PAPER TWO

Stuck in Neutral

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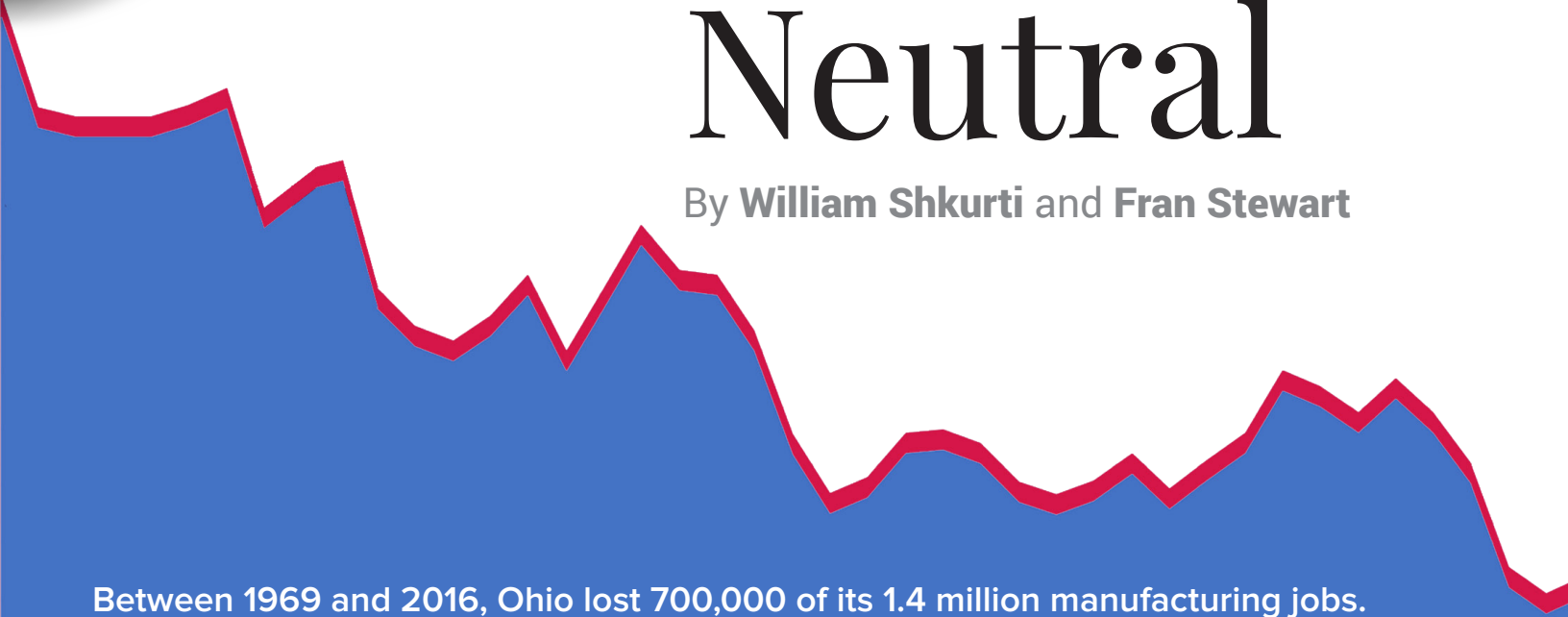

Between 1969 and 2016, Ohio lost 700,000 of its 1.4 million manufacturing jobs. The country as a whole lost seven million of its 19 million manufacturing jobs over the same period. Meanwhile, the job market changed considerably as the economy transitioned into relying less on production of goods and more on provision of services. Were the jobs lost in Ohio's manufacturing sector offset by gains in some other sector of the labor market? And, if so, what impact did this job shift have on the state economy?

THE CHANGING JOB MARKET

Ohio's economy has changed significantly since the state's manufacturing heyday of the 1950s and '60s. Mirroring a similar shift nationwide, Ohio's economy has become more diversified and more services-oriented. Between 1969 and 2000, the number of employed Ohioans grew by 1.7 million despite the loss of more than 400,000 manufacturing jobs. Since 2000, however, employment growth has tapered off, and the number of jobs in the state was no greater in 2016 than it was in 2001.

Table 2.1 shows Ohio's composition of jobs in 2016. As can be seen, manufacturing's long dominance as the source of most jobs in the state is over; the manufacturing sector has shrunk to the state's fifth-largest employer. Trade, transportation and utilities is now first. Education and health is Ohio's second-largest employment sector.

Even though manufacturing employment dropped from a third of the state workforce in 1969 to less than 13 percent in 2016, Ohio has remained more dependent on manufacturing than the country as a whole. The ratio in the third column is the share of an industry's jobs in the state to its share in the nation, multiplied by 100. The ratio

Table 2.1 Ohio Economy by Sector, 2016

Industry	Number of Employees (in thousands)	Percent of Ohio Jobs	Ratio of Industry's Share of Ohio Employment to Its Share of U.S. Employment
Trade, Transportation and Utilities	1,021	18.6	98
Education and Health	924	16.9	108
Government	776	14.0	90
Professional and Business Services	722	13.2	95
Manufacturing	686	12.5	147
Leisure and Hospitality	551	10.0	90
Finance	300	5.5	96
Other Services	213	3.9	100
Construction	206	3.8	83
Information	72	1.3	68
Total	5,481		

Source: U.S. Bureau of Labor Statistics, "Employees in Non-Farm Establishments, by State and Industry, 2016," at *Proquest Statistical Abstract 2018 Online Edition*, Table 654.

should be interpreted as if it is a percentage. That is, 100 means that the shares in Ohio and the nation are equal. The 147 for manufacturing means its share of employment is 47 percent higher in Ohio than in the nation.[1]

The state's current reliance on trade, transportation and utilities may itself portend employment challenges for Ohio. Employment in trade, transportation and utilities is more likely to shrink in the near future as retail stores close and automation, in the form of drones and driverless vehicles, diminishes the need for logistics and delivery workers. States that have a greater share of employment in service-oriented sectors that are expected to continue to grow, such as education and health services, business and professional services, and leisure and hospitality, should benefit from corresponding employment gains. Yet, even among these sectors that are expanding, many of the jobs do not pay well. This leaves open the question of what will be the good jobs of the future and will Ohio have the skilled workers to fill them?

As the structure of Ohio's economy has changed, so has its labor force. The biggest transformation has been the entry of more women into the workforce. At the end of the 1960s, women made up little more than one-third of all workers. Now they account for almost half.

Another significant change has been the subject of much more controversy. As recently as 2007, nearly 68 percent of Ohioans age 16 and over were in the labor force, compared to 66 percent nationally. Workforce participation dropped during the Great Recession of 2007-2009 and has not fully recovered. As the table below shows, labor force participation in Ohio is now slightly below the national average and 5.5 percentage points below where it was in 2007. Those 5.5 percentage points translate into more than 300,000 potential workers.

This precipitous drop in labor force participation has raised concerns about large numbers of "discouraged" workers who are no longer in the job market because of a lack of good jobs, a lack of marketable skills or an unwillingness of employers to hire them.

Table 2.2 Labor Force Participation Rates, Ohio and U.S., 2000-2015 (selected years)

Year	Ohio Labor Force Participation Rate	U.S. Labor Force Participation Rate	Ohio as a Percent of U.S. (U.S. = 100)
2015	62.3%	62.7%	99.4
2010	65.2%	64.7%	100.7
2007	67.8%	66.0%	102.7
2005	66.7%	66.0%	101.1
2000	66.9%	67.1%	99.7

Source: U. S. Bureau of Labor Statistics, *Current Population Survey*, selected years at bls.gov/lau/ex14Tables.htm

Multiple influences are evident. The U.S. workforce is aging, so there are more retirees, but the labor force participation rate among workers over age 65 has actually increased. The participation rate for people age 24 and under has gone down, but more young people are pursuing additional schooling and training. It is the decline in workforce participation for men between the ages of 25 and 54 that has attracted the most concern. Trends in Ohio are similar to the nation as a whole. Some combination of a lack of good-paying jobs for workers without a college degree, lack of marketable skills and lack of work ethic have all been cited and asserted, but no clear explanation has been identified for the decline in labor force participation among men of prime working age.

For a state like Ohio, which is not growing population overall, it is important to make sure as many people who are able to work are doing so. Given the multiple influences that are contributing to the problem, reversing the decline in labor force participation will likely require a multipronged policy approach that focuses on growing jobs, improving and aligning skills, and addressing obstacles to work.[2]

Skills Gap?

As the national economy approaches full employment, debate has shifted somewhat from creating more jobs to filling existing ones. This has been a contentious issue between employers and their critics for many years. How much of a gap is there between the skills employers need and the skills available in the workforce? The Bureau of Labor Statistics tracks existing jobs that are open but not filled. These numbered six million nationally in April 2017. If Ohio's share of these unfilled jobs is close to its 3.8 percent share of the total national workforce, that would mean there are 228,000 open jobs in the state. That nearly matches the official state unemployment count of 288,000 Ohioans.[3]

In other words, if these numbers are correct and if markets work perfectly, there should be a job in Ohio for nearly every worker who wants one. Of course, markets do not work perfectly, and many of these jobs are open because they are low-paying.

Vacancies also exist in higher-paying skilled jobs, especially in manufacturing, where new technologies and looming retirements are driving demand for both evolving and traditional skills. This has sparked more debate over the need for worker training and whether it should be supplied by public sources or the employers themselves. For example, the Manufacturing Institute, an industry trade group, maintains that 60 percent of open, skilled, production positions are unfilled due to a lack of qualified workers.[4] Critics dispute this assertion, arguing that vacancies are not unusually high for this point in the economic cycle and that some employers are just unwilling to pay the higher wages these skilled positions require.[5]

In any event, it is clear that the skills demanded of workers are changing. As such, local school districts, colleges, universities and other state and local agencies that provide education and training will need to adapt accordingly.

Education Level

Over the past half-century, the education level of Ohio's working population has improved, but it has not kept pace with the rest of the nation. Table 2.3 shows the level of educational achievement for Ohio's population age 25 and over in 2000, 2010 and 2015. Ohio's high schools have improved student graduation rates over the past 15 years and have continued to have higher graduation rates than the country as a whole. Although Ohio still lags the nation in graduating students with bachelor's and advanced degrees, it is making progress in closing that gap.

Table 2.3 Educational Attainment of Ohio's Population Age 25 and Over, 2000, 2010 and 2015, Compared to Attainment in the U.S. as a Whole

Category	% of Ohioans, 2000	Ohio % of U.S.	% of Ohioans, 2010	Ohio % of U.S.	% of Ohioans, 2015	Ohio % of U.S.
High school Diploma	83.0%	103	88.1%	103	89.7%	103
Bachelor's Degree	21.1%	86	24.6%	87	26.8%	88
Advanced Degree	7.4%	83	8.9%	86	10.0%	86

Source: U. S. Census Bureau, *2000 Census, and American Community Survey at Proquest Statistical Abstract, 2016*, Table 256.

WHAT LIES AHEAD?

What does all this portend for Ohio's future? A good place to look for answers to that question is the Ohio Job Outlook prepared by the Labor Market Information division of the Ohio Department of Jobs and Family Services. The December 2016 report draws on present trends to project what the job picture will look like in 2024. Of course, present trends may or may not continue. Nevertheless, the Ohio Job Outlook provides a good baseline to begin to think about Ohio's future workforce.

The report projects that the state will add 300,000 jobs from 2014 to 2024, even though it anticipates the loss of an additional 28,000 manufacturing jobs. Half of the 300,000 new jobs are expected to be in health care. Table 2.4 shows anticipated job growth for the six sectors with the largest employment gains. These industry categories accounted for about 44 percent of all Ohio jobs in 2014 but are expected to account for 90 percent of the projected job growth through 2024.

Employment projections indicate potentially big challenges ahead in providing workers with the education and training required to fill these jobs. The Ohio Job Outlook report estimates that by 2024, 54 percent of the state's new jobs will require education or training beyond high school, compared to 35 percent of current jobs.

While there is widespread agreement that Ohio's future workforce will have to be better educated and trained than the one it replaces, there appear to be substantial differences among analysts as to what this means. These

differences are important because policy recommendations based on them are very different in terms of where our education and training dollars should be directed and what we can expect in return.

For many years, the projections published by the Bureau of Labor Statistics (BLS) of the U. S. Department of Labor and their cooperating agencies in the 50 states have been the basis for workforce planning and programming. In Ohio, this agency is the Bureau of Labor Market Information (LMI) of the Ohio Department of Jobs and Family Services. The baseline data for Ohio are gathered by LMI from employers and are then classified as to the "typical" education and training requirements for more than 800 job titles. They are reported in a common template developed by BLS so that results are comparable across state boundaries.

Table 2.4 Ohio Industry Categories With Biggest Employment Growth, 2014-2024

Industry Category	Number of Jobs in 2014	Projected 10-Year Increase	Projected 10-Year Percent Increase
Health Care	791,700	148,130	18.7%
Professional and Technical	248,420	28,620	11.5%
Administrative and Waste Services	322,710	26,830	8.3%
Accommodations and Food	451,190	25,770	5.7%
Construction	195,760	23,820	12.2%
Education Services	423,460	23,650	5.6%
Total	2,433,240	276,820	11.4%

Source: Ohio Labor Market Information, 2024 *Ohio Job Outlook*, December 2016, Appendix Table B.

The table below compares the skill profile of Ohio's workforce in 2014 with projections for hiring requirements in 2024. To help simplify the presentation, eight education and training categories are consolidated into three:

- Bachelor's degree or higher — share of jobs requiring a four-year college degree or more
- Associate degree, some college or postsecondary training — share of jobs requiring more than a high school diploma but less than a bachelor's degree
- High school diploma or less — share of jobs requiring no education or training beyond high school

These numbers suggest that a very gradual, but steady, increase in educational and training outcomes will be required of Ohio's workers by employers. In fact, when compared to overall levels of educational attainment in the existing workforce, they don't show much of a gap at all. For example, the projections show a need for 24.8 percent of the workforce to have at least a bachelor's degree by 2024. Figures from the U.S. Census show that in 2015, 26.8 percent of Ohioans age 25 and over had at least a four-year degree. Among the critical 25-34 age bracket, the share of workers with a college degree was even higher, at 31.5 percent.

What the numbers alone do not tell us is whether these degrees are distributed where they are needed most. For example, are we producing enough scientists, teachers and engineers? We also do not know whether graduates have the requisite soft skills for working in diverse workplaces, the flexibility to change jobs, or the motivation to be a self-reliant lifelong learner. Some of these questions can be addressed by drilling down into the existing data, provided they are accurate.

Table 2.5 Typical Education and Training Qualifications of Ohio Workforce, 2014-2024

Highest Educational Attainment	2014 Percent of Workforce	2024 Percent of Workforce
Bachelor's Degree or Higher	24.3%	24.8%
Associate Degree, Some College or Postsecondary Training	11.2%	11.5%
High School Diploma or Less	64.4%	63.6%

Source: Ohio Bureau of Labor Market Information, "Employment by Typical Education Levels, 2014 Base and 2024 Projection," (October 2017).

Dueling Numbers

In recent years, other players have entered this discussion. One of them is the Georgetown University's Center on Education and the Workforce. Center researchers argue that the time lag in collecting the survey data and the rigid definitions of "typical" education requirements result in estimates that fail to capture the constant upgrading of skills required in a changing economy. The center issued projections in 2013 indicating that 65 percent of job openings between 2010 and 2020 nationally would require education or training beyond high school.[6] This is nearly double the BLS estimate.

Table 2.6 Projections for the Educational Levels Required to Fill Open Jobs in Ohio

Highest Educational Attainment	BLS/LMI 2012-22	Georgetown 2010-20	National Skills 2014-24
Bachelor's Degree or Higher	20%	30.9%	32%
Associate Degree, Some College, or Postsecondary Training	13%	32.1%	48%
High School Diploma or Less	67%	37.0%	20%

Sources: Ohio LMI, Figure 13, "Typical Training and Education Needs for Projected Job Openings for the Period 2012 to 2022 in *WOIA State Plan for State of Ohio* (2016), 24; Georgetown Center on Education and the Workforce, *Job Growth Through 2020*, 80, and National Skills Coalition, "Ohio's Forgotten Middle," at nationalskillscoalition.org.

But the process used by the Georgetown group also has its critics, who argue that the center's focus on the credentials of new hires fails to take into account the number of people who may be overqualified, leading to an escalation in the educational credentials held by new workers. This critique seems especially pertinent given that these numbers were compiled in the wake of the Great Recession, when a slow recovery in jobs allowed employers to be choosier about new hires. For example, workers who hold college degrees but work at jobs requiring only mid-level skills because they can't find anything else produce evidence that can be interpreted that college degrees are a job requirement, rather than the highest level of education achieved by those who took the job. Observers also point out that the Georgetown Center is funded, in part, by the Lumina Foundation, whose self-described mission is to advocate for higher education.[7]

The National Skills Coalition, an advocacy group representing 1,400 employers, unions, educators and government agencies, jumped into the fray in 2015 with a report that projected 80 percent of job openings nationally between 2014 and 2024 would require some sort of training or education beyond high school; however, its methodology is not as transparent as BLS/LMI and the Georgetown Center.[8]

Table 2.6 lays out what these differing estimates mean for Ohio's working future. These figures represent what BLS/LMI, the Georgetown workforce center and the National Skills Coalition define as "open positions" or "open jobs" for Ohio for the periods indicated. We have aggregated them into the same classifications we used in Table 2.5.

These projections are for slightly different time frames, but that does not explain the wide differences in estimates. There are also differences in how these organizations treat "churn" — that is, workers who change jobs but remain in the same occupation.[9] This is not some esoteric exercise. Which set of numbers one chooses to believe may have a dramatic impact on the allocation of resources and career decisions made by Ohio citizens. This can be demonstrated more clearly in Table 2.7, which compares estimates of the number of Ohioans with a two-year associate degree to the share of jobs requiring that level of educational attainment.

The first row displays U.S. Census Bureau figures as to the share of the state's population age 25 and over who terminated their

Table 2.7 Ohioans With Associate Degrees Compared to the Share of Projected Job Openings Requiring Them

Estimating Organization	Percent
Census 2015 – Share of Ohio Adults Age 25 and Older With Associate Degrees	8.2%
BLS/LMI 2012-2022 – Share of Ohio Job Openings Requiring an Associate Degree	5.0%
Georgetown 2010-2020 – Share of Ohio Job Openings Requiring an Associate Degree	9.9%

Sources: U.S. Census Bureau, "Educational Attainment, Ohio, 2011-2015," *American Community Survey 5-Year Estimates* at factfinder.census.gov; LMI, 2014, "Employment by Typical Education Levels 2024," Ohio Job Outlook 2024, Figure 12 (December 2016), 24; LMI, "Figure 13: Typical Training and Education Needs for Projected Job Openings for the Period 2012 to 2022," *WOIA State Plan for State of Ohio, (2016)*, 24; Georgetown Center on Education and Workforce, "Total Ohio Job Openings 2010-2020" at *Recovery: Job Growth and Education Through 2020* (2013), 80.

formal education with a two-year associate degree. The Census Bureau maintains that these estimates are accurate to a margin of +/- .02 percent. The second row provides the BLS/LMI estimate for the share of job openings from 2012 to 2022 that will require an associate degree. In this case, "job openings" encompass both newly created jobs and vacancies due to retirements and departures. The third row is the Georgetown Center's projection for the share of job openings (also encompassing newly created jobs and vacancies in existing jobs) from 2010 to 2020 requiring an associate degree.

This table highlights the challenges facing anyone trying to use job estimates for planning purposes. Depending on which source is used, one can conclude that Ohio has far more workers with associate degrees than jobs demand or slightly too few. This is not a trivial discrepancy. Our purpose in pointing out these differences is not to impugn the integrity or the competence of the people or organizations — all of which have extensive track records — involved in providing employment estimates. Rather, it is to explore the challenges this creates for public officials trying to figure out the appropriate support for the education Ohio's workers need and its jobs require.

These discrepancies have not gone unnoticed. In 2014, the Federal Reserve Bank of Cleveland evaluated Ohio's workforce development programs. It concluded that the state suffered from a lack of standard data definitions, a lack of clear definitions of success, and an inability to address the mismatch between the skills workers possess, including college graduates, and the skills employers say workers should have.[10]

Also in 2014, Congress, in a rare bipartisan display, passed and President Obama signed the Workforce Innovation and Opportunity Act, which is intended to provide better information, better integration of multiple federal programs and greater flexibility to the states.

In 2012, Governor Kasich created the Office of Workforce Transformation, which, in part, was given the task of reconciling some of these estimates. In 2015, the state of Ohio and the National Skills Coalition announced a joint effort to use new data tools to better align worker skills and employer needs.[11]

The mechanisms to better align these numbers appear to be in place, but a great deal of work remains to be done. Until the disparities in estimates are resolved, state policymakers will be working with incomplete and contradictory information.

ADDITIONAL CONSIDERATIONS

The role of these projections in setting policy raises important additional questions regarding the nature of projections, how they should be used, what they may be missing, and how they may ultimately impact the opportunities, wages and personal incomes of Ohioans.

Projection Perils

Projecting human behavior 10 years out is a challenge under any circumstances. And even though entities such as the Ohio Bureau of Labor Market Information and the Georgetown Center enjoy solid reputations, they face the same challenges as anyone else. Both have based their workforce projections on a steady increase in Ohio employment over a 10-year period. For example, Georgetown estimated that Ohio would add 715,000 jobs from 2010 to 2020. Ohio LMI projected a growth of 300,000 jobs from 2014 to 2024.

Both of these projections assume that growth continues on a steady basis, which it has so far although the pace of growth has slowed recently. No one is predicting a downturn at this point, but that doesn't mean it can't or won't happen. The current expansion is already one of the longest in history. Eventually it will end, turning all predictions of steady growth on end. For example, between 2007 and 2010, Ohio lost 391,000 jobs, and employment did not return to 2007 levels until 2016.[12]

What this means for policymakers is that they should view these projections with some degree of caution. Although projections from respected experts can help inform policy, they should not be the only information relied on to make policy.

Elephant in the Room

Education rates and changing skill demands tell an important story about the quality of Ohio's workforce. But there is another workforce challenge that the state must confront: the number of Ohioans who are not able to work, or not able to work productively, because of substance abuse. The epidemic of opioid abuse and addiction has generated considerable media attention. The Centers for Disease Control estimates that one out of every 100 Ohioans age 12 and older abuses opioids. This is about 90,000 people.[13]

Although addiction to heroin and prescription pain pills is a serious and growing problem, misuse of marijuana and other substances is an even bigger problem for employers, especially manufacturers. Government surveys estimate that slightly more than 7 percent of Ohioans age 12 and over report smoking marijuana within the past 30 days. That amounts to 630,000 people.[14] This is a workforce problem as well as a public health problem. Employers complain about how difficult it is to find potential employees who test free of drugs.

Drug tests are common in today's workplace, especially for workers who operate vehicles or machinery. But traces of marijuana remain in the body long after the immediate effects of the drug have worn off. While society has tried to send a clear message about the dangers of opioid addiction, it is sending a mixed message about the use of marijuana for recreational purposes, which has gained much wider acceptance and has even been legalized in many states. There are not easy solutions here, but addressing this in a thoughtful way is a necessary part of preparing Ohio's workforce for the future.[15]

The Future of Wages

The projections we have discussed so far focus on jobs and not wages. But if the projections are anywhere near correct, just adding more jobs will not, in and of itself, improve the prospects for Ohio and its workers. Nearly half of Ohio's job growth in the next 10 years is expected to come from the healthcare sector. Although some medical occupations, such as physicians, registered nurses and technicians, are well-paid, other occupations in the industry, such as home health aides (projected to grow by 39.6 percent) and physical therapist aides (projected to grow 35.2 percent), are not. Another sector anticipated to see large employment gains is accommodations and food service, which also has relatively low pay.

Table 2.8 shows the median hourly wages for six occupations that are among those projected to have the largest number of annual job openings in Ohio. The differences in wage rates are stark.

Table 2.8 Median Hourly Earnings for Selected Occupations in Ohio, 2015

Occupational Category	Median Hourly Wage	Projected Number of New Jobs 2014-24
Accountants and Auditors	$30.46	1,438
Registered Nurses	$29.46	4,833
Machinists	$19.07	1,150
Home Health Aides	$9.83	4,476
Food Preparation and Service Workers	$8.94	6,920

Source: Ohio Bureau of Labor Market Information, 2024 Ohio Job Outlook, December 2016, Appendix Table H.80.

Even if Ohio manages to add 300,000 jobs or more, that employment growth by itself will not likely reverse the state's relative decline in per capita income (discussed in the first paper in this series). Ohio gained 1.7 million jobs from 1969 to 2001 while experiencing a decline relative to the national average in per capita income. Home health aides and food servers work hard and contribute to our economy, but unless we can achieve higher rates of growth in more high-paying jobs as well, we will not be able to generate the resources needed to improve the lives of all Ohioans.

CONCLUSION

The fundamentals of Ohio's economy have changed from one based on producing goods to a more diversified set of employers, with service-producing industries growing the fastest. This shift in jobs and industry presents a series of challenges and opportunities that will exist throughout the years ahead. To better prepare the state to address these changes, policymakers need to resolve the wide differences in projections of future skill needs for Ohio jobs. They must also go beyond understanding the level of academic achievement demanded by employers and instead understand the mix of skills — both hard and soft — employers reward. State policymakers must recognize that the public goal of economic development policy is not only growing jobs, but growing good-paying jobs and developing the skilled workers needed to fill them.

In our third paper, we look at what Ohio's political leaders have done to try to reverse the long-term decline in relative per capita income, what the outcomes have been and what options may be available to the next governor.

ENDNOTES

[1] Ohio is particularly dependent on auto parts and vehicle assembly, where the state is second only to Michigan in the number of workers employed. U. S Census Bureau, "Motor Vehicle Manufactures — Employees, Payroll and Shipments by Major Producing State: 2015," *Proquest Statistical Abstract of the United States*, 2017, Table 1051.

[2] For two different perspectives on what to do about this, see Edward Lazear, "The Incredible Shrinking Workforce," Wall Street Journal, December 8, 2017, A17, and Jason Furman, "How to Get American Men Back into the Workforce," Wall Street Journal, December 18, 2017, A17. For a more extensive analysis of possible causes, see Alan B. Krueger, *Where Have All the Workers Gone? An Inquiry into the Decline of the U.S. Labor Force Participation Rate*, Brookings Papers on Economic Activity, August 26, 2017, at brookings.edu.

[3] U.S. Bureau of Labor Statistics, "Job Openings and Labor Turnover Summary," Economics News Release, June 6, 2017, at bls.gov/news.release/jolts.

[4] Deloitte, "The Skills Gap in U.S. Manufacturing, 2015 and Beyond" at themanufacturinginstitute.org/Research/Skills-Gap-in-manufacturing/s/media.

[5] See, for example, Paul Krugman, "Jobs and Skills and Zombies," New York Times, March 30, 2014, A23, and Peter Cappelli, "The Skills Gap Myth: Why Companies Can't Find Good People," Time, June 4, 2012, at business.time.com.

[6] Anthony P. Carnevale et al., *Help Wanted: Projections of Jobs and Education Requirements Through 2018*, (Washington: Georgetown Center on Education and Workforce, June 2010) at files.eric.gov/fulltext/ED534310, and Georgetown Center on Education and the Workforce, Job Growth Through 2020, 80.

[7] Molly Hensly-Clancy, "How a Private Foundation with Student Loan Ties Became a Force in Higher Education," BuzzFeed News, May 22, 2014, at buzzfeed.com.

[8] National Skills Coalition, "Ohio's Forgotten Middle," February 2017, at nationalskillscoalition.org.

[9] The Bureau of Labor Statistics has identified what it has called "statistical and conceptual issues" with the way it counts these workers. It is implementing a new method it expects to be more accurate beginning with the 2016 to 2026 projections. "Occupational Separations and Openings," at bls.gov/emp/ep_separations.htm, last modified October 24, 2017.

[10] Mary Helen Petrus, "Workforce Development Challenges in Ohio," Federal Reserve Bank of Cleveland, February 10, 2014, at clevelandfed.org.

[11] Executive Order 2012-02K at workforce.ohio.gov and "State Workforce and Education Alignment Project, Ohio," at nationalskillscoalition.org/state-policy.

[12] Ohio Bureau of Labor Market Information, "Current Employment Statistics, Nonagricultural Employment, Annual Average for Ohio," at ohiolmi.com./asp/CES. Accessed 3/11/18.

[13] U.S. Department of Health and Human Services, "The Opioid Epidemic by the Numbers," at hhs.gov/sites/default/files/Factsheet-opiods-061515 (June 2016). This source estimates the opioid addiction rate for Ohio at between 9.4 and 10.3 per 1,000 residents age 12 and over.

[14] Arthur Hughes et al., "Marijuana Use and Perceived Risk of Harm from Marijuana Use Varies Within and Across States," July 26, 2016, at SAMSHA.gov/data/series/default/file/report_2404/ShortReport-2024.

[15] Marty Schladan, "Failed Drug Tests Keep Ohio Jobs Unfilled," *Columbus Dispatch*, August 13, 2017, A1, and Danielle Paquette, "Companies Need Workers But People Keep Getting High," Columbus Dispatch, May 21, 2017, F1.

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