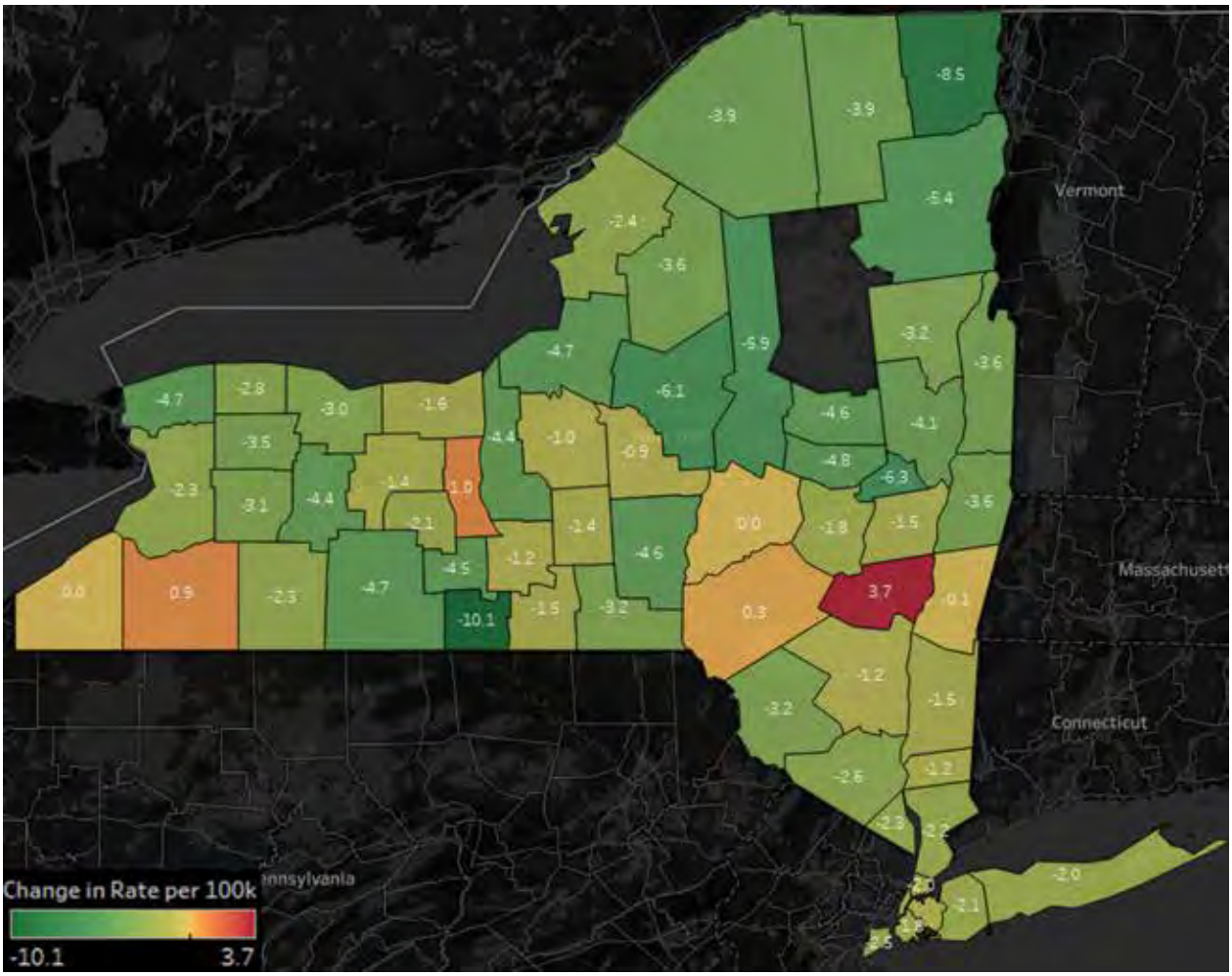
Change in Age-Adjusted Self-Inflicted Harm Hospitalization Rates in New York State, per 100k Residents, by County (2010-12 through 2017-19)



Graph excludes Hamilton County, which was associated with data quality flags in more than one of the time periods under investigation

Source: NYS Vital Statistics

FIGURE 18. Changes in Age-Adjusted Self-Harm Hospitalization Rates per 100,000 Residents in New York State, by County, 2010-12 to 2017-19



statewide phenomenon, with just four counties (out of 62) seeing upticks in their rates of self-harm hospitalizations over time. Fifty-six (of 62) counties saw their rates tick down, while rates in two counties remained unchanged over [roughly] the last decade.

Taken together, evidence from state- and county-level suicide rates and instances of hospitalization due to self-harm paint a mixed picture. Suicide rates are generally increasing across the state, while hospitalizations due to self-inflicted injuries are trending down. That being said, given the lethality, and thus heightened severity, of suicide relative to self-harm injuries, the observable and geographically dispersed upward trend in the former is arguably the one on which to place greater weight. Consequently, the findings from this subsection suggest that there is reason to believe that population-level mental health in New York State is experiencing at least some strain—at the same time the size of the state government mental health workforce and dedicated mental health capacity is receding. The final research question from this chapter, to which the next subsection turns, looks for signs of relationships between these two tendencies.

RELATING CHANGES IN MENTAL HEALTH WORKFORCE AND CAPACITY TO CHANGES IN SELECTED MENTAL HEALTH OUTCOMES

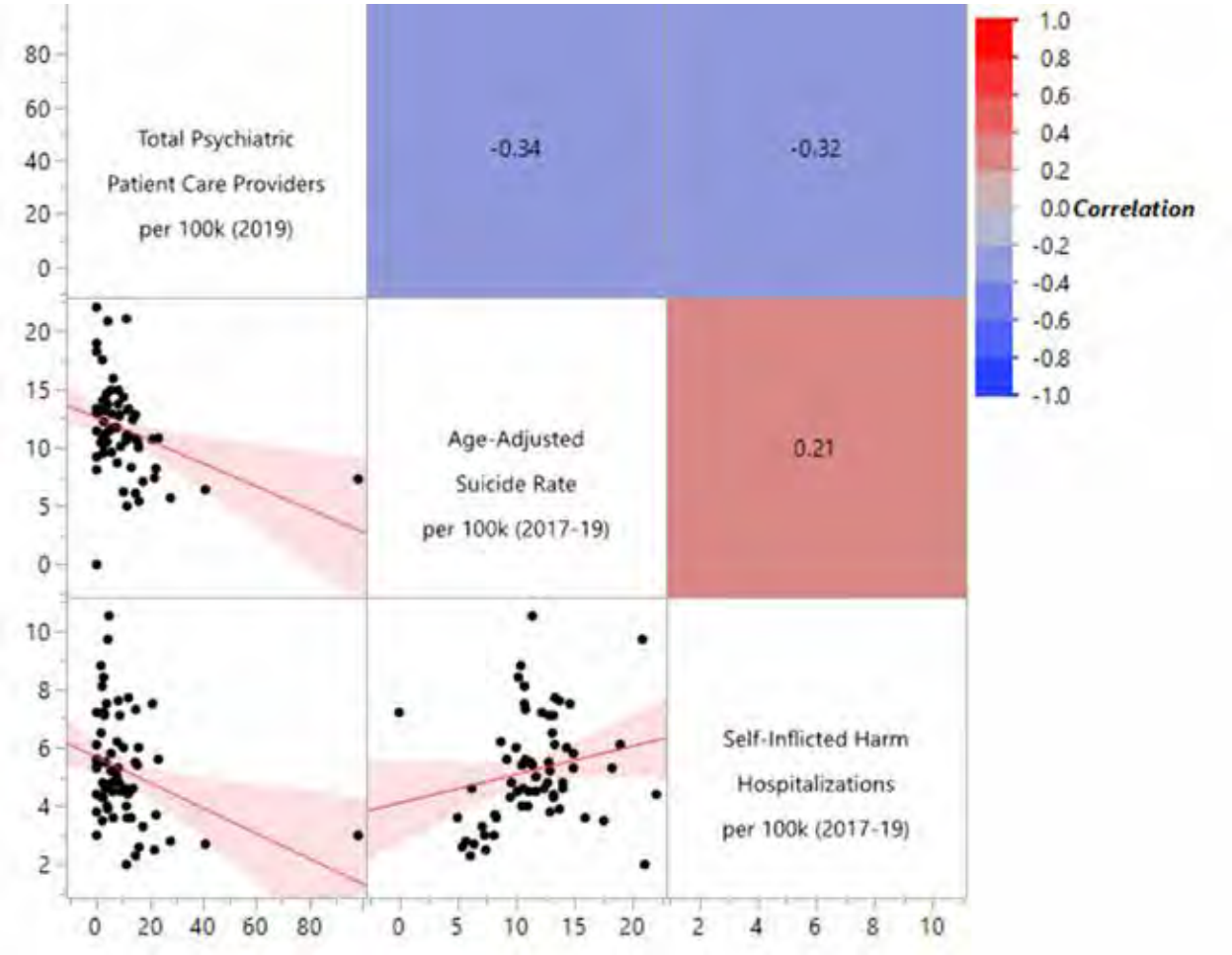
The final research question (RQ) in this section is concerned with the extent to which trends observed in the changing nature of the New York State mental health workforce—namely, the documented evidence that mental health industries are shifting more toward the private sector, as strong private sector growth proceeds alongside meaningful public sector contraction, as well as shrinkage in the number of specialized mental health facilities and lower rates of mental health providers per capita—are associated with trends observed in population-level outcomes relevant to mental well-being (i.e., a general, and statewide, upward trend in age-adjusted suicide rates).

Whereas the results that follow suggest that these trends are indeed related in ways that cannot be explained by chance alone, they are based on correlation analysis. Importantly, correlation is not causation. Conventional tools of statistical inference are poorly equipped to detect causality in analyses of proxy variables collected from secondary datasets. As such, it is important to approach correlation results with healthy caution. It is equally important to supplement correlational results with evidence from qualitative investigations that can envelope quantitative results within proper context. Such activities are performed elsewhere in this report. In the paragraphs that follow, the analyses conducted for RQ8 are described and findings are presented.

On that foundation, Figure 19 presents what is often called a "scatterplot matrix." Along the diagonals of the matrix, the three variables that factored into this section's correlation analysis are named. They are: (1) the 2019 county-level rate of psychiatric care providers per 100,000 residents, as obtained from the AHRF and described in additional detail with respect to RQ6 above; (2) the county-level age-adjusted suicide rate (per 100,000 residents) for the most recent time period available (2017-19), as obtained from NYS DOH and described in greater detail with respect to RQ7; and (3) the county-level age-adjusted hospitalization rate for self-inflicted injuries (per 100,000 residents) for the most recent time period available (2017-19), as obtained from NYS DOH and described in greater detail with respect to RQ7. To the northeast of the diagonals are color-coded cells that quantify the linear (i.e., Pearson) correlation between the respective row and column variable. For instance, the number found in the second column of the first row (-0.34) is the correlation coefficient that describes the relationship between the row variable (psychiatric care providers per 100,000 residents) and the column variable (age-adjusted suicide rate). This same logic applies to the correlation between (a) the psychiatric provider rate and hospitalization rate for self-inflicted harm (top-right cell: -0.32), and (b) the age-adjusted suicide rate and hospitalization rate for self-inflicted harm (second row, third column: 0.21).

In the southwest corner of Figure 19's scatterplot matrix are two-dimensional graphs that visualize the [linear] association between the relevant variables. These graphs are mirror images of the top-right area of the matrix, such that the scatterplot in the bottom-left of the matrix is associated with the correlation coefficient in the top-right.

FIGURE 19. Scatterplot Matrix Showing Relationships Between Indicators of Mental Health Capacity and Population-Level Mental Health Status for Counties in New York State



Having described the layout of Figure 19, the next step is to interpret the content. In the first place, a linear (Pearson) correlation coefficient ranges in value from -1.0 to +1.0. The closer the observed correlation coefficient for two variables is to one of those endpoints, the stronger the association between the variables. A correlation coefficient of zero indicates that two variables are not related in a linear fashion (i.e., plotting their values on a two-dimensional graph does not produce a shape that looks roughly like a straight line). When the correlation coefficient is negative, as it is in both correlations reported in the top row of Figure 19, two variables move in opposite directions. In Figure 19, the county-level rate of psychiatric care providers is negatively correlated with both age-adjusted suicide rates and age-adjusted hospitalization rates for self-inflicted injuries. As confirmed by the scatterplots for these relationships (first column, second and third rows, respectively), when psychiatric care capacity increases, suicide and hospitalization rates decrease. Oppositely, the lower the rate of psychiatric care providers in a county, the higher the suicide and hospitalization rates. In other words, the presence of psychiatric care providers is systematically related to both suicides and cases of self-inflicted harm in New York State counties. What is more, these relationships cannot be explained by chance alone. Both correlation

coefficients are statistically significant at a 99% level of confidence, meaning that the inverse relationships the two mental health indicators have with mental health capacity are systematic in nature, not random.

The third correlation pictured in Figure 19, between suicide rates and hospitalization rates, is positive. When a correlation between two variables is positive, the two variables move together. In this case, counties with higher suicide rates tend to have higher rates of hospitalizations due to self-harm; and, oppositely, counties with lower suicide rates have fewer instances of self-harm hospitalizations per capita. This relationship is an intuitive one, though it is not as strong as the correlations that these indicators have with mental health capacity. The relationship between suicide and hospitalization rates is statistically significant at a 90% level of confidence, meaning that it does not appear to be random. But the magnitude of the relationship is not as strong as the other correlations pictured in Figure 19.

While Figure 19 provides convincing evidence that mental health capacity and selected mental health outcomes are systematically related in ways that fit with conventional wisdom, observe from the southwest corner of the scatterplot matrix that each graph contains what appear to be outlying observations (i.e., isolated points that are meaningfully separated from the bulk of points, or the "scatter"). Insofar as the Pearson correlation coefficients reported in Figure 19 are tools for quantifying the linear association between two variables, relationships that are characterized by outliers might appear weaker than they really are. In technical terms, Pearson correlation is a parametric method that assumes two variables are related in a specific (linear) way. In exploring the scatterplots, however, there is reason to believe that at least one of the relationships shown in Figure 19 (between capacity and suicide rates) is nonlinear.

To explore this possibility, it is useful to supplement the results from above with results from a

TABLE 16. Comparison of Nonparametric and Parametric Correlation Coefficients for the Relationships between Selected MH Outcome Indicators and MH Capacity

Indicator 1	Indicator 2	Spearman (Nonparametric) Correlation	Pearson (Linear) Correlation (from Fig. 19)
Rate of psychiatric care providers per 100,000 residents	Age-adjusted suicide rate	-0.41**	-0.34**
Age-adjusted suicide rate	Age-adjusted rate of hospitalizations for self-inflicted injuries	0.29*	0.21^
Age-adjusted rate of hospitalizations for self-inflicted injuries	Rate of psychiatric care providers per 100,000 residents	-0.33**	-0.32**

**Statistically significant at a 99% level of confidence; *Significant at a 95% level of confidence; ^Significant at a 90% level of confidence

nonparametric correlation analysis that does not assume two variables are related in a specific, linear way. One such nonparametric method is called Spearman's correlation. Like the Pearson correlation coefficient, Spearman correlation ranges from -1.0 to +1.0, where values nearer to these extremes indicate a stronger systematic association, and values near zero indicate a lack of association. Unlike the Pearson coefficient, however, Spearman correlation looks simply at whether two variables move in predictable ways (e.g., when one goes up, the other goes down)—not at whether the co-movement of two variables produces a particular geometry (i.e., a straight line).

Toward these ends, Table 16 reports the Spearman correlations for the relationships under examination in Figure 19. The respective Pearson correlations (from Fig. 19) are reproduced in a separate column for comparison.

Whereas the correlation between hospitalizations and psychiatric care providers is similar in both magnitude and statistical significance regardless of which method is used (last row of Table 16), the remaining two relationships are both stronger (in both magnitude and statistical significance) when the assumption of linearity is abandoned.

The results contained in Figure 19 and Table 16 have a straightforward, practical interpretation. Namely, across counties in New York State, there is a systematic association between mental health capacity (measured as the number of psychiatric care providers per 100,000 residents) and key mental health–related outcomes (age-adjusted suicide rates and hospitalization rates for self-inflicted injuries). Put another way, these relationships cannot be explained by chance alone. Moreover, both relationships follow conventional wisdom: when mental health capacity is relatively low, suicide rates and self-harm hospitalization rates are relatively high. On the other hand, the higher the rate of mental health providers per capita, the lower are suicide and hospitalization rates. Crucially, these results describe correlations, meaning that decreasing mental health capacity does not necessarily cause higher suicide and hospitalization rates. However, the relationships seem to suggest that if more mental health facilities close in New York State and fewer providers become available to the population, then it would not be surprising to see eventual upticks in indicators of poor mental health across New York State.

RECAP: AN EMERGING PICTURE

Prior to moving onto the final section of this chapter, Table 17 summarizes the tentative answers derived hereinbefore to each of the eight research questions (RQs) posed at the outset of the investigation.

TABLE 17. Tentative Answers to the Research Questions (RQs) Addressed in this Chapter

	Research Question (RQ)	Tentative Answer(s)
1	How has the size of the mental health (MH) workforce in New York State (NYS) changed since 2000?	Employment in MH-related industries has generally grown over the past three decades. However, growth has been concentrated in the private sector. State government jobs in MH-related industries have undergone a steady and substantial decline.
2	How has the composition of the NYS MH workforce changed since 2000, with respect to: (a) employer type (i.e., public, private for-profit, or private not-for-profit); and (b) worker demographics?	In the private sector, strong employment growth has led to a more racially-ethnically diverse workforce. Contraction of the state government MH workforce has left it less diverse than it was in prior years, and significantly less diverse than it would be if it followed private sector trends. MH work has shifted more toward the private sector since 1990. At the same time, public sector contraction appears to be removing union jobs from the NYS economy.
3	By how much have inflation-adjusted median (or average, depending on data availability) wages in the NYS MH workforce changed since 2000?	Median wages have gone up by statistically significant amounts throughout the MH workforce. However, wage growth in the public sector has outpaced private sector wage growth.
4	Are relative changes in (a) the size and (b) wages in the NYS MH workforce of roughly equal magnitude to corresponding changes in the overall NYS workforce? To other fields in the health and social services industries?	In both the private and state government sectors, wages in MH-related industries have increased faster than wages in other Healthcare and Social Assistance industries, and meaningfully faster than in the NYS economy as a whole.
5	Is there a systematic association between patterns of wages and employer type (private sector, state government) in the NYS MH workforce?	Yes. State government employees in MH-related fields earn more than private sector employees in these industries, as a whole. Controlling for occupation, state government workers in working-class and conventionally low-paying jobs earn considerably more than their counterparts in the private sector.
6	How has the capacity of MH services in NYS (e.g., the number of facilities per capita) changed since 2000 (or first year of available data)?	Across the state, the rate of providers offering psychiatric care has been declining since the start of the millennium: 43 of the state's 62 counties saw this rate decrease over the past two decades.

TABLE 17. Tentative Answers to the Research Questions (RQs) Addressed in this Chapter *(continued)*

Research Question (RQ)		Tentative Answer(s)
7	How have selected MH indicators in NYS changed in recent decades?	Most counties in NYS have experienced increases in age-adjusted suicide rates over roughly the past decade. Suicide rates are rising, though rates of hospitalizations for self-inflicted injuries have been declining.
8	Is there a systematic association between changing patterns of employment type in the NYS MH workforce and selected MH outcomes in NYS?	Yes. There is a strong association between MH capacity (rate of psychiatric care providers per 100,000 persons) and suicide rates. This association is relatively strong in magnitude and cannot be explained by chance alone. A weaker, though still statistically significant, association also exists between MH provider capacity and rates of hospitalizations due to self-harm.

KEY FINDINGS AND CONCLUSION

The analyses performed throughout this report have shown that in New York State:

- While employment in key mental health–related industries—psychiatric hospitals and residential care facilities—is trending upward, all growth has been concentrated in the private sector. Between 1990 and 2021, the number of jobs in these industries increased almost seven times faster than job growth observed in the New York State economy as a whole, but the number of jobs in state government–owned mental health facilities has fallen precipitously over time.
- Contraction in New York's public sector mental health workforce is ongoing and disproportionately affects women, workers of color, union members, and working-class New Yorkers.
- Public sector jobs in mental health industries have traditionally paid significantly higher wages than the same jobs in the private sector. Unionization is presumably one of the key reasons for these wage disparities. Thus, as mental health work shifts more and more toward the private sector, mental health workers stand to see their purchasing power decrease (if, for example, they remain in the same occupation but can only find work in the private sector). The ongoing privatization of mental health work in New York State is, stated another way, likely to place downward pressure on wages in mental health–related industries.
- Despite overall growth in mental health work (courtesy of the private sector), specialized psychiatric facilities have closed in recent decades, and dedicated mental health capacity—measured as the number of psychiatric care providers per capita—has been falling across the state.
- Dedicated mental health capacity is systematically related to key indicators of population-level mental health, particularly age-adjusted suicide rates and rates of hospitalization due to self-inflicted harm.

Overall, our research has found that both the public sector mental healthcare workforce and the state's mental healthcare capacity have decreased significantly between 1990 and 2021. Taken together, these findings strongly suggest that ongoing contraction of the public sector mental healthcare workforce in New York State—and the concomitant privatization of mental healthcare work—likely has had, and will potentially continue creating, disparate and negative impacts on mental health workers, their families, and their communities. These negative impacts disproportionately affect women, people

of color, and working-class New Yorkers. The analysis strongly suggests that public sector mental health facilities in New York create good, well-paying union jobs, at all skill levels, and for residents of all racial-ethnic backgrounds; all while more dedicated mental health capacity (e.g., specialized mental health providers and facilities) might mean fewer suicides, fewer instances of hospitalization due to self-harm, and an overall stronger state of mental health across New York.

But of equal importance is to remember that none of these findings happened in a vacuum—they did not appear out of nowhere. National and state policymaking has played an important role in shaping the outcomes presented in this report. The movement toward austerity and privatization has its roots in the rise of neoliberalism ushered in by the Reagan Administration but adopted and adapted by political parties on the left and the right in the last 30 years in the United States. The oil shocks that hit in 1973 and 1979 and the subsequent recession provided an opening for economists such as Milton Friedman, who drew on Friedrich Hayek's economic theories repudiating Keynesian economics, to move their deregulation and privatization arguments for economic growth from the periphery to the center of domestic policymaking.[81] Neoliberal advocates regard market dynamics, specifically limited government—in both taxation and social spending—as central mechanisms for governing domestic economic, social, and political life.[82] The institutional arrangements put in place to achieve neoliberal goals and restore economic growth included, among other things, deregulation, cutting taxes for wealthy individuals and corporations, and changing public service provision through privatization.[83]

What this has meant in practice has been outlined in the "Background" section of this report detailing New York State policy changes, driven by two key conflicting factors, that have altered the landscape of New York's mental health sector over the past 50 years: the distinct goal of improving care on one hand and reducing costs and public spending on the other. In practice, this resulted in profound restructuring of the state's healthcare system, with the aim, over the years—as mandated through various commissions and reports—of significantly downsizing inpatient capacity in hospitals across the state. An outcome of the 2006 "Berger Commission," for example, resulted in roughly one-quarter of all hospitals in New York undergoing some form of "reconfiguration," including the closure of nine hospitals, the elimination of 3,500 beds, mergers and consolidations of other hospitals, closures of nursing homes, and other forms of closure and service elimination. By 2014, at least 18 hospitals had closed statewide, and acute inpatient capacity had been reduced beyond the Berger Commission recommendations. While the Commission had recommended a 6.4% reduction from 2004 certified bed capacity, by 2014, New York had implemented a 19.7% reduction. When we overlay these legislative changes with the findings in this report, the data suggests that Governor Andrew Cuomo's "transformation agenda" starting in 2014 was correlated with the changes shown in the data. Indeed, post-2014 we see that the statewide private sector hospital workforce expanded greatly over the past three decades, while employment at state-owned hospitals was more than halved. Moreover, in some counties, where inpatient psychiatric beds were greatly reduced, we see a rise in suicide

81 Friedrich A. Hyack's, *The Road to Serfdom*, edited by Bruce Caldwell (Chicago: Chicago University Press, 2007). Milton Friedman, *Capitalism and Freedom* (Chicago: University of Chicago Press, 2020).

82 David Harvey, *A Brief History of Neoliberalism* (New York: Oxford University Press, 2005). Susan George, 'A short history of neoliberalism: twenty years of elite economics and emerging opportunities for structural change,' paper presented at the Conference on Economic Sovereignty in a Globalising World, March 24-26, 1999, Bangkok. Retrieved from http://www.socioeco.org/bdf_fiche-document-1007_en.html.

83 Mimi Abromowitz, 'Economic crises, neoliberalism, and the US welfare state: trends, outcomes and political struggle', (2014).

numbers. This does not lead to a conclusion that there is a causal relationship—but there is a correlation that is hard to ignore.

After decades of these policies and reforms, New York's mental healthcare system has a significantly reduced capacity for inpatient psychiatric care, and has become highly reliant on private, non-profit providers of community-based care and general hospitals—both private non-profit hospitals and public safety net hospitals. Our findings reveal the negative impact this contraction of the public sector has had on the wages of the mental health workforce in New York, as well as the way it has disproportionately affected women, workers of color, union members, and working-class New Yorkers' access to dignified work in this sector. The contraction of the public mental healthcare system has had far-reaching implications for provision of care. As a healthcare system that exists within a neoliberal system, market dynamics influence care provision both explicitly and implicitly. For example, because inpatient psychiatric beds bring in far less revenue for hospitals than average revenue per medical bed, private non-profit hospitals have reduced their number of inpatient psychiatric beds, and the resulting burden has increasingly been placed on strained public hospitals.[84]

The goal of improving mental healthcare by moving away from the inhumane treatment, neglect, and overcrowding that were hallmarks of an earlier era of state-run psychiatric institutions has led to essential advances in the rights of people with mental illness and disability. Yet these advances have lamentably been paired with public disinvestment, inadequate funding of alternative modes of care, and—as documented in our analysis—decades of diminishing New York's public sector mental healthcare workforce and the state's mental healthcare capacity. The

The contraction of the public mental healthcare system has had far-reaching implications for provision of care.

impact of austerity and privatization has undermined the improvement of care in the public mental health sector. While Governor Hochul's announcement in January 2023 of a $1 billion investment in New York's mental healthcare system suggests a recognition of the damage wrought by decades of austerity in the sector, it remains to be seen whether these resources will be appropriately channeled and whether they indicate a potential reversal of the tide of disinvestment. Moving forward, investment in the public mental healthcare system must forge a path that supports both dignified care and dignified work for those providing that care.

84 NYSNA, 2020

APPENDIX A QUANTITATIVE ANALYSES

DATA

To address the questions raised in the Introduction, the research team obtained and analyzed data from five principal sources. For convenience, Table 1 lists and briefly describes key properties for each of those datasets. Following the table are more detailed dataset descriptions.

The Quarterly Census of Employment and Wages (QCEW), a product of the Bureau of Labor Statistics (BLS), publishes timely information on the number of establishments, number of workers, and average wages, by area and industry. The QCEW covers 95% of all jobs in the United States. Importantly for this project, data are broken out by ownership type, such that it is possible to explore how the composition of an industry (e.g., state government versus private sector) changes over time. In addition to quarterly reports, the QCEW publishes annualized data for states, metropolitan regions, and counties.[85]

Whereas the QCEW provides detailed, up-to-date information on work in the United States, it does not offer much information on workers. Arguably, the premier data source for learning more about the demographic and socioeconomic characteristics of the latter is the Census Bureau's American Community Survey (ACS). The ACS is a rolling survey that asks each respondent about their occupation, income, and many other demographic, employment, and housing-related questions. ACS data come in three "vintages": (1) one-year, (2) three-year, and (3) five-year. The different vintages reflect different compromises between geographic precision, data accuracy, and data currency. Namely, whereas one-year ACS estimates are always the most current (insofar as they are published annually), they are generally the least accurate. This accuracy issue stems from the fact that one-year estimates are derived from relatively small samples. The one-year program therefore only publishes data for larger geographies (i.e., places that meet a minimum population threshold), where economies of scale in sampling make it possible to obtain sufficient sample sizes in the course of a single year. For lower population geographies like small counties, towns, villages, or neighborhoods, the ACS combines annual survey responses into multi-year increments to generate usable sample sizes. Because the vintage with the widest time increment (five years) brings together the largest number of responses (i.e., the largest sample sizes), five-year estimates tend to have the highest reliability of all ACS estimates, meaning that they can be provided for all geographic units, from fine resolution census block groups and tracts (often proxies for neighborhoods) up to counties

85 Bureau of Labor Statistics. "Quarterly Census of Employment and Wages." (n.d.) https://www.bls.gov/cew/overview.htm

TABLE 1. Summary of Data Sources Used in this Report

Dataset Name	Source	Spatial and Temporal Coverage	Short Description	Research Questions to Which Dataset is Relevant
Quarterly Census of Employment and Wages (QCEW)	Bureau of Labor Statistics (BLS)	1990-2021 annual averages; New York (statewide) and county-level	Provides annual levels of employment and annual average wages by industry and ownership type (public v. private)	1-4
American Community Survey (ACS) Public Use Microdata Samples (PUMS)	U.S. Census Bureau	2000, 2006-10, 2016-20; finest resolution is the Census Public Use Microdata Area (PUMA)	Provides industry, occupation, and earnings data for workers, as well as a host of household, demographic, and socioeconomic information	2-5
Area Health Resources File (AHRF)	U.S. Department of Health and Human Services (HHS) Health Resources and Services Administration (HRSA)	2003, 2020-21; New York (statewide) and county-level	Provides snapshots of the number of health professionals and health facilities for counties, by specialization (e.g., psychiatry)	1, 6-8
New York State (NYS) Vital Statistics	NYS Department of Health (DOH)	2010-2021 annual data; New York (statewide) and county-level	Provides annual population estimates and causes of death, including by suicide	7-8
Payroll Data for Employees in New York State Mental Health-Related Agencies	NYS Public Employees Federation (PEF)	2002-2021 biweekly; New York (statewide)	Provides regular payroll and earnings data for public employees, by New York State agency	1-2

and beyond. The price paid for that added reliability is currency, as the data are collected over a longer time horizon.

The point of the preceding paragraph is that to study attributes of workers across New York State, five-year ACS estimates unlock the greatest number of possibilities and should therefore have the most value. As such, unless otherwise noted, all ACS data used in this report come from the most recent publicly available five-year estimates.[86]

That being said, ACS data are aggregated to political or statistical geographic units to protect the privacy of survey respondents. The Census Bureau uses a standard approach for publishing these aggregated data, so that metrics are reported consistently across the nation. While both privacy protection and standardized reporting protocols are invaluable, one byproduct of these practices is that they limit one's ability to analyze and describe workers' economic conditions in nuanced ways. For example, standardized reports of ACS data do not reveal how wages, workforce numbers, or various other properties differ between private and public sector workers in the same industry. Moreover, although the ACS does include median income by generalized economic industry among its standard outputs, these conventional data do not allow analysts to examine intersections between earnings, sector (e.g., public/private), and demographic characteristics. Thus, standard ACS data products have limited utility for building detailed profiles of the workers in a given industry.

Fortunately, a powerful but less common product of the ACS program makes it possible to overcome some of these challenges. The ACS Public Use Microdata Samples (PUMS) "enable data users to create custom estimates and tables... that are not available through ACS pretabulated data products. The ACS PUMS files are a set of records from individual people...with disclosure protection enabled so that individuals...cannot be identified."[87] In other words, ACS PUMS datasets contain anonymized records for individual survey respondents—the data are not aggregated.

The rich person-level information contained in PUMS records allows researchers to construct detailed, industry-based pictures of worker and economic conditions for numerous locations across the United States. With respect to geography, however, to protect respondents' privacy, PUMS data are not provided at conventional "small area" units of analysis like census tracts or even places (e.g., towns and villages). Instead, the finest resolution geographic units to which individual respondents can be linked are called Public Use Microdata Areas, or PUMAs. The decision to use PUMS data to analyze worker characteristics, then, involves a trade-off between geographic and informational resolution. By sacrificing the geographic resolution that comes with standard ACS products (which are published for small areas like census tracts), it is possible to gain a wealth of new information on the intersections between occupation, industry, income, demographic characteristics, and socioeconomic status. Given the aims of this report, this trade-off is an obvious one to make.

Next, the Area Health Resources File (AHRF) put out by the U.S. Department of Health and Human Services (HHS) Health Resources and Services Administration (HRSA):

> "provides current as well as historic data for more than 6,000 variables for each of the nation's counties, as well as state and national data. It contains information

86 Public Use Microdata Samples (PUMS) data for the current (2016-20) vintage were published in early 2022. The next PUMS release (for 2017-21) is scheduled to occur in early 2023. The ACS PUMS forms the backbone of the housing experience inventories and profiles created in this report.

87 US Census Bureau. https://www.census.gov/programs-surveys/acs/microdata.html

> on health facilities, health professions, measures of resource scarcity, health status, economic activity, health training programs, and socioeconomic and environmental characteristics. In addition, the basic file contains geographic codes and descriptors which enable it to be linked to many other files and to aggregate counties into various geographic groupings...The AHRF data includes county, state, and national-level files in eight broad areas: Health Care Professions, Health Facilities, Population Characteristics, Economics, Health Professions Training, Hospital Utilization, Hospital Expenditures, and Environment."[88]

The current AHRF release is for 2020-21. With respect to healthcare work, the current release provides data on the number of healthcare professionals by specialty area (e.g., child psychiatry and psychiatry) for 2019, 2015, and 2010. The current release also reports the number of hospital facilities—again by specialty area—for 2019. To obtain additional historic information, the research team acquired the 2003 AHRF from the Congressional National Archives. The 2003 AHRF extends the timeline of the data on health professionals to 1995 and 2000, in addition to providing an earlier data point (2001) on the number of hospital facilities to explore change over time.

The fourth dataset listed in Table 1 is maintained by the New York State Department of Health (NYS DOH). Among the data regularly collected and published by NYS DOH are vital statistics on births, deaths, population, and a host of other attributes. Within these data are reports of both deaths and injuries by cause. For the purposes of this project, the research team collected county- and state-level data on deaths by suicide and hospitalizations due to self-inflicted injuries, over time. Both of these indicators are readily downloadable as annual observations, dating back to 2010, through the New York State Community Health Indicator Reports (CHIRS) system.[89] They were selected herein as outcome measures to be studied alongside changes in New York State's mental health workforce, given the well-known, systematic links they have with mental well-being.[90]

Finally, the New York State Public Employees Federation (PEF) maintains a comprehensive payroll database that contains paycheck dispersals made to PEF members. Each such transaction reports the given employee's unique New York State employee identifier, the date of the transaction, the amount of the transaction, and the code of the state agency with which the employee is affiliated. According to the New York State Accounting System User Procedures Manual, mental health–related state agencies are those whose agency codes fall, numerically, between 50000 (Office of Mental Health, or OMH, main office) and 54000 (Office of Alcoholism and Substance Abuse Services).[91] The research team therefore queried the PEF database for all employees affiliated with this set of agency codes. Upon inspection, data were available in consistent format dating back to 2002. Thus, the PEF database offers an opportunity to study the extent to which the number of PEF members working in New York State mental health–related agencies changed over the past two decades—a proxy for how unionization in mental health industries is changing.

88 "Area Health Resources File." https://data.hrsa.gov/data/download

89 "New York State Community Health Indicator Reports (CHIRS)." https://webbi1.health.ny.gov/SASStoredProcess/guest?_program=/EBI/PHIG/apps/chir_dashboard/chir_dashboard&p=dl

90 E.g.: Kapur, N., & Gask, L. (2006). Introduction to suicide and self-harm. *Psychiatry*, *5*(8), 259-262.; Singhal, A., Ross, J., Seminog, O., Hawton, K., & Goldacre, M. J. (2014). Risk of self-harm and suicide in people with specific psychiatric and physical disorders: comparisons between disorders using English national record linkage. *Journal of the Royal Society of Medicine*, *107*(5), 194-204.; Hawton, K., Saunders, K. E., & O'Connor, R. C. (2012). Self-harm and suicide in adolescents. *The Lancet*, *379*(9834), 2373-2382.

91 New York State Comptroller. "New York State Accounting System User Procedures Manual." https://www.osc.state.ny.us/state-agencies/guidance/new-york-state-accounting-system-user-procedures-manual

ILR Buffalo Co-Lab

ILR Worker Institute

The Worker Institute at Cornell
570 Lexington Avenue, 12th Floor
New York, NY 10022

ilr.cornell.edu/worker-institute