SEPTEMBER 2019

DISTINGUISHING THE SOCIAL SECTOR

A BUFFALO-NIAGARA LABOR MARKET STUDY

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ACKNOWLEDGEMENTS

EXECUTIVE SUMMARY

The social sector is the collection of individuals, occupations, and entities that, through the practice and conduct of their work, produce economically valuable social benefits that serve the public interest. This study focuses on the two largest parts of Buffalo-Niagara's social sector: nonprofit and government employers.
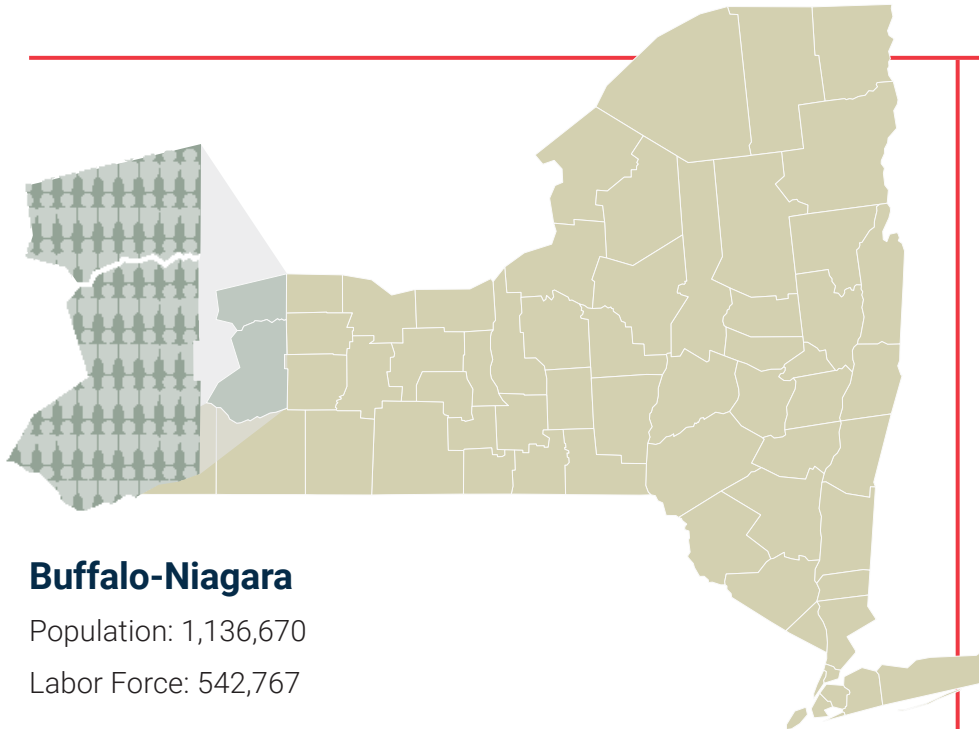
Buffalo-Niagara

Population: 1,136,670

Labor Force: 542,767

	ALL SECTORS	SOCIAL SECTOR (NONPROFITS PLUS GOVERNMENT)
Establishments*	29,439	2,890 (9.8%)
Employees	539,422	158,247 (29.3%)
Annual Wages	$25.8 Billion	$8.1 Billion (31.5%)
Annual Wages per Employee	$47,819	$51,298 ($3,479 higher)

* For this study, the number of establishments is calculated by 501(c)(3) IRS status unless otherwise noted. IRS 990 data includes all exempt organizations including voluntary establishments, worker co-ops, and other varieties of tax-exempt entities.

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Summary Findings

**THE SOCIAL SECTOR IS A LARGE, FAST-GROWING,
RESILIENT PART OF THE BUFFALO-NIAGARA ECONOMY.**

- In 2017, the social sector accounted for approximately 10% of establishments, 29% of workers and 32% of wages in Buffalo-Niagara.

  - In Buffalo-Niagara there are 5,500 registered, tax-exempt, 501(c)3 nonprofit corporations. Of these, 2,890 have paid employees.

- Of the top 100 employers in the region, 60 percent are social sector (35 government entities and 25 nonprofit corporations).

- In recent years, the social sector has seen strong growth in income and wages, (although public employment has shrunk), and prospects are good for continued growth:

  - The income of nonprofits increased by 57%, from $7.1 billion in 2008 to approximately $11.2 billion in 2018.

  - Between 2013 and 2017:

    - the number of social sector establishments increased by 8%, compared to growth of less than 2% in the for-profit sector;

    - the number of social sector employees increased by 1.1%, compared to an increase of 3.2% in the for-profit sector;

      - nonprofit employees increased by 2.9%;

      - government employees shrank by 0.5%;

    - the average wage in the social sector grew by over 9%, compared to 4.7% in the for-profit sector.

    - total annual pay in the social sector increased 10.3%, compared to 8.1% for all other establishments.

  - Nationally, four of the top five occupation groups projected to grow most significantly between 2016 and 2026 are concentrated in the social sector.

  - Most social sector establishments are service-oriented and require skills that are not easily automated. As a result, in the Buffalo-Niagara social sector, 80% of jobs have a low risk of automation, compared to a regional average of 33%.

The average wage in the social sector grew by over 9%, compared to 4.7% in the for-profit sector.

EDUCATION AND HEALTH CARE DOMINATE THE SOCIAL SECTOR.

- Most large employers in the Buffalo-Niagara social sector are school districts, colleges, universities, hospital systems, and health insurance companies.

THE BUFFALO-NIAGARA SOCIAL SECTOR IS NOT HOMOGENOUS; IT OFFERS A DIVERGENT MIX OF HIGH AND LOW-PAYING JOBS.

- The **public** sector has a larger fraction of workers in higher earnings positions than any other sector; conversely, more than one third of **nonprofit** workers earn less than $1,250 per month.

SOCIAL SECTOR WORKERS ARE BETTER EDUCATED, OLDER, AND MORE DIVERSE.

- 39.2% of nonprofit workers and 36.7% of public workers are college graduates, compared to 26.7% of all workers.

- 27.8% of social sector workers are 55 years or older, compared to 23.9% of all workers. Thus, the region's social sector might need to hire in relatively large numbers soon to replace retiring workers. But the nonprofit component of the social sector has a disproportionately high percentage of workers 29 years or younger (33%, compared to 24.8% of all workers).

- The social sector as a whole is relatively diverse and open to individuals from underrepresented racial, ethnic, and age groups. More than 23% of social sector workers are persons of color, compared to 12.6% of all workers.

PUBLIC, NONPROFIT, AND PRIVATE JOBS HAVE DIFFERENT REQUIREMENTS FOR EDUCATION AND EXPERIENCE.

- Of the job postings in Buffalo-Niagara in 2018 across all sectors that specified minimum education levels, over half (58%) required a Bachelor's degree or higher, compared to a national average of 31%. The number of people in Buffalo-Niagara aged 25 and older with Bachelor's degrees or higher is 31%.

- Of nonprofit jobs posted in Buffalo-Niagara in 2018, 63% required a bachelor's degree or more. But nonprofit postings had lower requirements for years of experience, with 13% requesting 5 years or more, compared to a regional average of 16%.

- Compared to nonprofit and for-profit jobs, public sector jobs in Buffalo-Niagara have higher requirements for education and slightly lower requirements for experience. In 2018:

Compared to nonprofit and for-profit jobs, public sector jobs in Buffalo-Niagara have higher requirements for education and slightly lower requirements for experience.

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- Of the public sector job postings that specified minimum education levels, 73% required a Bachelor's degree or higher.

- 57% of postings required only zero to two year's experience, compared to 48% of nonprofit and for-profit postings.

BUFFALO-NIAGARA JOBS, ESPECIALLY IN THE SOCIAL SECTOR, HAVE LOW REQUIREMENTS FOR TECHNOLOGY AND DATA SKILLS.

- In 2018, technology and data skills were requested in job postings less frequently in Buffalo-Niagara than the national average.

- Social Sector job postings request technology and data skills less frequently than other job postings in Buffalo-Niagara as a whole.
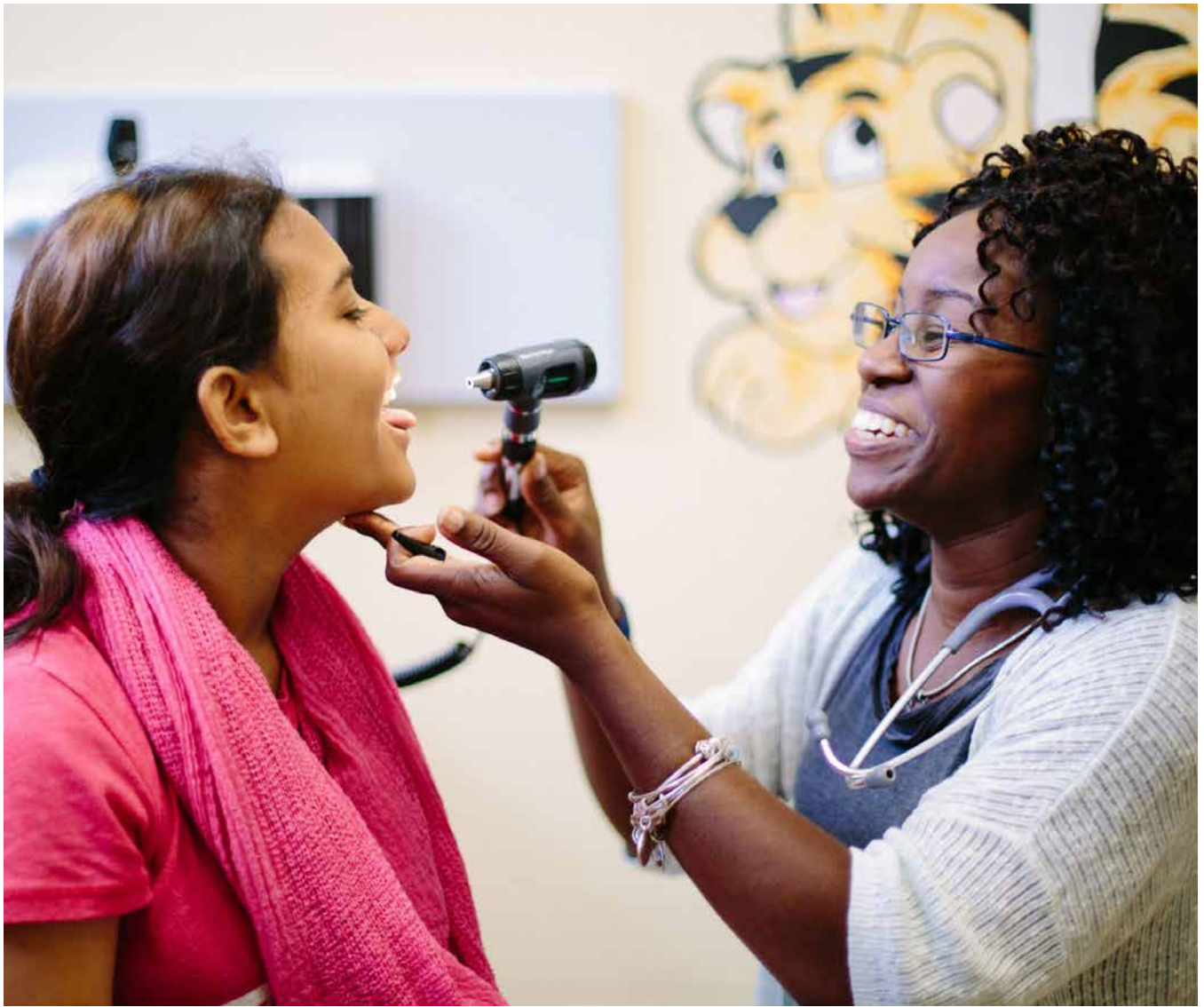
INTRODUCTION: A NEW UNDERSTANDING OF WORK

The world of work is rapidly changing through the incorporation of new technologies. Perhaps less obviously, work is also changing to address global challenges of poverty, income inequality, human rights, health, and the environment. Nationally and locally, the institutional and organizational models for tackling these problems are shifting. Boundaries are blurring between for-profit and nonprofit organizations, and government services are increasingly being privatized.

The sector of the economy most directly engaged with social concerns—the *social sector*—is the subject of this analysis. This report employs a working definition of the social sector as the collection of individuals, occupations, and entities that, through the practice and conduct of their remunerated work, produce economically valuable social benefits and that serve the public interest.[1]

The social sector includes many kinds of organizations: government entities, nonprofit corporations, worker co-ops, benefit corporations, mission-driven for-profit corporations, and more. Given the limitations of the data available, this report focuses on the government and nonprofit sectors, which, together, account for most, although certainly not all, of the jobs in the social sector.

Substantial analysis has been done on the future of work in the for-profit sector. For example, Invest Buffalo Niagara produces an annual Labor Market Assessment for the Buffalo-Niagara region, reporting on payroll and wages in the region.[2] Like many labor market reports, it takes an in-depth look at target industries. Recent reports on Western New York include industries like Advanced Business Services, Advanced Manufacturing, Agribusiness, Cleantech, Life Sciences, Logistics, and Tourism. It is now essential for the public and nonprofit sectors to make similar assessments of their human capital needs and opportunities.

This report contains a regional labor market study for Buffalo-Niagara that profiles the jobs, wages, occupations, and skill requirements associated with paid work in the region's social sector.

...this report focuses on the government and nonprofit sectors, which, together, account for most, although certainly not all, of the jobs in the social sector.

We juxtapose data from traditional administrative data sources[3] with information scraped from big data sources via Burning Glass Technologies to describe the region and labor force through multiple lenses. Key questions that guide the exploration include:

- What is the current scale of the social sector in Buffalo-Niagara, and how has it changed over the past decade?

- What establishments and paid jobs make up the social sector?

- Who works in the social sector?

- How do the government and nonprofit components of the social sector differ – from each other and from the private sector?

- What is future of the workforce and the training needed to equip people for success in emerging fields?

Developing a suitably skilled workforce means accessing high quality education and aligning a region's supply of skills with the demands of its labor markets. It also means striving to enhance the capacity of workers and organizations to adapt to constant, often rapid, shifts in technology and the associated influences of changing technology on skill needs. Anticipating the skills needs of the future is essential to such efforts. Thus, this report also includes an analysis of current demand for tech-related skills in the social sector.

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THE
SOCIAL SECTOR
DEFINED

SOCIAL SECTOR AND SOCIAL ECONOMY

Before exploring the data from Buffalo-Niagara, we pause here for a brief consideration of the term "social sector." Many terms have been used to describe entities connecting needs of communities and protecting or promoting particular social relations.[4] The terms social economy, third sector, civil society, solidarity economy, and even nonprofit are often used interchangeably, thus overlooking the considerable differences in what the underlying concepts mean and how they function in different countries.[5]

In the U.S., "third sector" and "social sector" typically refer to nonprofit organizations, whereas in Europe the terms typically also include cooperatives and mutual support organizations. In this report, we include government as part of the social sector, for several reasons.

As a whole, government employees work to produce public, or social, goods, rather than private gains. The promotion of democratic values in attempting to provide for the common good increasingly means that nonprofits and governments are becoming more intertwined and collaborative.[6] Government funds are the largest source of nonprofit income. Buffalo-Niagara offers many examples of commonalities between government and nonprofit employers. Some of the largest public employers, such as University at Buffalo and SUNY Buffalo State, have many nonprofit affiliates, including foundations that raise large amounts of revenue for them. Some of the largest nonprofits, such as Erie County Medical Center (ECMC) and Roswell Park Comprehensive Cancer Center, were started as public entities before converting into nonprofits. Like many other nonprofits, they depend on public funding for much of their revenue.

Rather than conceive of the third sector or social economy as a response to or residual of the public and private sectors, this report argues that it is of equal importance to the so-called "first" and "second" sectors, and that any conversation about the future of work should address what skills, and therefore training and support, are needed for success in the social sector.

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REGIONAL HISTORICAL CONTEXT

The metropolitan statistical area (MSA) of Erie and Niagara counties contains New York's second largest city (Buffalo), as well as a world-class tourism destination (Niagara Falls). While the Buffalo-Niagara region grew until 1970, peaking at 1,349,211 people, it has since fallen steadily – accounting for only 1,135,509 people in 2010. The urban cores – the cities of Buffalo and Niagara Falls – experienced large-scale depopulation. At the turn of the 20th century, Buffalo was the eighth largest city in the United States, but between 1950 and 2010, it lost over half of its population.[7]

In a matter of decades, a region that is home to what was once called the City of Light, as hydroelectric power from Niagara Falls made Buffalo the first city in the U.S. to have electric street lights, saw the last light turn off in 1982 at the Bethlehem Steel Plant. With deindustrialization came abrupt transformation and shrinkage. As one of the largest trade regions in the U.S., Western New York's labor market has changed significantly over the last several decades. It is no longer in the top 50 metro areas for the number of manufacturing jobs.[8] While in 1970, one of every three jobs in the region was in manufacturing, today it is only one in ten.[9]

Recently, job growth has begun to rebound. Local job growth was greater in 2018 than in the last 19 years.[10] But the nature of the work has changed, and the market is now dominated by service jobs in health, education, financial services, retail sales, and tourism. The NYS Department of Labor publishes monthly reports on the WNY job market. Of the 7,500 jobs added in 2018, the largest gains, other than in construction, were in health and education services. A snapshot of the state of New York's workforce suggests that healthcare is a top sector in most regions at 17%[11]; it also finds that low wage jobs comprise the bulk of the state's economy with 82% of the fastest growing jobs projected to pay less than $20 per hour.[12]

Studies suggest that New York has a significant portion of underutilized labor, and that workforce development is key to improving New York's economic development. Indeed, one recent report concludes: "Education and skill attainment directly correlate to wages, therefore if New York can increase the number of skilled New Yorkers in its labor force, the overall incomes of New Yorkers will increase."[13]

As one of the largest trade regions in the U.S., Western New York's labor market has changed significantly over the last several decades. It is no longer in the top 50 metro areas for the number of manufacturing jobs. While in 1970, one of every three jobs in the region was in manufacturing, today it is only one in ten.

In recent years, Buffalo-Niagara has been undergoing noticeable economic revitalization, with expanded investments of public and private capital and an urban revival that attracts young people to the city. However, that revitalization has yet to benefit all. Buffalo-Niagara is still highly unequal and segregated, in clear need of social and economic improvement. Addressing those needs, the regional economy includes a dynamic social sector, with a wealth of governmental and nonprofit organizations that work daily to contribute to the public good.

Western New York's Public Sector

As of 2018, federal, state, and local governmental employment collectively accounted for 15.2% of total national employment.[14] In the broader eight county region of Western New York, five of the top ten employers, and 35 of the top 100, are governmental. In addition, three of the largest employers are quasi-governmental: Erie County Medical Center and Roswell Park Comprehensive Cancer Center are former county and state entities that became public benefit corporations, and Seneca Gaming is a tribally chartered corporation owned by the Seneca Nation of Indians. Looking at all the governmental employers that make the top 100 gives a good sense of the diversity and impact of public sector employment, as well as the huge role played by education.

The region's public sector is densely unionized compared to the for-profit and nonprofit sectors in the region and compared to other metro regions.[15] Roughly seven out of ten public sector workers in Buffalo-Niagara belong to unions, compared to one in ten private sector employees.[16]

The top occupations for public sector employees in WNY align with national trends. While the general public might picture a "public employee" as a bureaucrat in an office, in reality, public sector employment is dominated by employees "on the ground" such as teachers, librarians, law enforcement officers, health care workers, and social workers.

The regional economy includes a dynamic social sector, with a wealth of governmental and nonprofit organizations that work daily to contribute to the public good.

FEDERAL, STATE, AND LOCAL GOVERNMENT EMPLOYMENT IN THE UNITED STATE, INCLUDING GOVERNMENT-OWNED SCHOOLS AND HOSPITALS AND THE U.S. POSTAL SERVICE BY MINOR OCCUPATION[17]

OCCUPATION	PERCENT OF GOVERNMENT EMPLOYMENT
Preschool, Primary, Secondary, and Special Education School Teachers	15.7%
Librarians and other Education, and Training	5.7%
Law Enforcement Workers (ex. Police)	5.5%
Postsecondary Teachers	4.48%
Business Operations Specialists	4.3%
Healthcare Diagnosing and Treating Practitioners	3.7%
Counselors, Social Workers, and Other Community and Social Service Specialists	3.6%
Other Teachers and Instructors	3.4%
Material Recording, Scheduling, Dispatching, and Distributing Workers	3.3%
Office and Administrative Support Workers	3.3%

Buffalo Business First ranks the Largest Employers in WNY, measured in terms of the number of full-time employees. The State of NY is the largest employer followed by the Federal Executive Board. The Federal Executive Board (FEB) includes all federal employees in WNY in agencies ranging from the Department of Agriculture, to the U.S. Army and Coast Guard, to the Department of Labor.

LARGEST WESTERN NEW YORK EMPLOYERS: PUBLIC SECTOR[18]

RANK	EMPLOYER	NUMBER OF EMPLOYEES
1	State of New York	23,600
2	Federal Executive Board	15,000
6	University at Buffalo	7,076
7	Buffalo City School District	6,528
9	Erie County	5,010
14	Niagara Falls Air Reserve Station	3,165
19	City of Buffalo	2,753

RANK	EMPLOYER	NUMBER OF EMPLOYEES
21	Williamsville Central School District	2,407
22	U.S. Postal Service	2,370
24	VA Western New York Healthcare System	2,274
26	Kenmore-Tonawanda Union Free School District	1,708
32	Niagara Frontier Transit Authority	1,500
35	SUNY Erie Community College	1.428
37	Niagara County	1,425
38	Cattaraugus County	1,363
43	SUNY Buffalo State	1,232
46	Niagara Falls City School District	1,200
47	Chautauqua County	1,123
49	West Seneca Central School District	1,065
53	Erie 1 BOCES	974
59	Erie 2 Chautauqua BOCES	884
60	Jamestown City School District	872
61	Lancaster Central School District	857
63	State University of New York at Fredonia	813
65	Frontier Central School District	813
70	Town of Amherst	736
71	Clarence Central School District	729
77	North Tonawanda School District	704
78	Niagara County Community College	700
81	Lockport City School District	675
85	City of Niagara Falls	645
88	Sweet Home School District	627
89	Hamburg Central School District	621
92	Alfred State College	601
97	Orchard Park Central School District	590

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Buffalo-Niagara's Nonprofits

In the United States there are over 1.56 million nonprofit organizations[19] employing over 12.3 million paid workers,[20] contributing $985.5 billion to the U.S. economy, or 5.4% of the country's GDP.[21] In New York State, as of 2017, there were 91,758 nonprofit organizations employing 1.25 million people (18.1% of the state's workforce)[22] and generating more than $260.26 billion in annual revenues.[23]

According to a recent study[24] of over 380 metro areas, Buffalo-Niagara is in the top 25% in terms of nonprofit density—the number of nonprofits per 10,000 people—and in the top 10% for the overall number of nonprofits in the region.[25]

In the eight-county region of Western New York, three of the top ten employers and 25 of the top 100 are nonprofits. Five hospital systems or care centers (Kaleida, Catholic Health, ECMC, Roswell, and Niagara Falls Memorial) account for 23,292 workers. Three health insurance companies (BlueCross, Fidelis, and Independent Health) account for 4,173 workers.

Compared to other parts of the country, Western New York is distinctive in that it lacks for-profit hospitals and health insurers. There are no for-profit charter schools, and only a small number of for-profit colleges. In other words, the region's "eds and meds" are planted firmly in the social sector. Large education and health care institutions are sometimes referred to as "anchor institutions," meaning that they tend not to move, and that they have large impacts on local economies.

Nonprofits are public charities and private foundations, both classified as 501(c)(3) tax-exempt organizations, as well as other 501(c) organizations granted tax-exempt status under the Internal Revenue Code (IRC).

LARGEST WESTERN NEW YORK EMPLOYERS: NON-PROFIT SECTOR[26]

RANK	EMPLOYER	NUMBER OF EMPLOYEES
3	Kaleida Health	8,301
5	Catholic Health	7,184
10	Erie County Medical Center	3,450
12	Roswell Park Comprehensive Cancer Center	3,328
18	People Inc.	2,980
30	BlueCross BlueShield of Western New York	1,572
34	Fidelis Care	1,497
44	The Resource Center	1,222
48	Independent Health	1,104
50	Niagara Falls Memorial Medical Center	1,029
55	The Arc Erie County New York	943
56	Aspire of WNY Inc.	938
66	BestSelf Behavioral Health	755
68	Baker Victory Services	748
72	Upper Allegheny Health System	726
74	Child and Family Services of Erie County	710
79	Suburban Adult Services Inc.	687
80	Community Services for Every1	680
82	YMCA Buffalo Niagara	671
87	Brooks-TLC Hospital System Inc.	640
90	Alfred University	619
91	Canisius College	606
95	Niagara University	596
96	Cantalician Center for Learning Inc.	594
97	Horizon Corps.	590

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Although this study focuses on paid workers, it is important to note the impact of nonprofit volunteers as well. Buffalo-Niagara's volunteer services are estimated at 16.1 million hours, creating $390.5 million worth of impact.[27]

The number of tax-exempt nonprofits in Buffalo-Niagara increased by 287 between 2008 and 2018, growing from 5,263 organizations to 5,550. However, as of 2017, only 2,811 of the region's nonprofit organizations appear to have paid employees. The other nonprofits could be dormant, all- volunteer, or pass-through organizations.

For the IRS, nonprofits are categorized by type. We now consider nonprofits in Buffalo-Niagara by type.

IRS CATEGORIES FOR EXEMPT ORGANIZATIONS[28]

- Arts, Culture and Humanities
- Educational Institutions and Related Activities
- Environmental Quality, Protection and Beautification
- Animal-Related
- Health - General and Rehabilitative
- Mental Health, Crisis Intervention
- Diseases, Disorders, Medical Disciplines
- Medical Research
- Crime, Legal-Related
- Employment, Job-Related
- Food, Agriculture and Nutrition
- Housing, Shelter
- Public Safety, Disaster Preparedness and Relief
- Recreation, Sports, Leisure, Athletics
- Youth Development
- Human Services - Multipurpose and Other
- International, Foreign Affairs and National Security
- Civil Rights, Social Action, Advocacy
- Community Improvement, Capacity-Building
- Philanthropy, Voluntarism and Grantmaking Foundations
- Science and Technology Research Institutes, Services
- Social Science Research Institutes, Services
- Public, Society Benefit - Multipurpose and Other
- Religion-Related, Spiritual Development
- Mutual/Membership Benefit Organizations, Other

In Buffalo-Niagara, over half of the nonprofits fall under the categories of human services or public & societal benefit, which is similar to national averages for each category.[29] Over the last decade, the composition of the nonprofits in Buffalo-Niagara shifted with a 14% decrease in the number of community improvement and capacity building organizations, a 63% increase in the number of philanthropic, volunteerism and grant-making organizations, and a 24% increase in organizations related to religion or spiritual development.

Financially, when examining national data, almost half (47.5%) of the total revenue for nonprofits in 2018 was from fees for services and goods from private sources such as tuition or hospital patient revenues. Government was the second largest revenue source for nonprofits, followed by private charitable giving. Both nationally and in WNY, the change in income for nonprofits over time could be a result in a shift in any of these three categories, in addition to a variety of other factors. Certain nonprofits offer inelastic goods and services and are better situated to charge more for them, increasing their revenues. Government funding at the federal and/or local level with contracts awarded to nonprofits may be directed toward different types of programs based on new policies such as focusing on active healthy youth and parks, which could shift spending from arts or employment related programs. Also, some governments have shifted away from contracting out services to private entities and started to provide the goods and services through their own programs again.[30]

NONPROFIT CATEGORIES IN BUFFALO-NIAGARA BY NUMBER OF ESTABLISHMENTS, 2018
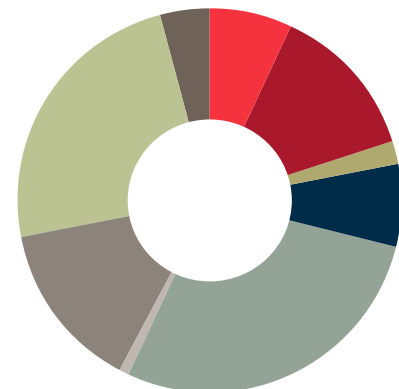
- Arts **7%**
- Eduction **13%**
- Environment & Animals **2%**
- Health Care **7%**
- Human Services **28%**
- International **1%**
- Religion Related **14%**
- Public & Societal Benefit (other) **24%**
- Mutual Benefit **4%**

Urban Institute, National Center for Charitable Statistics. (2018). Internal Revenue Service, Exempt Organizations Business Master File. 2018, Available from: https://nccs-data.urban.org

CHANGE IN NUMBER OF NONPROFITS IN WNY, 2008-2018 ● 2018 ● 2008
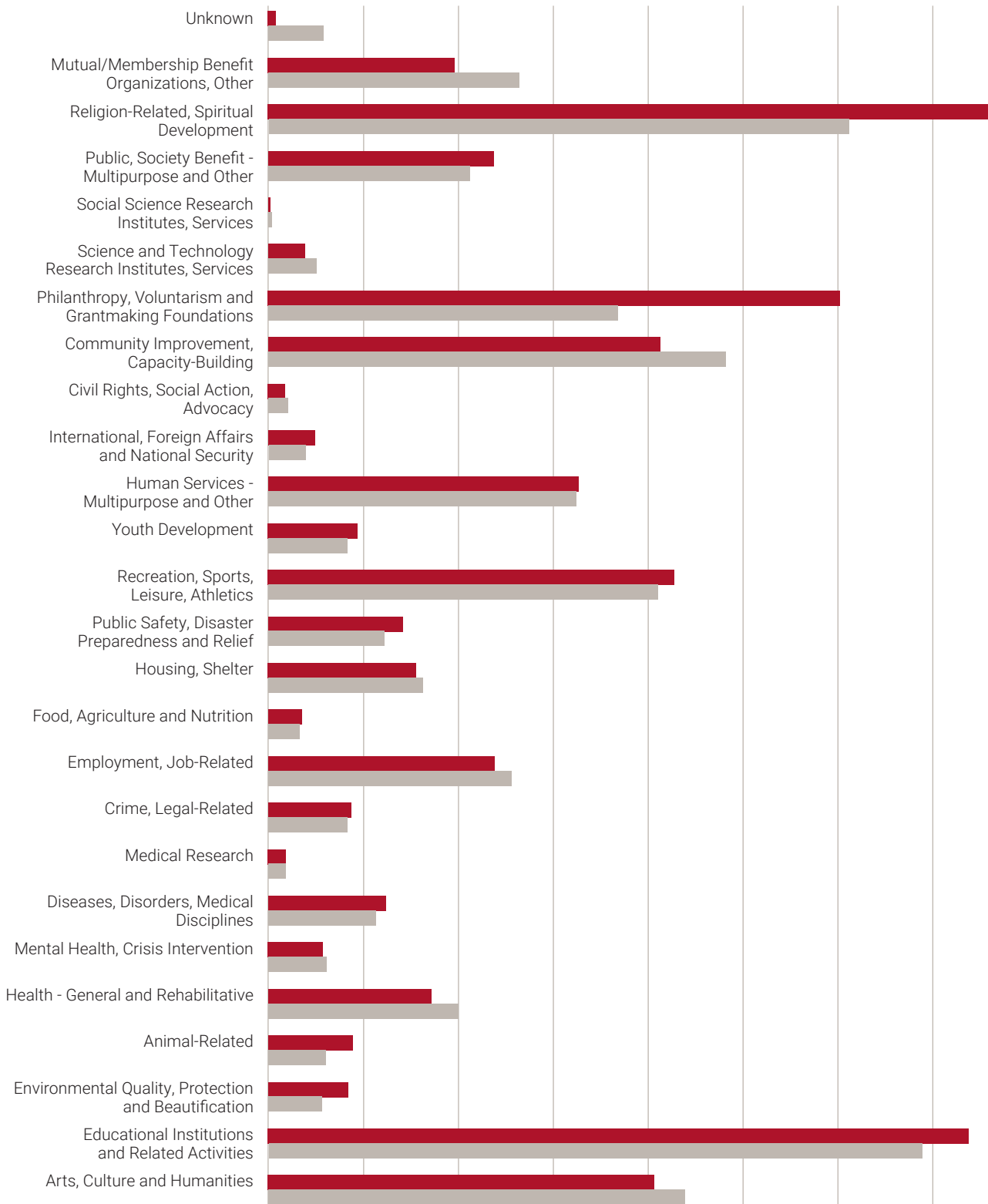
MEASURING THE SOCIAL SECTOR

A Large and Fast Growing Part of the Buffalo-Niagara Economy

Buffalo-Niagara's social sector appears small in its footprint (roughly 10% of establishments), but it is disproportionately large with respect to employment (29.3% of employees) and total annual wages (31.5% of wages). (Note that in this section we are measuring only nonprofits with paid employees).

Growth in Buffalo-Niagara's social sector is outpacing growth in the rest of the economy, as measured by number of establishments and total annual pay. When measuring number of employees, growth in the nonprofit sector has been larger than average, while in government it has been smaller.

The number of total social sector establishments with paid employees increased by roughly 10%, from 2,022 in 2013 to 2,811 in 2017, compared to a 2.3% increase for all establishments and a 1.7% increase for private for-profit establishments. While annual employment for the social sector has risen less than in for-profit establishments (1.1% over four years compared to 3.2%), total annual pay has increased by a considerably greater degree (10.3% in the social sector compared to 8.1% for all other establishments and 8.8% for the regional economy overall).

WNY SOCIAL SECTOR ESTABLISHMENTS, 2017
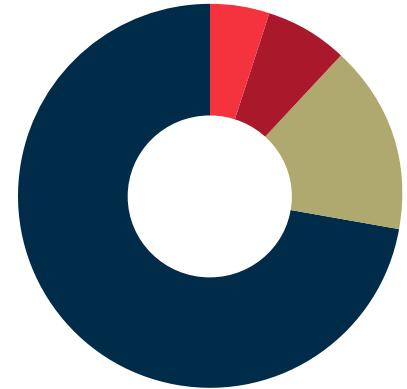
- ● Federal Government **5%**
- ● State Government **7%**
- ● Local Government **16%**
- ● Private Nonprofits **72%**

CHANGE IN NUMBER OF ESTABLISHMENTS BY SECTOR, 2013-2017

4.1% 19.5% 8.0% 1.7% 2.3%

CHANGE IN TOTAL ANNUAL WAGES BY SECTOR, 2013-2017

9.6% 10.7% 10.3% 8.1% 8.8%

- Nonprofit
- Government
- All Social Sector
- Private, for profit
- Total

CHANGE IN NUMBER OF EMPLOYEES BY SECTOR, 2013-2017

2.9% -.05% 1.1% 3.2% 2.6%

CHANGE IN ANNUAL WAGES PER EMPLOYEE BY SECTOR, 2013-2017

6.5% 11.2% 9.1% 4.7% 6.0%

- Nonprofit
- Government
- All Social Sector
- Private, for profit
- Total

*All changes are computed in in 2017$ (2013 values were inflation-adjusted using BLS inflation calculator); Between 2013 and 2017, the categorical definition of establishments changed making Government (Public Administration) include some of what had previously been categorized as Private establishments.

When compared to 2013, the number of public sector establishments grew from 676 to 808, but the number of workers fell from 85,258 to 84,874 (0.5%). Average annual salary rose from $53,872 to $59,923, perhaps in part because workers with less experience were laid off or not replaced in cost-cutting efforts. Further research is required to learn why the number of government establishments rose even as employment was shrinking. Nonprofit establishments grew more (4.1%) than for-profit establishments (1.7%), even though the number of nonprofit employees grew less (2.9%, compared to 3.2%).

Average annual pay for persons employed in nonprofit establishments also rose by a considerable amount (6.5%) compared to the for-profit sector (4.7%). When combined with the 11.2% increase in annual average wages for Buffalo-Niagara's government employees, the annual average wage in the Buffalo-Niagara social sector increased (9.1%) more than double the increase in the for-profit sector (4.7%).

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TABLE 1: RELATIVE SIZE OF THE BUFFALO-NIAGARA SOCIAL SECTOR, 2017

	NONPROFIT (% OF TOTAL)	GOVERNMENT (% OF TOTAL)	ALL SOCIAL SECTOR (% OF TOTAL)	PRIVATE, FOR-PROFIT (% OF TOTAL)	TOTAL
Establishments	2,082 (7.1%)	808 (2.7%)	2,890 (9.8%)	26,549 (90.2%)	29,439
Employees	73,373 (13.6%)	84,874 (15.7%)	158,247 (29.3%)	381,177 (70.7%)	539,424
Total annual wages ($000s)	$3,031,812 (11.8%)	$5,085,912 (19.7%)	$8,117,724 (31.5%)	$17,677,194 (68.5%)	$25,794,918
Annual average wages per employee	$41,321	$59,923	$51,298	$46,375	$47,819
Average weekly wage	$795	$1,152	$987	$892	$920
Wage ratio	0.86	1.25	1.07	0.97	N/A

Source: U.S. Bureau of Labor Statistics Quarterly Census of Wages and Employment (QCEW) 2017 annual average file and 2017 QCEW Research Data on the Nonprofit Sector supplement. The Wage Ratio is the average wage for sector divided by overall average.

TABLE 2: RELATIVE SIZE OF THE BUFFALO-NIAGARA SOCIAL SECTOR, 2013

	NONPROFIT (% OF TOTAL)	GOVERNMENT (% OF TOTAL)	ALL SOCIAL SECTOR (% OF TOTAL)	PRIVATE, FOR-PROFIT (% OF TOTAL)	TOTAL
Establishments	2,000 (6.9%)	676 (2.3%)	2,676 (9.3%)	26,106 (90.7%)	28,782
Employees	71,274 (13.6%)	85,258 (16.2%)	156,532 (29.8%)	369,300 (70.2%)	525,832
Total annual wages ($000s)*	$2,766,575 (11.7%)	$4,593,021 (19.4%)	$7,359,596 (31.0%)	$16,359,048 (69.0%)	$23,718,644
Annual average wages per employee*	$38,816	$53,872	$47,017	$44,297	$45,107
Average weekly wage*	$746	$1,036	$904	$852	$867
Wage ratio	0.86	1.19	1.04	0.98	N/A

Source: U.S. Bureau of Labor Statistics Quarterly Census of Wages and Employment (QCEW) 2013 annual average file and 2013 QCEW Research Data on the Nonprofit Sector supplement. The Wage Ratio is the average weekly wage divided for sector divided by total average weekly wage. *Reported in 2017$ (inflation-adjusted using BLS inflation calculator)

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Nonprofit income also rose. Following national and state trends, the total income of all nonprofits in Buffalo-Niagara has increased by 57%, from $7.1 billion in 2008 to approximately $11.2 billion in 2018. The change in income from 2008 to 2018 varies significantly, depending on the type of organization. For nonprofit organizations working on "Diseases, Disorders, and Medical Disciplines," average income more than tripled (an increase of 235%) between 2008 and 2018. Organizations classified as "Arts, Culture, and Humanities" and "Mutual/Membership Benefit Organizations, Other,' by contrast, experienced decreases in average income (by 24% and 20%, respectively).

Job Postings[31]

Between 2010 and 2018, the demand for people to fill social sector jobs has increased from 4.5% to 7.8% of the total job postings in Buffalo-Niagara.[32] This percent is relatively lower than employment in the sector overall and could lead to several possible conclusions.

While a recent study from Georgetown suggests that almost 90% of jobs are posted online, it may be that many social sector organizations in Buffalo-Niagara hire individuals without using the job posting sites that big data websites crawl.[33, 34] A question for further research is whether the propensity to advertise employment offline or in areas where these sources do not crawl is characteristic of the social sector in general or limited to the Buffalo-Niagara social sector.

SOCIAL SECTOR JOB POSTINGS 2010-2018
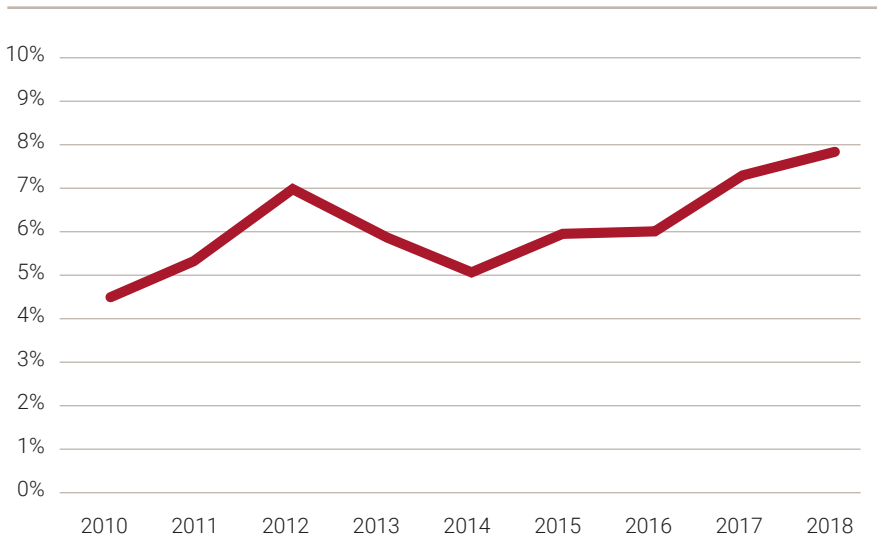
Who works in the social sector?

By analyzing data from the U.S. Census Longitudinal Employer House-hold Dynamics (LEHD) dataset, it is possible to profile and compare the public, nonprofit, and for-profit sectors on their workers' age, monthly earnings, educational attainment, race, and ethnicity.

Diverse Workers, Especially in Nonprofits

In relative terms, persons of color are more numerous in social sector jobs. We estimate that as of 2015, 23.4% of all social sector workers in Erie and Niagara Counties were people of color, including 11.7% of government workers and 37.8% of nonprofit workers, compared to 8.2% of private sector workers and 12.6% of all workers. Similarly, 8.8% of all social sector workers, including 16.4% of nonprofit workers and 2.5% of government workers, were estimated to be of Hispanic or Latino origin, compared to 1.3% of for-profit workers and 3.5% of all workers.

DISTRIBUTION OF JOBS BY RACE, BY SECTOR
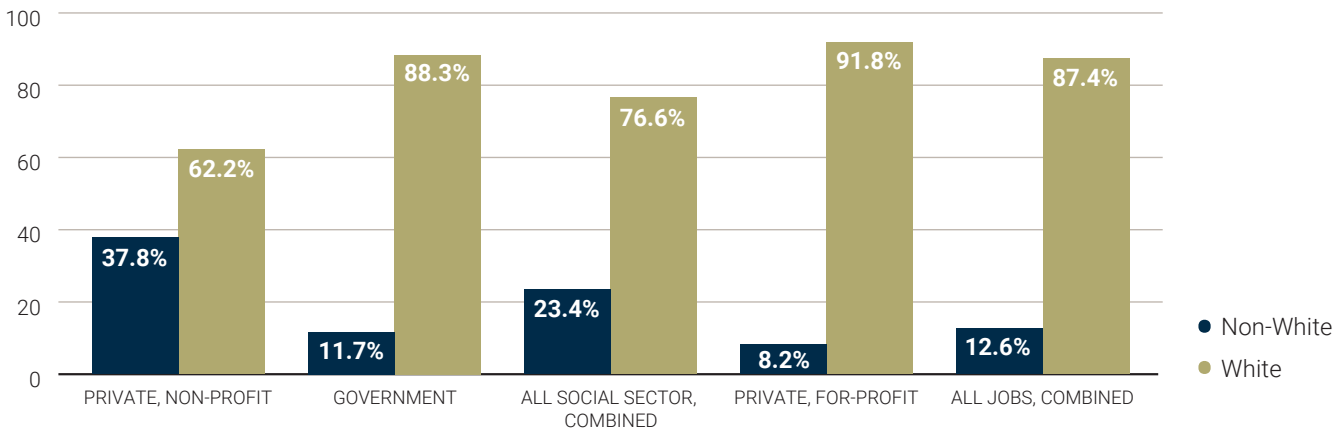
DISTRIBUTION OF JOBS BY ETHNICITY, BY SECTOR
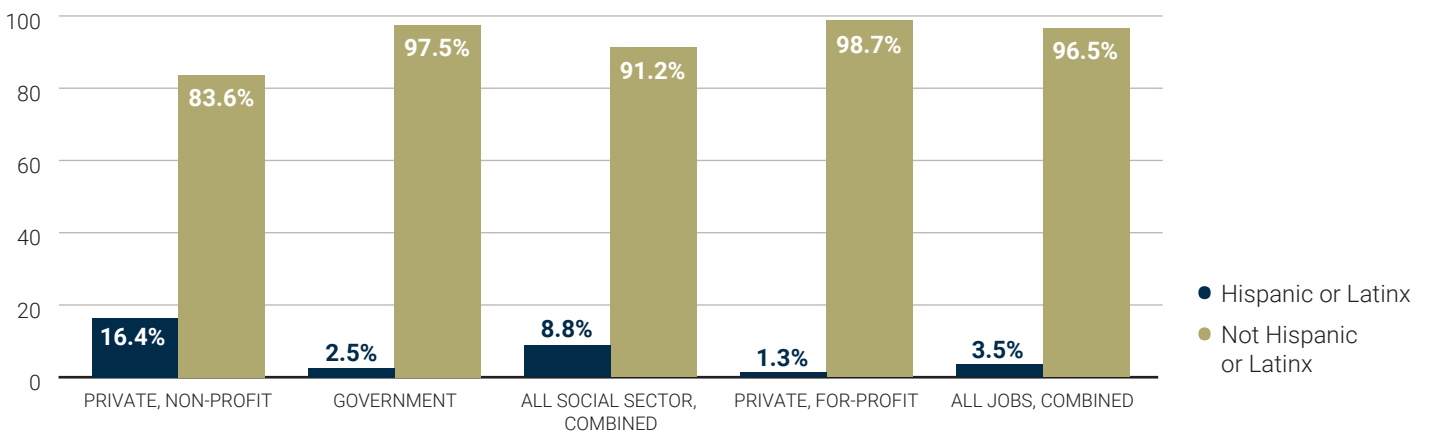
Relatively Older Workers Overall, but Younger in Nonprofits

The Buffalo-Niagara social sector appears to offer proportionally more opportunities to older workers than does the for-profit sector. As of 2015, the public sector is notably older (30% of workers are 55 years or older) than the Buffalo-Niagara economy as a whole (23.9% are 55 and older), and the nonprofit sector is slightly older (25.1% of workers are 55 years or older). However, workers 29 years or younger account for 33% of nonprofit workers, far outpacing the public (12% of workers) and private nonprofit (26.2% of workers) sectors. Based on these findings, it is reasonable to believe that (1) the overall social sector in Buffalo-Niagara might need to hire in relatively large numbers to replace retiring workers; and (2) the nonprofit sector is a gateway for younger workers.

DISTRIBUTION OF JOBS BY AGE, BY SECTOR
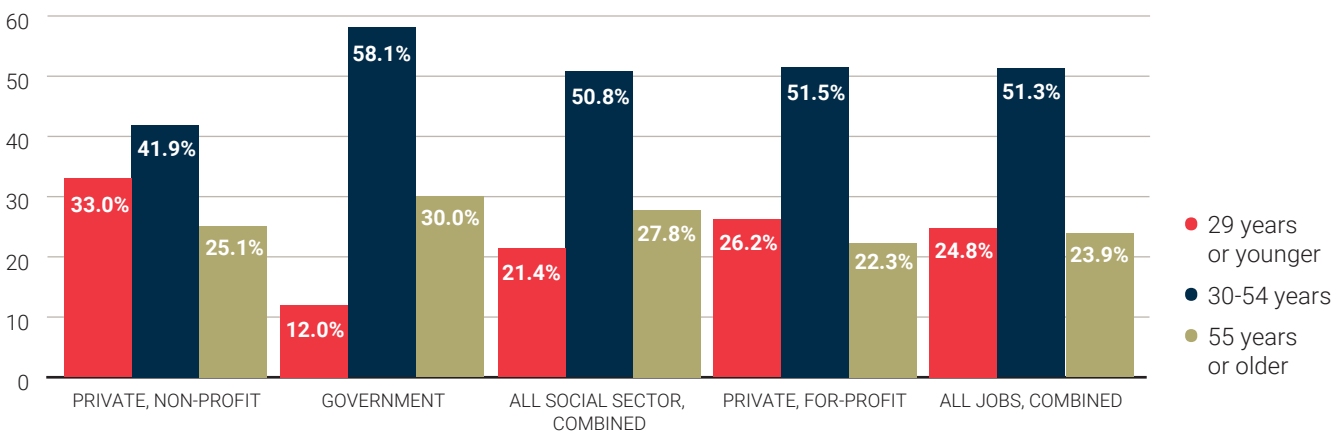
Highly Educated Public Sector Workers

The fraction of college graduates in the public sector (36.7%) is ten percentage points higher than in the overall economy (26.7%), and just 6.1% of government workers have less than a high school diploma, compared to 9.7% of all workers. One implication of this disparity is that public social sector jobs in Buffalo-Niagara might have higher educational requirements than jobs in the remainder of the region's economy.

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Nonprofit Workers of All Educational Backgrounds

As of 2015, slightly more than 39% of Buffalo-Niagara nonprofit workers had a bachelor's degree or higher—the highest proportion of college graduates of any sector. At the same time, roughly 14% of nonprofit workers had less than a high school diploma— far surpassing the percentage of non-high school graduates in the public (6.1%) and private for-profit (9.9%). Thus, on average, the nonprofit workforce in Buffalo-Niagara is characterized by substantially more diversity in educational backgrounds than the public and for-profit sectors.

DISTRIBUTION OF JOBS BY LEVEL OF EDUCATION, BY SECTOR
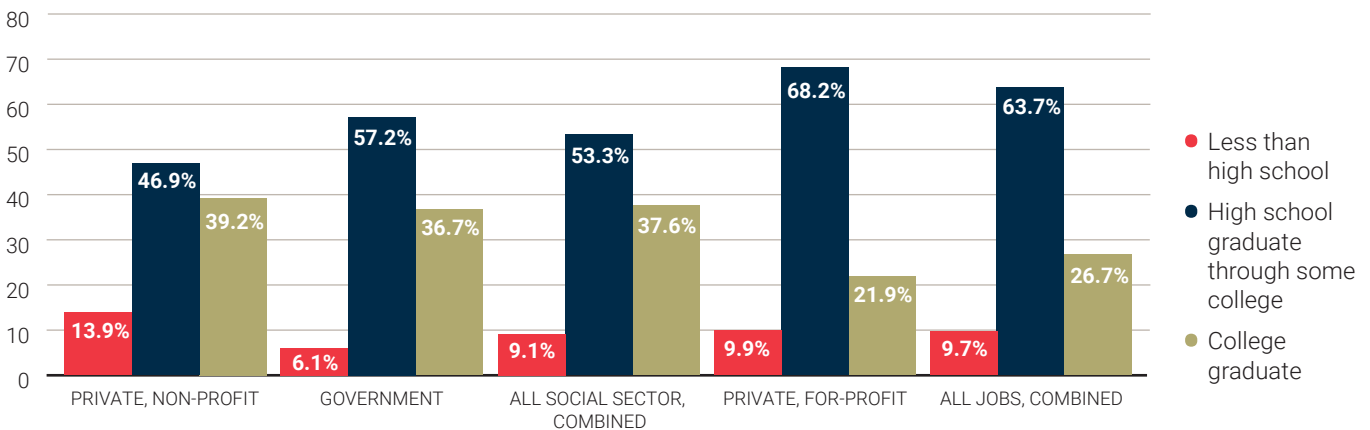
A Mix of High and Low-Paying Jobs

When it comes to earnings, the government and nonprofit portions of the social sector diverge sharply. While three out of every five (61%)government employees in Buffalo-Niagara earn more than $3,333 per month, at nonprofits, only 32.3% of workers earn this amount, and more than one third (35%) earn less than $1,250 per month—a larger proportion than in any other sector. This finding highlights a discrepancy in nonprofit pay—while there are some highly paid individuals working in this sector, a significant portion do not make family sustaining wages. Within the nonprofit sector, the highly-paid workers tend to be doctors, top university or hospital administrators, tenured professors, and CEOs of large corporations such as health insurers and human service agencies.[35]

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Nonprofit and for-profit wages may differ for several reasons. Many studies show that some nonprofit workers are willing to accept lower salaries in order to work for a mission-driven organization.[36] In addition, nonprofits are concentrated in the low-paying areas of the service economy.[37] Unions raise their members' wages by bargaining collectively on their behalf, likely accounting for some of the difference in pay between the public and nonprofit sectors.

Nonprofit workers may also suffer from a lack of perks, supports, and resources. A 2013 report from the Urban Institute found that most nonprofit organizations, when funding becomes short, cut salaries, benefits, and other costs before scaling back their operations. "There is this feeling that the mission is so important that nothing should get in the way of it," Elizabeth Boris, one of the Urban Institute report's authors, says.[38] Nonprofit workers often do not qualify for as many benefits, such as loan forgiveness or pension plans, as public workers.[39] Nationally, studies have shown that low salaries and weak benefits in the nonprofit sector have caused burnout and higher turnover rates, which negatively impact institutional morale and budgets.[40] (The Center for American Progress estimates that it costs approximately 20% of a job's salary to refill a position).[41]

Across the nation and in Buffalo-Niagara, the nonprofit workforce is predominantly women, and includes disproportionate numbers of women of color. If salaries are low and working conditions are inadequate, then issues of race and gender bias emerge.[42]

DISTRIBUTION OF JOBS BY MONTHLY WAGES, BY SECTOR

- $1,250/mo or less
- $1,251-$3,333/mo
- Greater than $3,333/mo

PRIVATE, NON-PROFIT: 35.2%, 32.6%, 32.3%
GOVERNMENT: 16.9%, 22.1%, 60.9%
ALL SOCIAL SECTOR, COMBINED: 25.1%, 26.8%, 48.0%
PRIVATE, FOR-PROFIT: 28.4%, 35.0%, 36.6%
ALL JOBS, COMBINED: 27.4%, 32.6%, 40.0%

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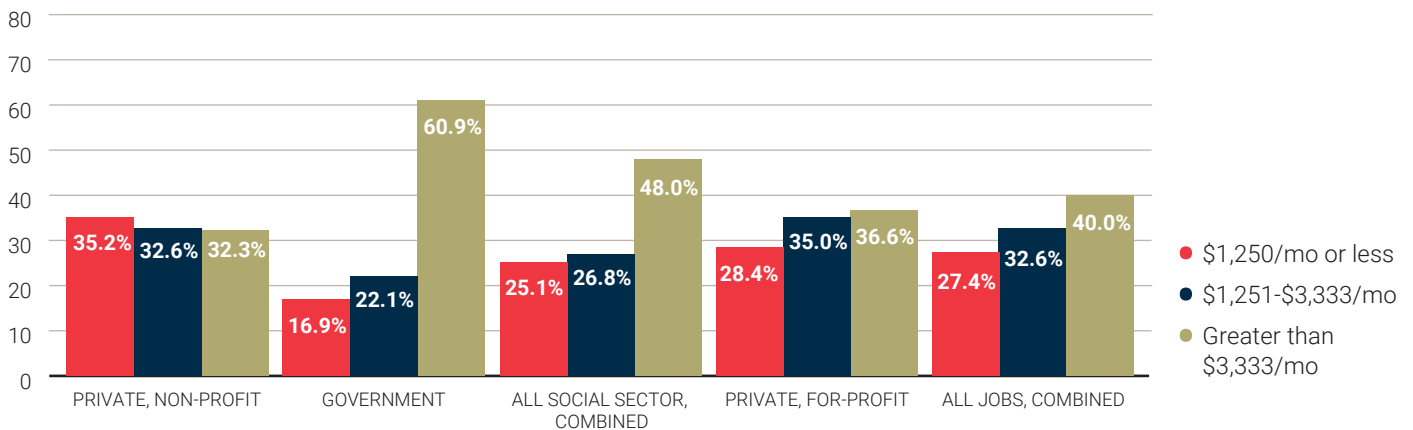
TABLE 3: ESTIMATED BREAKDOWN OF THE SOCIAL SECTOR WORKFORCE[43]

	PRIVATE, NONPROFIT (% OF SECTOR)	GOVERNMENT (% OF SECTOR)	ALL SOCIAL SECTOR (% OF SECTOR)	PRIVATE, FOR-PROFIT (% OF SECTOR)	TOTAL (% OF SECTOR)
LODES Total	71,577	87,680	159,237	388,614	547,851
EARNINGS					
$1,250/mo or less	25,173 (35.2%)	14,855 (16.9%)	40,028 (25.1%)	110,296 (28.4%)	150,324 (27.4%)
$1,251-$3,333/mo	23,296 (32.6%)	19,407 (22.1%)	42,703 (26.8%)	135,896 (35.0%)	178,599 (32.6%)
Greater than $3,333/mo	23,088 (32.3%)	53,418 (60.9%)	76,506 (48.0%)	142,422 (36.6%)	218,928 (40.0%)
AGE					
29 years or younger	23,619 (33.0%)	10,492 (12.0%)	34,111 (21.4%)	101,868 (26.2%)	135,979 (24.8%)
30–54 years	29,959 (41.9%)	50,910 (58.1%)	80,869 (50.8%)	200,107 (51.5%)	280,976 (51.3%)
55 years or older	17,979 (25.1%)	26,278 (30.0%)	44,257 (27.8%)	86,639 (22.3%)	130,896 (23.9%)
EDUCATION (FOR WORKERS 30 YEARS OR OLDER)					
College graduate	18,780 (39.2%)	28[44],321 (36.7%)	47,101 (37.6%)	62,679 (21.9%)	109,780 (26.7%)
High school through some college	22,503 (46.9%)	44,139 (57.2%)	66,642 (53.3%)	195,604 (68.2%)	262,246 (63.7%)
Less than high school	6,655 (13.9%)	4,728 (6.1%)	11,383 (9.1%)	28,643 (9.9%)	39,846 (9.7%)
RACE					
Non-White Person of Color	27,047 (37.8%)	10,251 (11.7%)	37,298 (23.4%)	31,841 (8.2%)	69,139 (12.6%)
White	44,510 (62.2%)	77,429 (88.3%)	121,939 (76.6%)	356,773 (91.8%)	478,712 (87.4%)
ETHNICITY					
Hispanic or Latino	11,717 (16.4%)	2,230 (2.5%)	13,947 (8.8%)	5,186 (1.3%)	19,133 (3.5%)
Not Hispanic or Latino	59,840 (83.6%)	85,450 (97.5%)	145,290 (91.2%)	383,428 (98.7%)	528,718 (96.5%)

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Projected Growth in Social Sector Occupations

The Bureau of Labor Statistics puts together an Occupational Outlook Handbook with information about duties, education and training, pay and outlook for hundreds of occupations.[45] This data is not divided into for-profit, nonprofit, and government categories. As a result, the following sections use the North American Industry Classification categories to look at jobs heavily concentrated – though not exclusively present – in the social sector (See Table 3). The category that most closely aligns with the social sector is "Community and social service occupations." The median annual wage for community and social service occupations was $43,840 in May 2017, which was higher than the median annual wage for all occupations of $37,690.[46]

TABLE 3: A NAICS-Based Operational Definition of the Social Sector	
Sectors	
92	Public Administration
61[47]	Educational Services
Subsectors	
51(0)(3)(4)	Information, Newspaper, motion picture
524	Scientific Research and Development Services; Legal, Consulting, & Other Services
621	Healthcare and Social Assistance
622	Specialty Hospitals
623	Nursing Care, Residential Intellectual and Developmental Disability, Mental Health, and Substance Abuse Facilities
624	Social Assistance
711	Arts, Entertainment, Recreation
712	Museums, Historical Sites, and Similar Institutions
813	Religious, Grantmaking, Civic, Professional, and Similar Organizations
Industry Groups	
2213	Water, Sewage and Other Systems
4851	Urban Transit Systems
4852	Interurban and Rural Bus Transportation
4854	School and Employee Bus Transportation

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Across the U.S., employment at community and social service occupations is projected to grow 14.5 percent from 2016 to 2026, adding about 371,900 jobs, which is much faster than the average for all occupations. Three of the other the top five occupation groups projected to grow most significantly between 2016 and 2026 include many jobs in the social sector: healthcare practitioners and technical occupations (15.3%), personal care and service occupations (19.1%), and healthcare support occupations (23.6%).

The demand for services, and therefore jobs, in this sector does not tend to decrease – and may increase – during recessions, when the private sector is less able to provide services.[48] The region's aging population and growing number of retirees suggest that, especially now, it is vital to prepare a new workforce for their future workplaces.

In Buffalo-Niagara, as of 2018, approximately 33% of occupations have a low risk of automation, 45% have a medium risk, and 22% have a high risk[49] (the remainder are unspecified). [See Appendix 3 for full table of Social Sector breakdown]. For social sector occupations, 94% have a low (80%) or medium (14%) risk of automation.[50] Jobs with high social skill requirements may be less likely to be automated; they are also experiencing higher wage growth. In 2015, studies from Harvard[51] and Stanford[52] found that jobs with high social skill requirements have experienced greater wage growth than others.

Skills and Education

Researchers have suggested that in the U.S., there may be a skills gap of 4.4 million openings:[53] i.e., situations where there are not enough workers with the appropriate background to fill specific occupations. Surveys of employers routinely find that companies have difficulty finding skilled workers.[54] Reasons for this may include misalignment or lack of communication between hiring and training systems, or inadequate pay that does not attract applicants.

Education and Levels of Experience in Job Postings, 2018
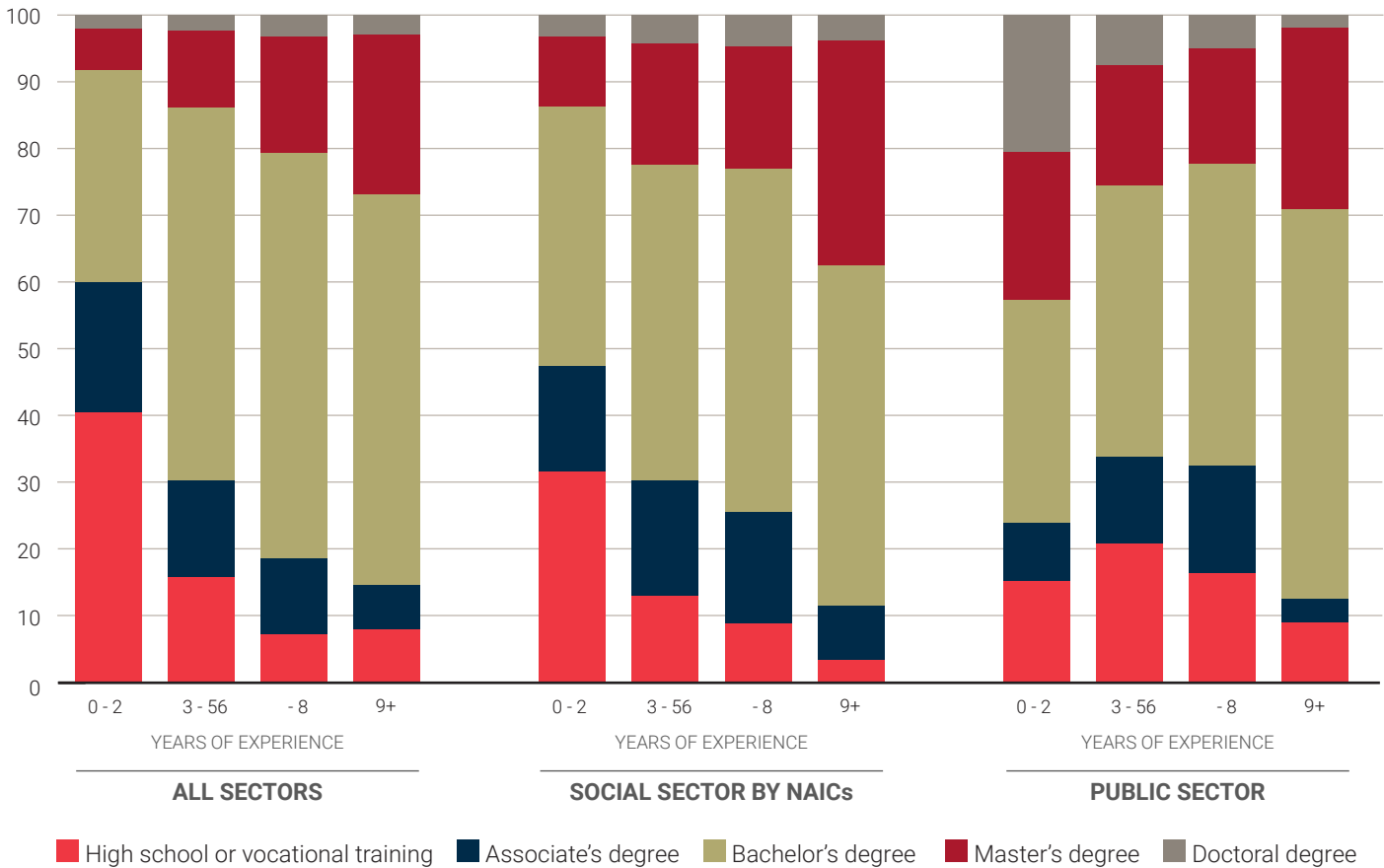
Source: Labor Insight Jobs (Burning Glass Technologies). Full year 2018 AND (MSA : Buffalo-Cheektowaga-Niagara Falls, NY (Metropolitan Statistical Area)) Postings Available: 89, 415 with 59,762 unspecified (as to what level of education and experience are requested). Accessed April 2018.

Of the job postings in Buffalo-Niagara in 2018 across all sectors that specified minimum education levels, over half (57.7%) required a Bachelor's degree or higher. This figure is high compared to the number of people in Buffalo-Niagara aged 25 and older with Bachelor's degrees or higher (31.1%) and compared to the national job postings requesting Bachelor's degrees or higher (31%). It is also high when compared to number of jobs in (not job postings) in Buffalo-Niagara that require college education, which is 21%. Part of the explanation may be that lower-skilled jobs are not posted online as often in Buffalo-Niagara as in other parts of the nation; thus, Buffalo-Niagara's postings are dominated by higher skill jobs.[55]

Of the job postings in Buffalo-Niagara in 2018 across all sectors that specified minimum education levels, over half (57.7%) required a Bachelor's degree or higher.

EDUCATION LEVELS REQUESTED IN JOB POSTING, BY SECTOR 2018
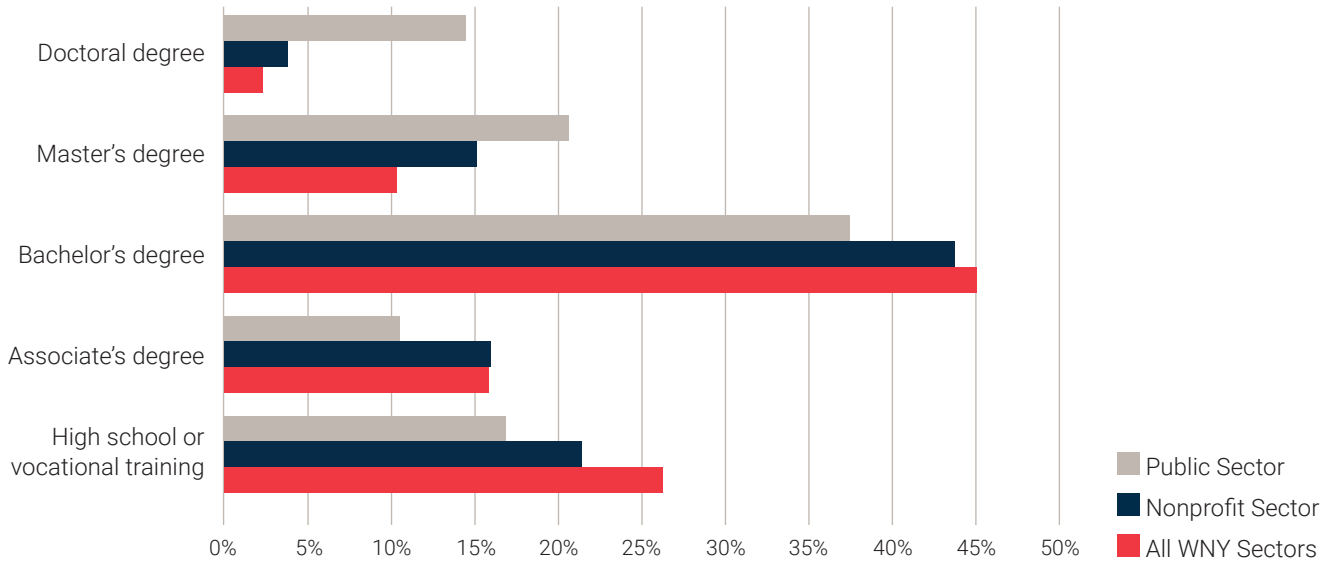
Public sector jobs in Buffalo-Niagara have high requirements for education but lower requirements for experience. Of the public sector job postings that specified minimum education levels, 73% required a Bachelor's degree or higher. But 57% of public sector job postings required only 0-2 years of experience, compared to 48% of all job postings.

EXPERIENCE LEVELS REQUESTED IN JOB POSTING, BY SECTOR 2018
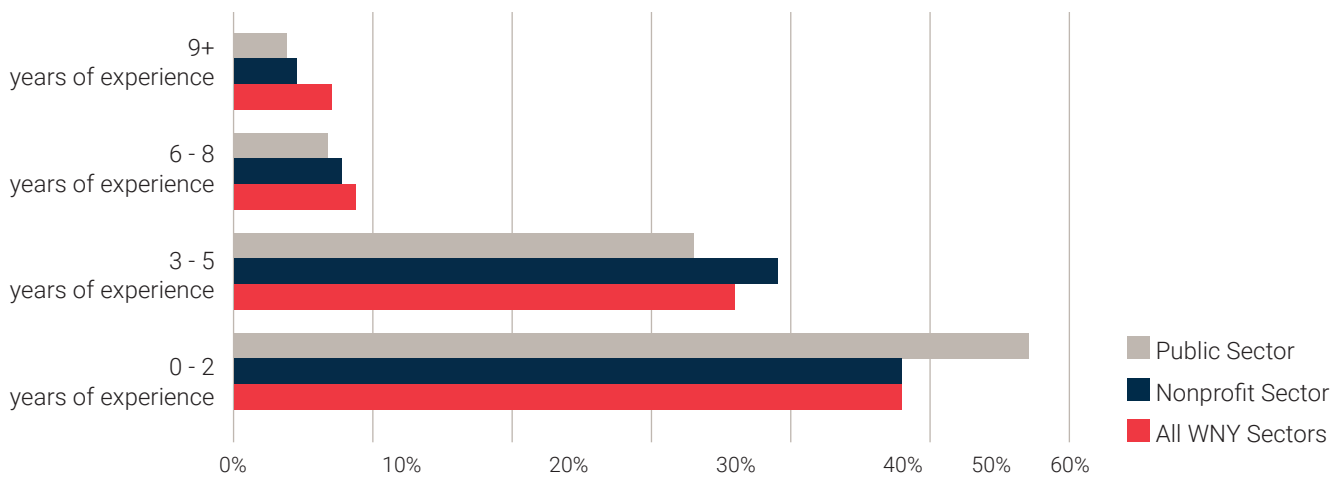
Technology and Data

Workplaces have changed significantly in the last two decades as new data and technology have been developed. Are these new skills in demand for social sector jobs? Technology skills, for the purposes of this report, include skills related to programming languages, operating systems, software, and use of certain high-technology related equipment (for example, in labs or hospitals). Data skills refer to the use of data and information such as data analysis, data science, and data engineering.

TECHNOLOGY SKILLS SPECIFIED IN JOB POSTING
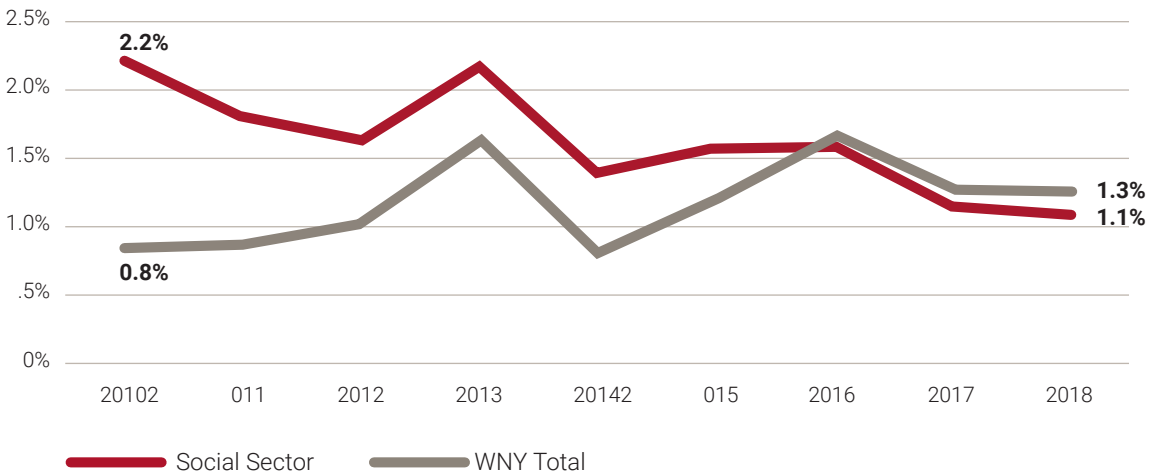
Nationally, for jobs related to computer and mathematical science occupations, the median annual wage increased 100% from 2008 to 2018. By comparison, wages in the social sector increased much less: education, training, and library occupations increased by 12%; healthcare practitioners and technical occupations by 17%; and community and social services occupations by 18%. In Buffalo-Niagara computer and mathematical science occupations saw wage growth of only 22%, while education, training, and library occupations increased by 14%; healthcare practitioners and technical occupations by 23%, and community and social services occupations by 12%.

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DATA SKILLS SPECIFIED IN JOB POSTINGS

Social Sector — WNY Total
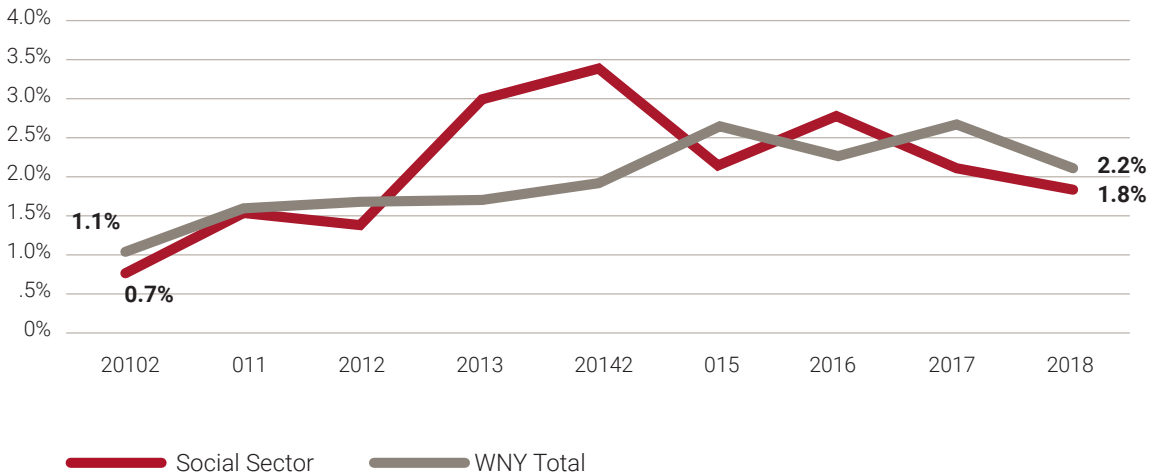
Over time, in social sector and in all Buffalo-Niagara occupations, the demand (or at least the articulation of the demand) for technology skills has risen only slightly. However, in the same time period, in keeping with national trends, the articulated demand for data skills has doubled, although the local demand for these skills is still low, representing 1.8% of the social sector and 2.2% of the Buffalo-Niagara total job postings.[56]

Neither data analysis skills nor technology skills are ranked among the top 30 requested skill clusters for occupations in the social sector [See Appendix]. Of the 2,600 job postings in January and February of 2018, data analysis or data skills were not mentioned as a top ten skill in any occupation.[57] For technology related jobs, in Buffalo-Niagara the wages are 36% less than the average wages in similar industries across the U.S. So, while the social sector is on par with Buffalo-Niagara in terms of requesting technology and data related skills from potential workers, the region as a whole is behind the rest of the nation in incentivizing workers with pay in these jobs.

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LOOKING AHEAD

Photo courtesy of Cornell High Road Fellowship Program, at the West Side Bazaar

This study examined one aspect of the social economy in one particular place—paid employment in the social sector in Buffalo-Niagara. Some of the findings suggest opportunities for better understanding and support for this vital and growing sector.

One clear conclusion is that we cannot understand the Buffalo-Niagara economy and its future without understanding its social sector, which accounts for roughly one third of its workers and eight out of its ten largest employers. The sheer magnitude of the social sector, its focus on public goods, and the extent to which it is influenced by government policies, programs, and funding decisions, all suggest that the social sector should be at the heart of economic development strategies. Current economic development strategies revolve around providing public incentives to for-profit companies in exchange for the promise of jobs created or retained. The public might obtain greater impacts and higher efficiencies by investing directly in public goods. In addition, the nonprofit sector is more than twice as racially diverse as the for-profit sector and offers more positions that do not require high levels of education and experience; thus it is a natural focus for workforce development and strategies to promote equity and inclusion through quality jobs.

Technology and technology-related skills appear to be in lower demand throughout Buffalo-Niagara, especially in the social sector. Policies that support the integration of and training in relevant technologies for the social sector would ensure that the workers in this large portion of the economy are equipped with the skills and knowledge that are needed in the future. Are there ways that economic development and workforce education programs could support the need of the social sector for more good paying jobs? Are there enough jobs in the technology sector in Buffalo-Niagara, or do more need to be created? Can non-profit and public employers not afford high quality technology equipment, or have they failed to train their workforce to use it?

The findings highlight the continuing need for communication and collaboration between institutions of higher education and workplaces, to ensure that workers are being educated to fill

We cannot understand the Buffalo-Niagara economy and its future without understanding its social sector, which accounts for roughly one third of its workers and eight out of its ten largest employers.

the jobs that will exist. While for-profit companies may have the resources to articulate their needs to educational institutions, public and nonprofit employers may be failing to clearly forecast their needs and collaborate with educators to fill them.

For many of the establishments in the social sector, much of the data work still involves "pencil and paper, or hand entry data into simple storage formats like Excel" and "there are limited incentives for careful maintenance of documentation of data."[58] While this study explored the demand for technology and data skills in the social sector, more research could illuminate how these establishments could adapt to the future use of new technologies and what strategies they can employ in order to remain competitive for employees. Often, nonprofits are asked to track data, but with no personnel to do so. As Mader suggests, "because this lack of representation is not a technological matter, these issues will not be addressed by coming advancements in data tracking, and instead require either legislation or reconceptualization of models of data."[59] Foundations that require data from groups they fund may wish to consider less onerous types of reporting, or the funding of data and technology positions and equipment to make data collection and reporting more efficient.

Potential Implications

- **Help both students and job seekers to identify skills they may consider developing;**

- **Help both students and job seekers to identify programs that offer the development of these skills that will be in future demand;**

- **Institutions of higher education can consider current and future availability and training programs that ultimately lead to gainful employment in occupations with identified skills gaps;**

- **Policymakers can consider supporting or expanding programs that attract students to higher ed programs that fill these gaps either at institutions of higher education or at workforce development training programs;**

- **There is little communication between higher education institutions and social sector (and other) employers; a common language would be helpful in articulating the skills that are needed for meaningful employment.**

Further Research Needs

There is a need for better capturing and categorizing data and information about the social sector. To give just one example, there is no way to differentiate teachers in the public sector from those in the private sector when they are grouped by industry or occupation code. In our evolving regional and national economies, it is striking that we know so little about such a huge portion of the employees in our labor markets. An additional recommendation is to delve more deeply into understanding the nonprofit sector, particularly the smaller organizations that, as the data suggested, may not post job openings online. National organizations like the Bureau of Labor Statistics and the U.S. Census Bureau can lead the way on these efforts. As demonstrated in this report, existing data products, like the QCEW Nonprofit Data supplement (BLS) and the LEHD LODES program (Census Bureau), capture critical data points that allow for regular monitoring and trend detection in the size and characteristics of the private for-profit and public sector, with some ability to do the same in the nonprofit sector. By marginally adjusting data collection protocols, it could be possible to allow for more precise measurement of the social sector workforce, including worker demographic and socioeconomic characteristics. Rather than relying on statistical methods to make ecological inferences about these unknown values from known data, federal agencies could usefully coordinate their activities to take some of the guesswork out of social sector research. While existing (past, historical) data could not be easily retrofitted to be compatible with new data breakdowns (by private for-profit, nonprofit, and public sector), such issues have not stopped these agencies from updating their data collection protocols in the past. Altering the U.S. Census short-form questionnaire to better capture information on citizen ethnicity is just one monumental example.

By marginally adjusting data collection protocols, it could be possible to allow for more precise measurement of the social sector workforce

APPENDICES

APPENDIX I: NOTES ON DATA

Social Sector Data Availability

The social sector is difficult to measure with current systems of data and data collection. For this study, it was necessary to use both big data and small data to analyze the size and characteristics of the labor market; supply and demand for jobs in the social sector; current and projected future capacity and information regarding education, training, and job placement; and any notable changes over time in the aforementioned areas.

Like all datasets, when reported sample sizes are too small, information is withheld. Given the specificity of this study examining one particular sector—the social sector (nonprofits plus government)—in one particular place— Buffalo-Niagara -- some information was not available.

Why Use Big Data?

Every day, 2.5 quintillion bytes of data are created. Much of this data reflects real time information related to labor markets. Aptly called Big Data, due to the sheer volume of information and the size of the specialized software needed to gather and to analyze it, it has garnered the attention of academics, decision-makers, and companies looking to improve their understanding of the real-time world around them. Employers are using online job boards and researchers as they consider how keep pace with and improve matching in labor markets.[60] By contrast, small data is designed to focus on specific, premeditated questions and tell contextual stories. Therefore, limits to using small data include small sample sizes and potential restrictions in who has access to it. As opposed to big data, small data can be characterized by limits in scope, temporality, size/variety, and volume; this data is collected through studies that attempt to calculate and include their levels of error, potential or actual biases, and uncertainties.[61]

Big Data is defined by its fundamental characteristics—velocity (data are growing and changing in a rapid way), Variety (data come in different formats) and Volume (huge amount of data is generated every second).[62] The goal of looking at big data is "to help decision makers and data scientists to take the next best actions based on discovered patterns, data relations and newly extracted knowledge from Big Data."[63] Yet, as noted in this study, there is still considerable information missing about today's labor markets. Researchers found three major sources of labor market information: search engine data (like Google Insights), online advertised job vacancy data, and social networking sites like LinkedIn. Some have estimated that 70% of more of US job announcements are posted on the internet.[64] But, again, when explored through the lens of the social sector, many small organization information is missing.

Tracking employment trends in a timely and relevant manner is of particular interest to the general public, economists, and policy makers… but "in many OECD countries, employment data re only available after several weeks at best[65]" and some researchers have expressed "concerns that these data may not reflect well the ongoing structural changes in the economy.[66]"

Kitchin & Lauriault[67] lay out the differences comparing small and big data by several characteristics:

CHARACTERISTIC	SMALL DATA	BIG DATA
Volume	Limited to large	Very large
Exhaustivity	Samples	Entire populations
Resolution and indexicality	Coarse and weak to tight and strong	Tight and strong
Relationality	Weak to strong	Strong
Velocity	Slow, freeze-framed	Fast
Variety	Limited to wide	Wide
Flexible and scalable	Low to middling	High

Some Limits of Big Data

A risk to using big data to create trends is that the data and its collection were not designed to garner insights and trends, therefore there is the potential to surmise fallacies or create misconceptions about a particular environment. As noted earlier too, big data, while big, may not be complete, and could have a sampling bias of its own. It does not provide as complete coverage as job survey data since not all jobs are posted electronically[68] and have not been tested for reliability. For example companies may just post for jobs to get a sense of the market without any intention to hire.

Researchers have noted three major errors with big data: (1) errors caused by poor data quality, that information is context dependent and what may be good data to use in one context may be considered poor quality for another (OECD, 2015);

(2) errors that come with the inappropriate use of data and analytics, (3) errors that are caused by unexpectedly changing environment from which data is collected. The OECD (2011b) Quality Framework and Guidelines for OECD Statistical Activities defines data quality through the following dimensions:

• Relevance

• Accuracy

• Credibility

• Timeliness

• Accessibility

• Interpretability

• Coherence

In addition to the challenges that big data may present, there is an additional stress factor for the social sector in particular. Most big data today is accessed and used through contracts (starting, on average at $15,000) with companies like Burning Glass who have hardware large enough to store the information.

Many social sector organizations are founded with little in the way of financial resources, yet they have made substantial contributions to economic development and general well-being in the communities they serve and from which they arise.[69] Smaller organizations frequently do not have the capacity, staff skills, or commercial languages necessary,[70] and expensive contracts or even larger organizations may crowd out smaller ones that provide vital services and have expert local knowledge. Therefore, considerations should be made and exceptions noted when utilizing big data to examine local labor markets.

Opportunities of Big Data

Despite some potential challenges in using big data in isolation, there are many opportunities to integrate both the data and its findings in variety of ways. Big Data can be used to produce analyses and trends—found when data is taken in such a large scope—to pose the questions against what is seen on a much more micro, regional level. For example if a study finds that, nationally, there seems to be a demand for baseline skills[71] that are difficult to define, the question can be posed regionally—is this true for organizations in our area? Other examples could be understanding the demand for advanced coding and data analysis skills,[72] or whether a Bachelor's degree is being used as a proxy for soft skills.[73] So, big data can shine the proverbial light on areas where researchers might want to explore.

Big data provides information in real time so, relative to Census data that sometimes requires years to obtain new information, there is less of a time lag and there is a higher level of specificity. Big data also makes sampling unnecessary since we are able to deal with practically unlimited amounts of data.

Particularly for the social sector, "most social policy questions do not lend themselves to randomized control trials." It is not possible to ethically or sometimes feasibly seek causality by intentionally denying support if capable of providing it, but new types and "structures of these data will require new approaches to research design and data analysis.[74]" Big data is gathered often through algorithms and then different algorithms are used to make sense of the information. As such, there is an opportunity for companies or individuals working with big data to categorize information more quickly in new ways that are not possible with small datasets.

DOCUMENTING THE SOCIAL SECTOR IN PUBLIC DATASETS

There are at least two regularly updated secondary datasets published and maintained by U.S. federal agencies that allow for measuring and tracking metrics of the public and nonprofit sectors over time:

- The Bureau of Labor Statistics (BLS) Quarterly Census of Employment and Wages (QCEW), available at: https://www.bls.gov/cew/datatoc.htm

- The U.S. Census Bureau Longitudinal Employer-Household Dynamics (LEHD) Origin-Destination Employment Statistics (LODES), particularly the Workplace Area Characteristics (WAC) table, available at: https://lehd.ces.census.gov/data/#lodes

FEDERAL SOURCES OF SOCIAL SECTOR DATA

SOURCE	RELEVANT VARIABLES	TEMPORAL AND SPATIAL COVERAGE	NOTES ON THE SOCIAL SECTOR
BLS QCEW and Nonprofit Data Supplement	Count of establishments by ownership (private, government) Annual average employment by ownership (private, government) Total annual wages by ownership (private, government) Count of private sector nonprofit establishments Annual average nonprofit employment (private sector) Total annual nonprofit wages (private sector)	Annual average files by area are available from 1990-2017 (current release) for counties and metropolitan regions; the Nonprofit data supplement by area (county and MSA) is available from 2013 to 2017 (current release)	As defined above, the size of the social sector in terms of establishments, employees, and wages can be directly measured from these two data files
LODES WAC	Number of jobs (total, private sector, and government) Number of jobs by race/ethnicity (total, private, government) Number of jobs by age (total, private, government) Number of jobs by wages (total, private, government) Number of jobs by education level (total, private, government)	2002 to 2015 (current release) for census blocks and higher levels	The breakdown of the public sector by race, ethnicity, age, education, and earnings can be accomplished directly from this dataset. Breaking down the nonprofit sector in the same way—in order to create an overall picture of the social sector—can be accomplished using statistical methods (King 1997)

APPENDIX 2: SUPPLEMENTAL BACKGROUND ON THE SOCIAL ECONOMY

In 1912, Charles Gide described the social economy as "the study of all efforts made to improve the condition of the people.[75]" He considered that study to be the science of social justice when he brought this term into the fore. French scholars have defined social economy using a normative approach, whereby it is said to consist of entities that are characterized by four principles:

- placing service to its members or to the community ahead of profit;

- autonomous management;

- a democratic decision-making process; and

- the primacy of people and work over capital in the distribution of revenues.[76]

While this idea of the social economy has numerous adherents throughout the globe, it is important to recognize that French and North American perspectives on the concept are not necessarily in lock-step over the preceding principles. The influential Canadian literature on the social economy, for instance, defines the social economy as "…a bridging concept for organizations that have social objectives central to their mission and their practice, and either have explicit economic objectives or generate some economic value through the services they provide and the purchases they undertake."[77]

In this view, the definition of social economy hinges on two central concepts: social mission and economic value. In other words, the social economy consists of actors and entities that generate economic value, "either explicitly as through the purchase of supplies or implicitly in the imputed value of their services,"[78] in the process of contributing to the public good. It visualizes the social economy as simultaneously operating within and outside both the public and private sectors. This "interactive approach" to understanding how organizations in the social economy interact with other parts of society also suggests that work in the social economy need not strictly receive financial compensation.[79]

APPENDIX 3: SOC CODES

00-0000	All Occupations
11-9031	Education administrators, preschool and child care center/program
11-9032	Education administrators, elementary and secondary school
11-9033	Education administrators, postsecondary
11-9039	Education administrators, all other
11-9041	Engineering managers
11-9131	Postmasters and mail superintendents
11-9151	Social and community service managers
19-0000	Life, physical, and social science occupations
19-3099	Social scientists and related workers, all other
21-0000	Community and social services occupations
21-1011	Substance abuse and behavioral disorder counselors
21-1012	Educational, vocational, and school counselors
21-1014	Mental health counselors
21-1015	Rehabilitation counselors
21-1021	Child, family, and school social workers
21-1022	Medical and public health social workers
21-1023	Mental health and substance abuse social workers
21-1029	Social workers, all other
21-1091	Health educators
21-1093	Social and human service assistants
21-1099	Community and social service specialists, all other
21-2021	Directors, religious activities and education
23-0000	Legal occupations
23-1022	Arbitrators, mediators, and conciliators
23-1023	Judges, magistrate judges, and magistrates
23-2011	Paralegals and legal assistants
25-0000	Education, training, and library occupations
25-1011	Business teachers, postsecondary
25-1022	Mathematical science teachers, postsecondary
25-1042	Biological science teachers, postsecondary

25-1052	Chemistry teachers, postsecondary
25-1054	Physics teachers, postsecondary
25-1066	Psychology teachers, postsecondary
25-1071	Health specialties teachers, postsecondary
25-1072	Nursing instructors and teachers, postsecondary
25-1081	Education teachers, postsecondary
25-1112	Law teachers, postsecondary
25-1121	Art, drama, and music teachers, postsecondary
25-1123	English language and literature teachers, postsecondary
25-1125	History teachers, postsecondary
25-1126	Philosophy and religion teachers, postsecondary
25-1191	Graduate teaching assistants
25-1194	Vocational education teachers, postsecondary
25-1199	Postsecondary teachers, all other
25-2011	Preschool teachers, except special education
25-2012	Kindergarten teachers, except special education
25-2021	Elementary school teachers, except special education
25-2022	Middle school teachers, except special and vocational education
25-2023	Vocational education teachers, middle school
25-2031	Secondary school teachers, except special and vocational education
25-2032	Vocational education teachers, secondary school
25-2041	Special education teachers, preschool, kindergarten, and elementary school
25-2042	Special education teachers, middle school
25-2043	Special education teachers, secondary school
25-3011	Adult literacy, remedial education, and GED teachers and instructors
25-3021	Self-enrichment education teachers
25-3099	Teachers and instructors, all other
25-4012	Curators
25-4021	Librarians
25-4031	Library technicians
25-9031	Instructional coordinators
25-9041	Teacher assistants

25-9099	Education, training, and library workers, all other
27-0000	Arts, design, entertainment, sports, and media occupations
27-1011	Art directors
27-1014	Multi-media artists and animators
27-1024	Graphic designers
27-2011	Actors
27-2012	Producers and directors
27-2022	Coaches and scouts
27-2041	Music directors and composers
27-2042	Musicians and singers
27-3011	Radio and television announcers
27-3012	Public address system and other announcers
29-0000	Healthcare practitioners and technical occupations
29-1199	Health diagnosing and treating practitioners, all other
29-9011	Occupational health and safety specialists
29-9099	Healthcare practitioners and technical workers, all other
31-0000	Healthcare support occupations
31-1011	Home health aides
31-1012	Nursing aides, orderlies, and attendants
31-2011	Occupational therapist assistants
31-2012	Occupational therapist aides
31-2021	Physical therapist assistants
31-2022	Physical therapist aides
31-9011	Massage therapists
31-9091	Dental assistants
31-9092	Medical assistants
31-9093	Medical equipment preparers
31-9094	Medical transcriptionists
31-9095	Pharmacy aides
31-9096	Veterinary assistants and laboratory animal caretakers
31-9099	Healthcare support workers, all other
33-0000	Protective service occupations

33-1011	First-line supervisors/managers of correctional officers
33-1012	First-line supervisors/managers of police and detectives
33-1099	First-line supervisors/managers, protective service workers, all other
33-2021	Fire inspectors and investigators
33-3011	Bailiffs
33-3021	Detectives and criminal investigators
33-3051	Police and sheriff's patrol officers
33-9011	Animal control workers
33-9021	Private detectives and investigators
33-9032	Security guards
33-9091	Crossing guards
39-9011	Child care workers
39-9021	Personal and home care aides
43-9111	Statistical assistants
43-9199	Office and administrative support workers, all other

APPENDIX 4

RANK	SKILL CLUSTERS	JOB POSTINGS
1	Education and Training: Teaching	443
2	Information Technology: Microsoft Office and Productivity Tools	219
3	Customer and Client Support: Basic Customer Service	215
4	Administration: Scheduling	196
5	Administration: General Administrative and Clerical Tasks	189
6	Finance: Budget Management	179
7	Administration: Administrative Support	175
8	Business: People Management	169
9	Health Care: Mental and Behavioral Health Specialties	127
10	Health Care: Emergency and Intensive Care	105
11	Health Care: General Medicine	98
12	Human Resources: Employee Training	92
13	Personal Care and Services: Child Care	85
14	Education and Training: Education Administration	84
15	Health Care: Social Work	83
16	Health Care: Basic Patient Care	72
17	Business: Project Management	71
18	Business: Quality Assurance and Control	70
19	Science and Research: Chemistry	66
20	Health Care: Public Health and Disease Prevention	62
21	Health Care: Advanced Patient Care	60
22	Health Care: Mental Health Therapies	60
23	Health Care: Medical Support	59
24	Administration: Office Management	57
25	Finance: General Accounting	57
26	Media and Writing: Music	53
27	Personal Care and Services: Food and Beverage Service	53
28	Science and Research: Physics	53
29	Supply Chain and Logistics: Procurement	53

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RANK	SKILL CLUSTERS	JOB POSTINGS
30	Education and Training: Program Management	52
31	Analysis: Data Techniques	50
32	Health Care: Mental Health Diseases and Disorders	50
33	Information Technology: Technical Support	50
34	Business: Business Management	44
35	Health Care: Pathology	44
36	Finance: Financial Reporting	40
37	Marketing and Public Relations: Social Media	40
38	Business: Business Process and Analysis	39
39	Business: Performance Management	39
40	Analysis: Data Analysis	38
41	Business: Business Strategy	38
42	Finance: Billing and Invoicing	38
43	Health Care: Patient Education and Support	38
44	Administration: Office Machines	37
45	Media and Writing: Writing	36
46	Human Resources: Occupational Health and Safety	35
47	Education and Training: Higher Education	34
48	Marketing and Public Relations: Public Relations	34
49	Education and Training: Instructional and Curriculum Design	33
50	Education and Training: Training Programs	33

APPENDIX 5

PROGRAMS OF STUDY IN GREATEST DEMAND IN BUFFALO-NIAGARA

Program	Value
Business Administration And Management, General	4,500
Engineering, General	2,231
Accounting	1,956
Computer Science	1,932
Nursing Science	1,685
Finance, General	1,596
Mechanical Engineering	1,143
Electrical And Electronics Engineering	890
Marketing/Marketing Management, General	750
Economics, General	616
Social Work	518
Management Information Systems, General	397
Communication, General	356
Human Resources Development	343
Chemistry	328
Statistics, General	281
Information Technology	278
Mathematics, General	273
Psychology, General	208
Health Professions and Related Programs	205
Logistics, Material, And Supply Chain Management	191
Medicine	172
Aerospace, Aeronautical And Astronautical Engineering	165
Clinical, Counseling And Applied Psychology	162
Clinical Laboratory Science/Medical	152

Source: Labor Insight Jobs (Burning Glass Technologies). Programs of Study in Greatest Demand. Full year 2018 AND (MSA : Buffalo-Cheektowaga-Niagara Falls, NY (Metropolitan Statistical Area)). Accessed April 2018. Note: 82% of records have been excluded because they do not include a program of study. As a result, the chart below may not be representative of the full sample.

Because the U.S. Census LEHD program does not breakout nonprofit establishments and jobs from the rest of the private sector, answering the question of "who works in the social sector" goes beyond simple descriptive statistics. More precisely, while the LEHD program does separate the total workforce into public and private jobs—meaning that the number and breakdown of workers in the public sector can be directly measured with no estimation required—it does not disaggregate the private sector into its nonprofit and for-profit components. As such, drawing inspiration from similarly-motivated studies within the political science and electoral geography literatures, this report is the first of its kind to estimate characteristics of a region's (WNY) nonprofit workforce from aggregate LODES data using Harvard Professor Gary King's method of ecological inference (King's EI). King's EI is widely used in studies of racial and ethnic group voting behavior, and it is favored by federal judges in voting cases that deal with such matters. Accordingly, it is described as an "established method" for research that leverages variation in aggregate data to estimate unknown quantities of interest.

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APPENDIX 6: THE ECOLOGICAL INFERENCE PROBLEM FOR WORKER RACE

PRIVATE SECTOR			
RACE	NONPROFIT (NP)	FOR-PROFIT	ALL PRIVATE JOBS
Non-white (NW)	β_i^{NW}	$1 - \beta_i^{NW}$	X_i
White (W)	β_i^{W}	$1 - \beta_i^{W}$	$1 - X_i$
	T_i		N_i

The preceding table specifies the ecological inference problem for worker race. Solving the problem requires three observable values for all geographic units in the study area[80]: (1) the total number of private sector jobs in the economy, N_i; (2) the fraction of N_i that, drawing on the QCEW Nonprofit Data supplement, is classified as nonprofit, T_i; and (3) the fraction of N_i that are classified in the LEHD as non-white persons of color, X_i; where i is an index of all census tracts in the Buffalo-Niagara region. Using these quantities, the nonprofit share of all private jobs (T_i) can be modeled as a function of (*i*) workers who are persons of color (β_i^{NW}) and (*ii*) workers who are white (β_i^{W}).

The row and column marginal quantities from Table 6 were obtained for each census tract in Buffalo-Niagara from the 2015 U.S. Census LEHD LODES WAC dataset for New York, and from applying multipliers reported in the 2015 QCEW Nonprofit Data supplement to the tract-level LODES dataset, respectively. Using these marginal values as inputs, King's EI computes deterministic bounds for the unknown, interior quantities from Table 6. It then employs a simultaneous maximum likelihood approach to estimate the locations of the parameters within these bounds. Point estimates of the fraction of nonprofit workers who are persons of color, as well as accompanying standard errors, can then be derived from the likelihood function for each census tract. Subsequently, tract-level estimates can be aggregated to describe the composition of the nonprofit sector in a region of interest (here, WNY, which is made up of Erie and Niagara Counties).

Observe that the above specification of King's EI model can easily be modified and extended to describe other properties of the private nonprofit sector relative to the rest of the private sector. Namely, the same two-by-two specification from above can be recast and applied to the ethnicity variable in the LODES dataset to estimate the number of nonprofit and for-profit private sector workers who are Hispanic or Latino.[81]

A higher dimensional specification known as "RxC EI" was used to estimate the number of nonprofit workers in the three age categories (29 years or younger; 30 to 54 years; and 55 years or older), three earnings categories (monthly wages below $1,250; monthly wages between $1,250 and $3,333; and monthly wages greater than $3,333), and three educational categories (less than high school; high school or some college;[82] bachelor's degree or higher) tracked by the LODES. All analyses were carried out in the R statistical package using the "ei"[83] and "eiPack"[84] packages.

APPENDIX 7: TAX EXEMPT ORGANIZATIONS BY NAICS CODE

NAICS CODES OF NONPROFITS IN BUFFALO-NIAGARA	NUMBER OF ESTABLISH-MENTS	NAICS CODES OF NONPROFITS IN BUFFALO-NIAGARA	NUMBER OF ESTABLISH-MENTS	NAICS CODES OF NONPROFITS IN BUFFALO-NIAGARA	NUMBER OF ESTABLISH-MENTS
115000	7	622310	2	813219	402
115210	1	623110	21	813311	49
221000	9	623220	1	813312	96
480000	2	623310	3	813319	61
510000	14	623311	12	813410	992
511100	4	623312	28	813910	71
512110	4	623990	15	813920	205
513110	2	624000	97	813930	206
513120	2	624100	16	813990	14
514120	39	624110	56	923120	1
522130	10	624120	73	926110	1
524110	21	624190	41	(blank)	
524113	1	624210	21	Grand Total	5542
524114	1	624220	13		
531390	11	624221	10		
541199	34	624229	79		
541618	34	624230	144		
541710	50	624310	23		
541720	18	624410	14		
561310	4	710000	104		
611000	40	711100	13		
611110	74	711110	37		
611210	2	711120	9		
611310	10	711130	67		
611610	10	711211	4		
611620	6	712110	31		
611699	23	712120	85		
611710	41	712130	7		
621340	4	712190	19		
621410	5	713940	9		
621420	23	713990	349		
621491	8	721199	6		
621498	18	721214	10		
621610	9	812220	36		
621910	9	812910	6		
621991	2	813110	728		
621999	26	813211	540		
622110	23	813212	114		

APPENDIX 8: RISK OF AUTOMATION FOR SOCIAL SECTOR OCCUPATIONS

CATEGORY:		DEMAND AND EMPLOYMENT					SALARY	
SOURCE:		BURNING GLASS		BLS/OES, 2018		BGT PROJECTIONS	BURNING GLASS	BLS/OES, 2018
SOC CODE (ONET-6)	OCCUPATION TITLE	NUMBER OF JOB POSTINGS	RISK OF AUTOMATION	NUMBER EMPLOYED 2018	% CHANGE IN EMPLOYMENT, 2017-2018	PROJECTED NATIONAL CHANGE IN EMPLOYMENT, 2016-2026	MEAN MARKET SALARY, LAST 12 MONTHS	MEAN SALARY, 2018
23-2011	Paralegals and Legal Assistants	244	High Risk	1,330	14%	16.0%	$42,164	$50,430
25-4031	Library Technicians	24	High Risk	530	17%	8.8%	$33,760	$29,920
31-9094	Medical Transcriptionists	7	High Risk	180	20%	-1.0%	-	$37,600
31-9096	Veterinary Assistants and Laboratory Animal Caretakers	20	High Risk	500	28%	19.2%	$26,340	$29,110
43-9199	Office and Administrative Support Workers, All Other	51	High Risk	400	-4%	10.0%	$59,117	$35,810
11-9031	Education Administrators, Preschool and Childcare Center/Program	35	Low Risk	250	-7%	13.1%	$37,235	$51,570
11-9032	Education Administrators, Elementary and Secondary School	251	Low Risk	1,100	3%	5.5%	$72,832	$98,930
11-9033	Education Administrators, Postsecondary	254	Low Risk	310	-24%	14.5%	$61,020	$123,420
11-9039	Education Administrators, All Other	27	Low Risk	50	0%	23.1%	$58,538	$68,500
11-9041	Architectural and Engineering Managers	209	Low Risk	480	-2%	10.4%	$85,490	$142,410
11-9151	Social and Community Service Managers	82	Low Risk	690	-4%	20.6%	$44,292	$73,790
19-3099	Social Scientists and Related Workers, All Other	14	Low Risk	-	-	2.6%	$41,236	-
21-1011	Substance Abuse and Behavioral Disorder Counselors*	50	Low Risk	499	-	29.4%	$39,726	$42,380
21-1012	Educational, Guidance, School, and Vocational Counselors	225	Low Risk	1,540	6%	15.2%	$40,435	$58,450
21-1014	Mental Health Counselors*	151	Low Risk	831	-	24.8%	$30,992	$42,380

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CATEGORY:		DEMAND AND EMPLOYMENT				SALARY	
SOURCE:		BURNING GLASS		BLS/OES, 2018	BGT PROJECTIONS	BURNING GLASS	BLS/OES, 2018
SOC CODE (ONET-6)	OCCUPATION TITLE	NUMBER OF JOB POSTINGS	RISK OF AUTOMATION	NUMBER EMPLOYED 2018	% CHANGE IN EMPLOYMENT, 2017-2018	PROJECTED NATIONAL CHANGE IN EMPLOYMENT, 2016-2026	MEAN MARKET SALARY, LAST 12 MONTHS	MEAN SALARY, 2018
21-1015	Rehabilitation Counselors	7	Low Risk	480	17%	16.7%	-	$33,330
21-1021	Child, Family, and School Social Workers	80	Low Risk	1,530	13%	18.4%	$49,501	$51,600
21-1022	Healthcare Social Workers	58	Low Risk	630	-3%	27.3%	$53,342	$53,540
21-1023	Mental Health and Substance Abuse Social Workers	10	Low Risk	590	-9%	27.3%	-	$53,290
21-1029	Social Workers, All Other	133	Low Risk	450	-4%	8.8%	$51,260	$57,720
21-1091	Health Educators	119	Low Risk	200	17%	24.1%	$56,812	$58,170
21-1093	Social and Human Service Assistants	97	Low Risk	1,830	-4%	21.9%	$36,950	$32,830
21-1099	Community and Social Service Specialists, All Other	28	Low Risk	450	-42%	14.3%	$45,331	$49,080
21-2021	Directors, Religious Activities and Education	8	Low Risk	350	-22%	17.1%	-	$48,350
23-1022	Arbitrators, Mediators, and Conciliators	2	Low Risk	-	-	10.4%	-	-
23-1023	Judges, Magistrate Judges, and Magistrates	1	Low Risk	180	-10%	5.8%	-	$153,560
25-2011	Preschool Teachers, Except Special Education	156	Low Risk	1,830	-4%	12.2%	$28,838	$31,900
25-2012	Kindergarten Teachers, Except Special Education	14	Low Risk	490	-9%	5.6%	$35,829	$64,550
25-2021	Elementary School Teachers, Except Special Education	216	Low Risk	5,210	-9%	5.1%	$41,707	$69,700
25-2022	Middle School Teachers, Except Special and Career/Technical Education	525	Low Risk	1,540	-22%	6.2%	$43,108	$67,500
25-2031	Secondary School Teachers, Except Special and Career/Technical Education	154	Low Risk	5,110	22%	7.3%	$49,550	$71,560
25-2032	Career/Technical Education Teachers, Secondary School	22	Low Risk	470	-4%	4.2%	$41,469	$68,440

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CATEGORY:		DEMAND AND EMPLOYMENT					SALARY	
SOURCE:		BURNING GLASS		BLS/OES, 2018		BGT PROJECTIONS	BURNING GLASS	BLS/OES, 2018
SOC CODE (ONET-6)	OCCUPATION TITLE	NUMBER OF JOB POSTINGS	RISK OF AUTOMATION	NUMBER EMPLOYED 2018	% CHANGE IN EMPLOYMENT, 2017-2018	PROJECTED NATIONAL CHANGE IN EMPLOYMENT, 2016-2026	MEAN MARKET SALARY, LAST 12 MONTHS	MEAN SALARY, 2018
25-3011	Adult Basic and Secondary Education and Literacy Teachers and Instructors	17	Low Risk	300	20%	1.2%	$63,386	$70,230
25-3021	Self-Enrichment Education Teachers	75	Low Risk	1,790	0%	23.3%	$42,058	$44,330
25-3099	Teachers And Instructors, All Other, Except Substitute Teachers	721	Low Risk	-	-	13.5%	$48,421	-
25-4012	Curators	3	Low Risk	-	-	20.9%	-	-
25-9031	Instructional Coordinators	57	Low Risk	590	15%	14.8%	$55,860	$66,640
27-1011	Art Directors	8	Low Risk	100	-9%	7.7%	-	$86,530
27-1014	Multimedia Artists and Animators	10	Low Risk	-	-	7.4%	-	-
27-1024	Graphic Designers	80	Low Risk	820	5%	7.7%	$44,740	$46,770
27-2011	Actors	12	Low Risk	-	-	-	$64,930	-
27-2012	Producers and Directors	80	Low Risk	340	6%	12.5%	$34,295	$82,440
27-2022	Coaches and Scouts	478	Low Risk	770	8%	18.4%	$54,754	$50,430
27-2041	Music Directors and Composers	8	Low Risk	170	-15%	11.2%	-	$35,340
27-3011	Radio and Television Announcers	9	Low Risk	120	50%	-0.7%	-	$63,020
29-1199	Health Diagnosing and Treating Practitioners, All Other	36	Low Risk	50	0%	20.8%	$63,073	$66,920
29-9011	Occupational Health and Safety Specialists	65	Low Risk	250	0%	12.0%	$58,448	$69,980
29-9099	Healthcare Practitioners and Technical Workers, All Other	7	Low Risk	120	33%	12.6%	-	$58,130
31-1011	Home Health Aides	337	Low Risk	2,620	-29%	52.4%	$24,999	$27,410
31-2011	Occupational Therapy Assistants	46	Low Risk	220	-26%	29.9%	$45,321	$47,650
31-2012	Occupational Therapy Aides	9	Low Risk	-	-	23.5%	-	-

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CATEGORY:		DEMAND AND EMPLOYMENT					SALARY	
SOURCE:		BURNING GLASS		BLS/OES, 2018		BGT PROJECTIONS	BURNING GLASS	BLS/OES, 2018
SOC CODE (ONET-6)	OCCUPATION TITLE	NUMBER OF JOB POSTINGS	RISK OF AUTOMATION	NUMBER EMPLOYED 2018	% CHANGE IN EMPLOYMENT, 2017-2018	PROJECTED NATIONAL CHANGE IN EMPLOYMENT, 2016-2026	MEAN MARKET SALARY, LAST 12 MONTHS	MEAN SALARY, 2018
31-2021	Physical Therapist Assistants	66	Low Risk	280	7%	33.9%	$44,801	$42,430
31-9092	Medical Assistants	187	Low Risk	1,720	14%	35.1%	$32,552	$34,420
31-9099	Healthcare Support Workers, All Other	22	Low Risk	540	28%	18.0%	$43,800	$35,760
33-1011	First-Line Supervisors of Correctional Officers	2	Low Risk	170	0%	-5.5%	-	$81,020
33-1012	First-Line Supervisors of Police and Detectives	11	Low Risk	520	-3%	9.3%	$55,508	$95,060
33-1099	First-Line Supervisors of Protective Service Workers, All Other	13	Low Risk	450	21%	13.6%	$29,554	$41,550
33-2021	Fire Inspectors and Investigators	12	Low Risk	-	-	9.9%	$47,969	-
33-3011	Bailiffs	3	Low Risk	170	-5%	0.9%	-	$54,230
33-3021	Detectives and Criminal Investigators	84	Low Risk	780	0%	8.2%	$66,871	$86,000
33-3051	Police and Sheriff's Patrol Officers	45	Low Risk	2,330	3%	9.4%	$46,509	$65,780
33-9011	Animal Control Workers	4	Low Risk	70	-12%	11.8%	-	$32,430
33-9021	Private Detectives and Investigators	62	Low Risk	-	-	18.6%	$45,695	-
33-9091	Crossing Guards	2	Low Risk	250	-13%	9.5%	-	$28,420
39-9011	Childcare Workers	936	Low Risk	3,140	13%	8.0%	$41,485	$24,390
11-9131	Postmasters and Mail Superintendents	1	Medium Risk	40	0%	-20.6%	-	$82,610
25-4021	Librarians	42	Medium Risk	590	-4%	8.0%	$41,032	$58,360
25-9041	Teacher Assistants	377	Medium Risk	6,710	-10%	8.8%	$27,539	$27,130
31-2022	Physical Therapist Aides	6	Medium Risk	140	-6%	34.0%	-	$31,510

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CATEGORY:		DEMAND AND EMPLOYMENT					SALARY	
SOURCE:		BURNING GLASS		BLS/OES, 2018		BGT PROJECTIONS	BURNING GLASS	BLS/OES, 2018
SOC CODE (ONET-6)	OCCUPATION TITLE	NUMBER OF JOB POSTINGS	RISK OF AUTOMATION	NUMBER EMPLOYED 2018	% CHANGE IN EMPLOYMENT, 2017-2018	PROJECTED NATIONAL CHANGE IN EMPLOYMENT, 2016-2026	MEAN MARKET SALARY, LAST 12 MONTHS	MEAN SALARY, 2018
31-9011	Massage Therapists	31	Medium Risk	-	-	28.1%	$47,658	$52,500
31-9091	Dental Assistants	106	Medium Risk	1,060	6%	22.8%	$31,117	$37,500
31-9093	Medical Equipment Preparers	89	Medium Risk	210	23%	15.9%	$33,213	$37,930
31-9095	Pharmacy Aides	14	Medium Risk	-	-	-3.2%	$32,727	$30,390
33-9032	Security Guards	379	Medium Risk	5,150	-7%	11.8%	$30,009	$28,210
39-9021	Personal Care Aides	341	Medium Risk	10,110	21%	40.7%	$35,144	$26,710
43-9111	Statistical Assistants	9	Medium Risk	-	-	12.4%	-	-
25-1011	Business Teachers, Postsecondary	33	Low Risk*	550	-6%	25.4%	$74,900	$90,290
25-1022	Mathematical Science Teachers, Postsecondary	22	Low Risk*	350	0%	17.3%	$85,869	$74,760
25-1042	Biological Science Teachers, Postsecondary	10	Low Risk*	330	32%	23.1%	-	$99,810
25-1052	Chemistry Teachers, Postsecondary	7	Low Risk*	130	18%	17.8%	-	$101,280
25-1054	Physics Teachers, Postsecondary	3	Low Risk*	70	-12%	17.7%	-	$81,430
25-1066	Psychology Teachers, Postsecondary	4	Low Risk*	240	33%	23.2%	-	$74,910
25-1071	Health Specialties Teachers, Postsecondary	115	Low Risk*	880	-27%	27.1%	$83,244	$87,000
25-1072	Nursing Instructors and Teachers, Postsecondary	20	Low Risk*	290	16%	27.5%	$64,612	$82,920
25-1081	Education Teachers, Postsecondary	25	Low Risk*	620	-20%	17.5%	$81,947	$57,410

CATEGORY:		DEMAND AND EMPLOYMENT				SALARY	
SOURCE:		BURNING GLASS		BLS/OES, 2018		BGT PROJECTIONS	BURNING GLASS	BLS/OES, 2018
SOC CODE (ONET-6)	OCCUPATION TITLE	NUMBER OF JOB POSTINGS	RISK OF AUTOMATION	NUMBER EMPLOYED 2018	% CHANGE IN EMPLOYMENT, 2017-2018	PROJECTED NATIONAL CHANGE IN EMPLOYMENT, 2016-2026	MEAN MARKET SALARY, LAST 12 MONTHS	MEAN SALARY, 2018
25-1121	Art, Drama, and Music Teachers, Postsecondary	5	Low Risk*	540	-22%	17.2%	-	-
25-1123	English Language and Literature Teachers, Postsecondary	25	Low Risk*	510	-7%	17.6%	$58,173	$73,630
25-1191	Graduate Teaching Assistants	5	Low Risk*	260	-55%	15.9%	-	$49,410
25-1194	Vocational Education Teachers, Postsecondary	89	Low Risk*	480	23%	9.6%	$38,156	$57,770
25-1199	Postsecondary Teachers, All Other	404	Low Risk*	390	25%	17.3%	$88,739	$61,320

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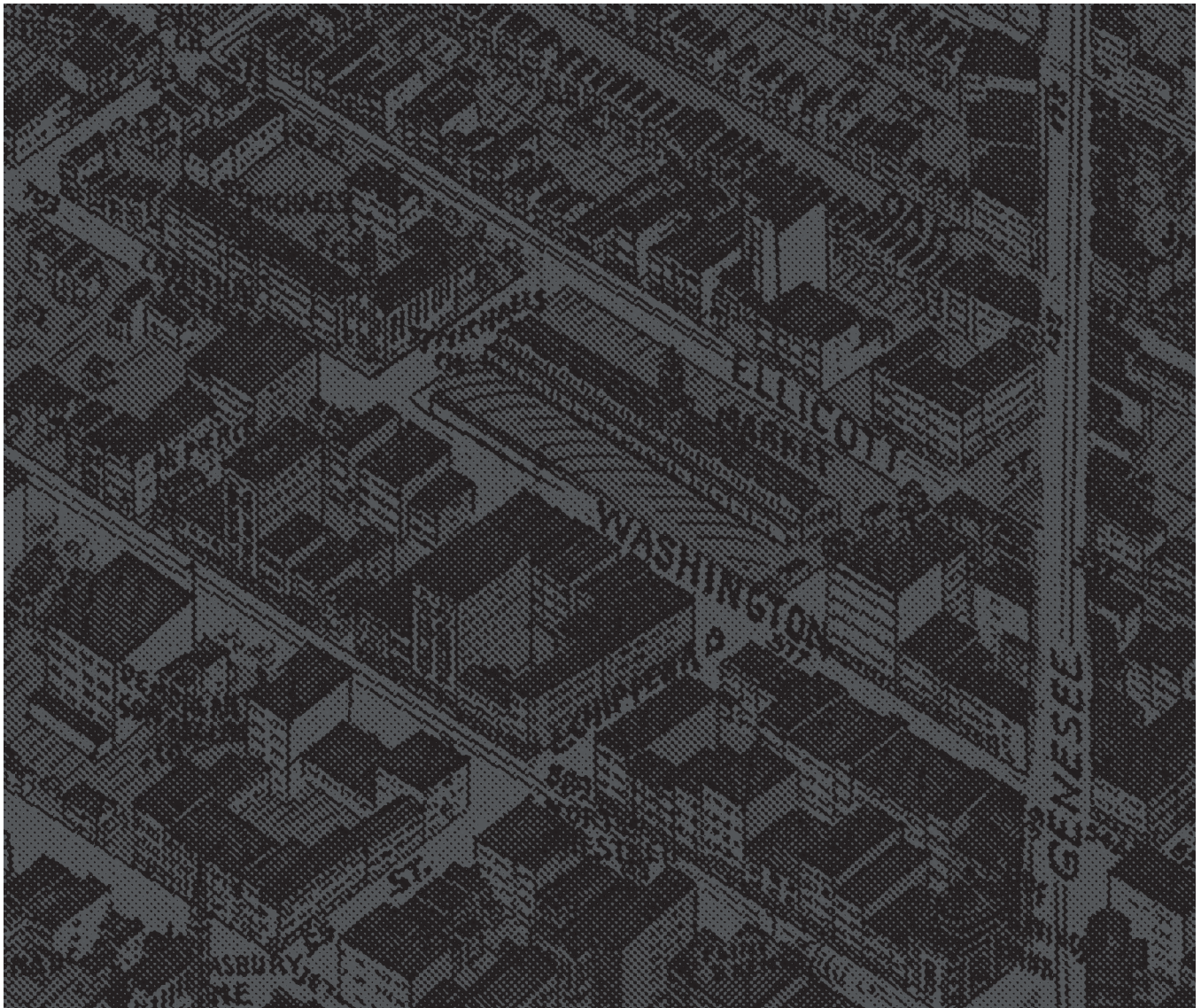
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WHERE THE
HIGH ROAD
WORKS

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