MICHIGAN FUTURE INC.
A Catalyst for Prosperity

The Relationship Between Education and Income: Separating Fact from Myth to Inform State Strategy

July 2021

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INTRODUCTION

In 2019, before the global coronavirus pandemic hit, Michigan had what looked like a strong economy, driven partly by a thriving auto industry. GDP was high and unemployment was low. By traditional measures, we were thriving.

And yet, many Michigan families were struggling—by the Michigan Association of United Way's count, 38 percent of Michigan families couldn't afford the basic necessities in 2019. What explains the disconnect?

In this report, we'll share a set of data that paints an accurate picture of Michigan's strong, pre-pandemic economy. We will explore the labor market and what jobs actually pay, along with the educational requirement of jobs that pay low, middle, and high wages.

For each of 800 occupations classified by the Bureau of Labor Statistics, we pulled the median wages and calculated the minimum education requirements of jobs in the occupations. We then selected benchmarks for low-wage, middle-wage, and high-wage jobs. We set the national median of $39,810 as our threshold for a middle-wage job. We selected the national 75th percentile of $64,240 as the threshold for a high-paying job.

Our efforts to understand the true shape and structure of the labor market are based in our mission to help raise prosperity—by raising household income—for all Michiganders. State and local strategies to raise income will only be effective when based in the reality of our labor market, and not a holdover picture we carry from the 1950s, 1980s, or even early 2000s.

If you imagine the entire labor market of Michigan, you probably picture something like a bell curve. Where there are a few jobs that pay poorly, a good number of jobs in the middle, supporting the middle class, and a few jobs at the top. Yet today's reality is not that.

Instead, the bell curve we imagine is almost inverted to form a two-tier economy. The majority of jobs in Michigan are in occupations with wages below the national median. These jobs largely overlap with jobs that require no education beyond high school. Then, on the other end of the labor market, we see that a large majority of jobs that pay higher wages require a bachelor's degree. Finally, we explore blue collar jobs and STEM fields, and find that neither category dominates middle- or high-wage occupations.

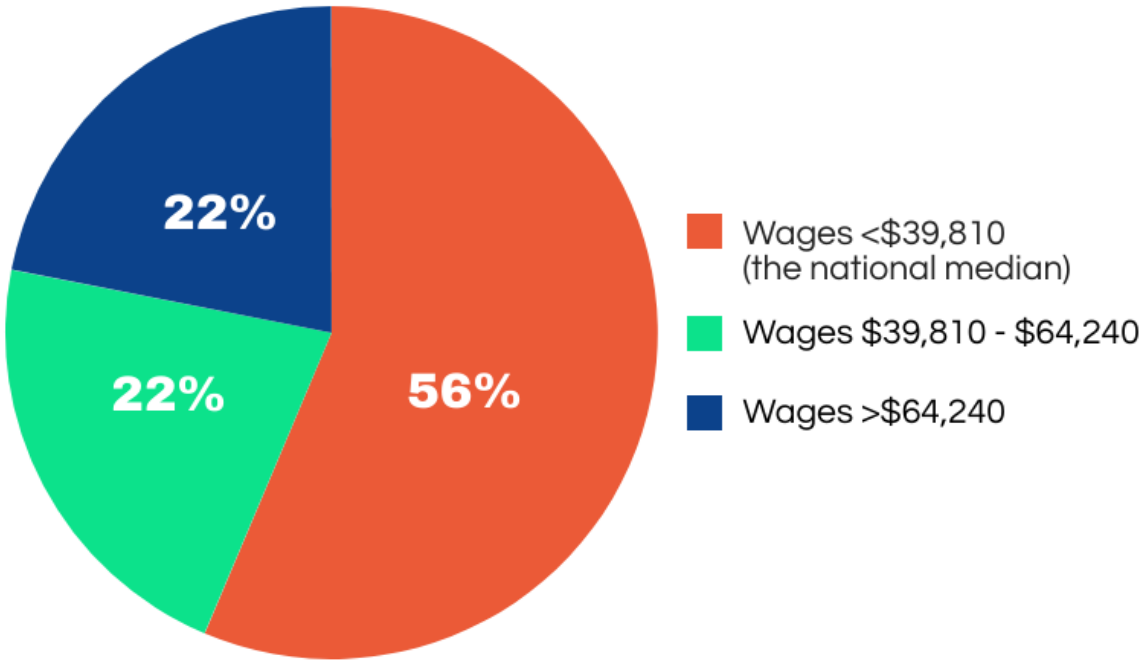
In short, getting a high school degree is no longer a ticket to the middle class. Michiganders need training and skills beyond what they get in high school if they expect to find a job that pays a middle class wage. And to find a job that pays in the top quartile of wages, most will need at least a bachelor's degree.

WAGES IN MICHIGAN

Of the 4.3 million jobs in Michigan, the majority, 56 percent, are in occupations with a median that is less than the national median of $39,810 (*Figure 1*). The remaining jobs are split almost equally among jobs in occupations with a median in the middle-wage range (from $39,810 to $64,240) and higher wage range (above $64,240).

Figure 1. 4.3 million jobs in Michigan, by median wage of occupation

May 2019 Occupational Employment Statistics, Bureau of Labor Statistics, as analyzed by Don Grimes, University of Michigan



That 56 percent of jobs in Michigan are in lower-paying occupations always surprises people. In fact, the United Way estimates that 58 percent of jobs in Michigan pay less than $20 per hour. In other words, it's not just teenagers, people just getting started on their careers, or people who have significant challenges to work, who are in these lower-paying jobs. These are the jobs available to the majority of Michigan's working adults.

WAGES AND EDUCATIONAL ACHIEVEMENT

Now let's look at those segments, starting with the 56 percent of jobs in the lower wage category (*Figure 2*), and then turning to the highest end of the range, the 22 percent of jobs in occupations with a median wage above $64,240 (*Figure 3*). The vast majority of the lower wage jobs, 81 percent, have no educational requirement beyond high school. In other words, they can largely be described as lower education, low-wage jobs.

Figure 2. Lower-paying jobs (wages <$39,810), by educational requirement

May 2019 Occupational Employment Statistics, Bureau of Labor Statistics, as analyzed by Don Grimes, University of Michigan

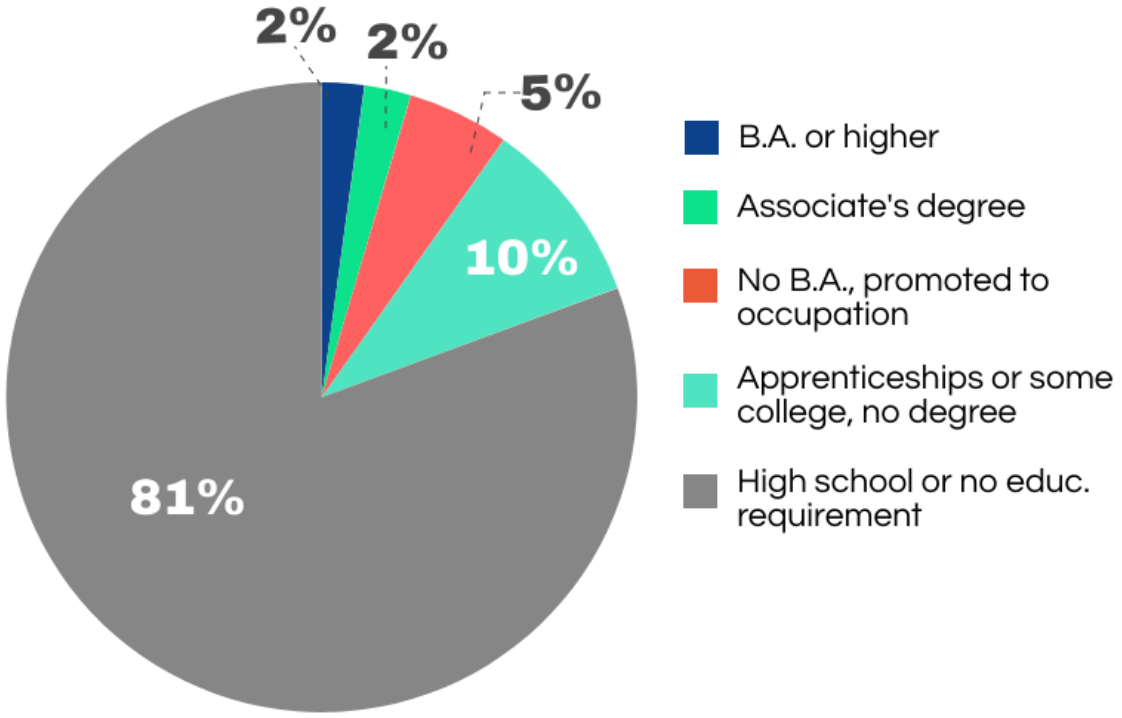
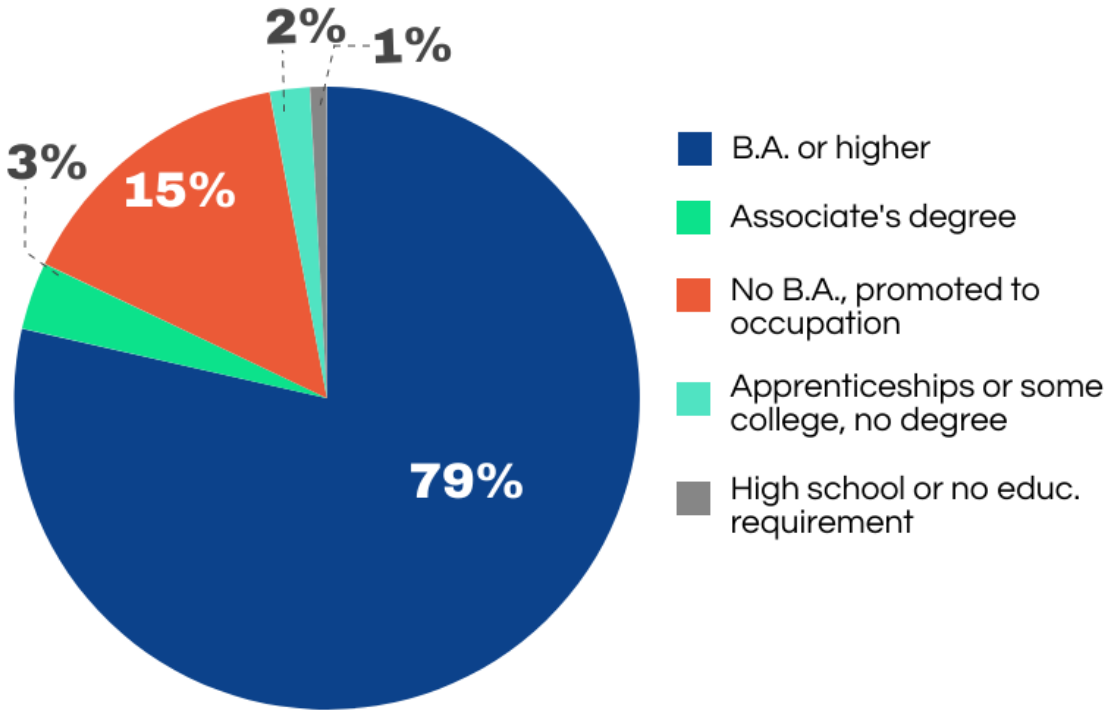


Figure 3. Higher-paying jobs (wages >$64,240), by educational requirement

May 2019 Occupational Employment Statistics, Bureau of Labor Statistics, as analyzed by Don Grimes, University of Michigan



The jobs in the higher wage category overwhelmingly (almost 80 percent) are in occupations that require not just any post-secondary degree, but a bachelor's degree or higher. So we can describe this segment of jobs as higher education, higher-paying.

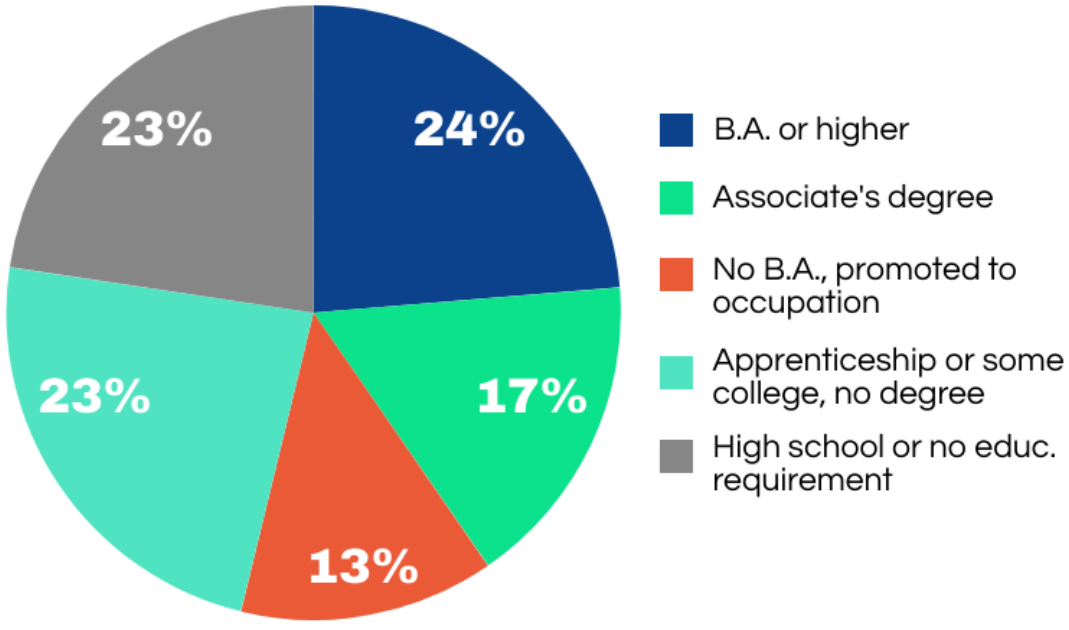
The other interesting thing in *Figure 3* is the category of "No B.A., promoted to occupation," which makes up most of the higher-paying, non-B.A. requiring occupations. This category refers to jobs in occupations that don't have a particular educational requirement, but where someone who has performed well has been promoted. Around two-thirds of these jobs are managerial or supervisory, and while they may not require a particular degree, they require a complex set of uniquely human skills, such as collaboration, communication, and problem-solving skills. The other jobs in this category almost resist a pattern: they include real estate brokers, flight attendants, chefs, certain repairers, locomotive engineers, and wellhead pumpers, for example. By nature of requiring promotion, they entail skills often learned on-the-job.

Let's look now at the middle-wage jobs (*Figure 4*), where we see a variety of educational requirements. There are some middle-wage jobs that require only a high school degree; others require apprenticeships or community college; others require B.A.s or more.

As we saw back in *Figure 1*, the truth is that, while they are important to our communities, middle-pay jobs make up a far smaller portion of our labor market than is widely believed.

Figure 4. Middle-paying jobs (wages >$39,810 and <$64,240), by educational requirement

May 2019 Occupational Employment Statistics, Bureau of Labor Statistics, as analyzed by Don Grimes, University of Michigan



STEM AND BLUE COLLAR JOBS

After looking at these categories as a whole, we want to test for two of the most common claims we hear in conversations about education, workforce development, and the economy: that young people should focus on STEM fields if they want to earn a good wage, and that the middle class is dominated by blue collar workers. For this analysis we looked at the 22 major occupation groups classified by the Bureau of Labor Statistics.

Occupations in STEM

To understand whether STEM (science, technology, engineering, and math) jobs dominate good-paying jobs, we designated the following major occupations as requiring STEM education: computer and mathematical occupations, architecture and engineering occupations, life, physical and social science occupations, healthcare practitioners and technical occupations, and healthcare support occupations. Of the 1,881,000 jobs in Michigan that pay above the national median of $39,810, 269,000 (14 percent) are in non-health care related STEM occupations. 249,000 (13 percent) are in health care occupations. In total, 27 percent of Michigan jobs in occupations at or above the national median of $39,810 were in STEM occupations in 2019.

These jobs are predominately in the high-wage category. In that high-wage category, 42 percent of jobs are in STEM fields: 23 percent in non-health care related STEM, and 19 percent in health care. Almost all of those jobs require a B.A. In the middle-wage category, 12 percent of jobs are in STEM occupations: five percent in non-health care related STEM, and seven percent in health care.

In short, STEM fields do pay well. But they are far from the only path to a good wage, and do not dominate our highest-wage category. Today's higher-paid jobs are in a variety of professional and managerial occupations whose common feature is the requirement of a B.A.

Blue collar occupations

Next, we explore blue collar jobs, which we define as those in construction and extraction occupations; installation, maintenance, and repair occupations; production occupations; and transportation and material moving occupations. Together, these four occupational categories are a significant part of Michigan's labor market, constituting 29 percent of Michigan payroll employment in 2019.

Figure 5. Blue collar occupation categories

May 2019 Occupational Employment Statistics, Bureau of Labor Statistics, as analyzed by Don Grimes, University of Michigan

Major Occupation Category	Payroll jobs in Michigan	Median wage
Construction and extraction	147,000	$49,540
Installation, maintenance, and repair	172,000	$45,870
Production	476,000	$36,530
Transportation and material moving	356,000	$31,940

As is clear in the table in *Figure 5*, blue collar jobs can't necessarily be lumped together. Construction and extraction occupations and installation, maintenance, and repair occupations both have median wages higher than both the national median and the state median. Unfortunately, they represent a much smaller share of blue collar jobs than production and transportation and material moving occupations, which, combined, constitute a whopping 19 percent of payroll jobs in Michigan.

Of course, there are a range of salaries within these occupations. Of the 1,151,000 jobs across these four occupational categories, 64 percent are in occupations whose median is below the national median ($39,810). So only 36 percent of these jobs are in occupations that pay a median above this threshold.

Of the middle-wage jobs in *Figure 4*, 38 percent are in blue collar occupations. Of the high paying occupations in *Figure 3*, only seven percent are in blue collar jobs.

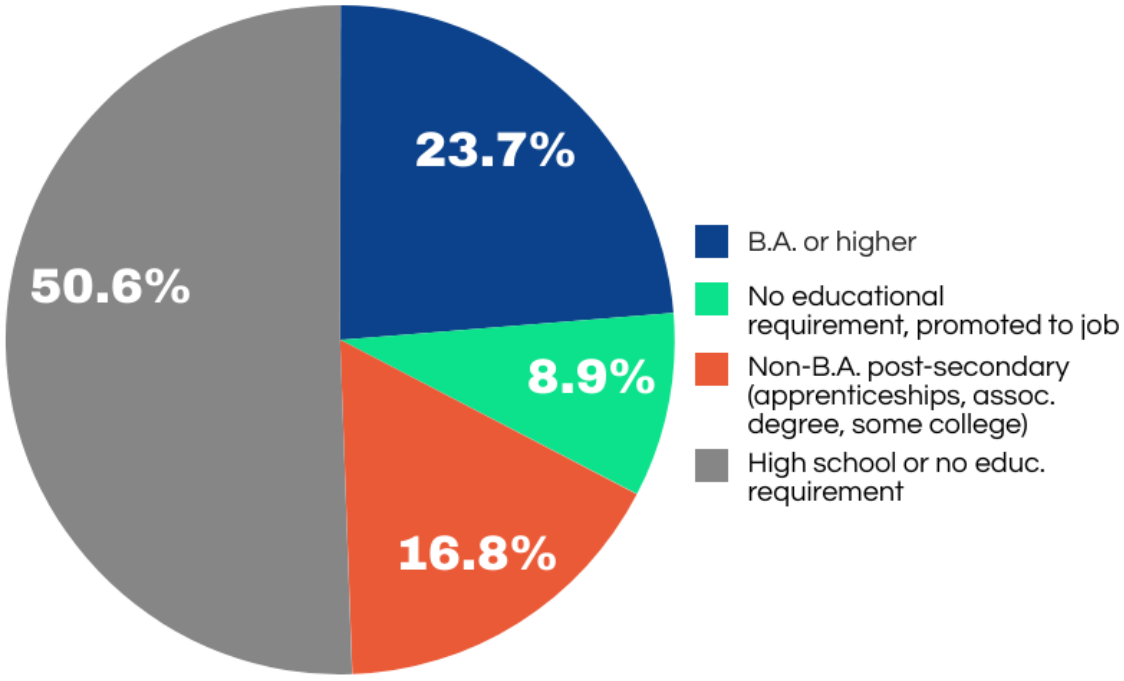
Again, the data show that while blue collar jobs are a significant portion of our labor market, they are not a significant portion of higher-wage jobs, and they do not even dominate middle-wage jobs. The preponderance of blue collar jobs pay below the national median.

Overlaying education and earnings

For a slightly different perspective on education and earnings, we can look at all of the jobs in Michigan based on the education requirement of their occupations.

Figure 6. Jobs by education requirement of occupation

May 2019 Occupational Employment Statistics, Bureau of Labor Statistics, as analyzed by Don Grimes, University of Michigan



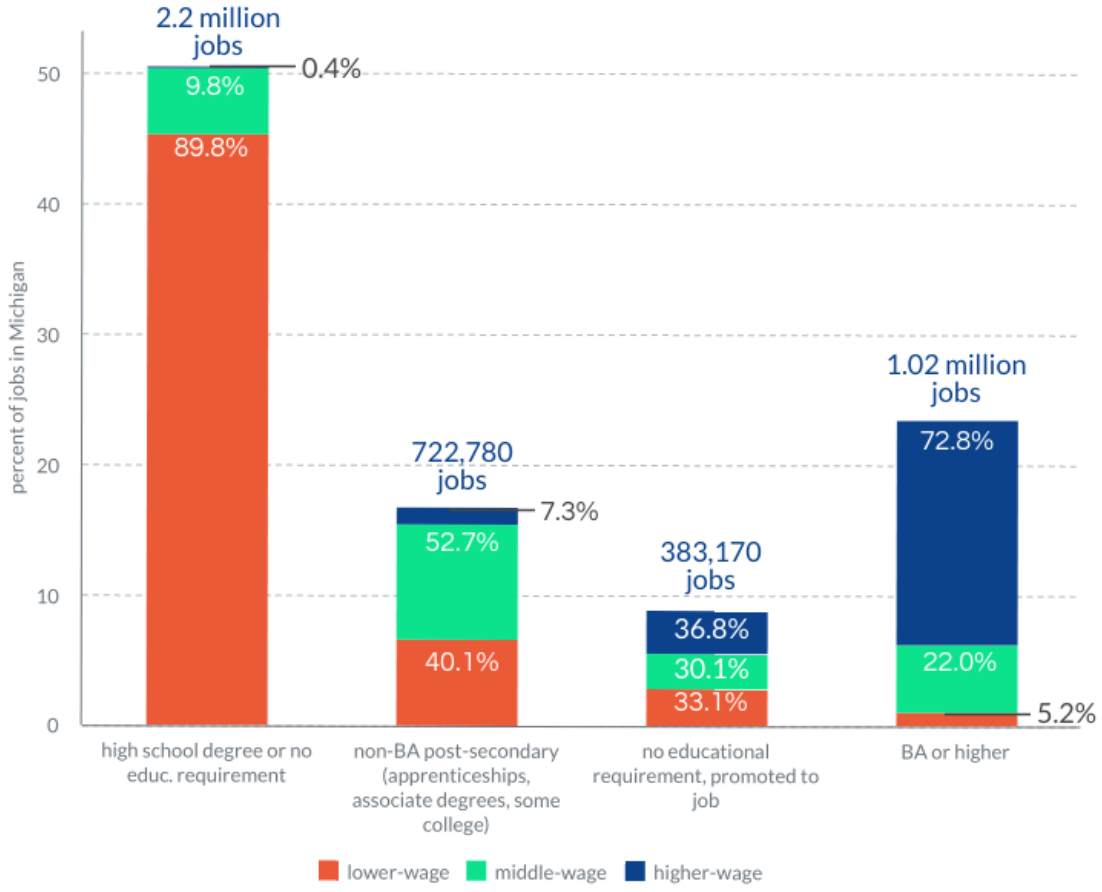
As you can see in *Figure 6*, over half of Michigan jobs are in occupations that have no educational requirement or require high school only. As we know from the previous charts, the vast majority of those are not going to pay well. 23.7 percent of jobs are in occupations that require a B.A. or higher. 8.9 percent don't have a particular educational requirement, but are achieved by promotion on the job. And only 16.8 percent of jobs in Michigan require a post-secondary education that *isn't* a B.A. or higher. This includes all jobs in occupations that require an Associate's degree, a trade certification, apprenticeship, or some college, short of a degree. All of those together make up less than 20 percent of the job market.

In the next graph (*Figure 7*), we can overlay all of these categories to show the number of jobs in occupations requiring different education levels by how they pay. The size of those bars reminds us that over half of the jobs in Michigan are in occupations that don't require education beyond high school, and that the next largest category is of jobs that require a B.A. or more.

Each bar is then broken down into the three wage categories: below $39,810, between $39,810 and $64,240, and above $64,240. One can look at *Figure 7* and quickly know, what percentage of each education category pays above $64,240, and how many jobs that is.

Figure 7. Jobs by wage and educational requirement, categorized as lower-, middle-, and higher-wage, according to median wage of occupation

May 2019 Occupational Employment Statistics, Bureau of Labor Statistics, as analyzed by Don Grimes, University of Michigan



Once again, the data show that a B.A. is as close to a guarantee one can have of earning good wages; that earning only a high school degree qualifies one primarily for lower wage jobs; and that the number of jobs "in the middle," either educationally or based on earnings, is smaller than we imagine.

In *Figure 8*, we offer a simplified version of the previous graph that divides jobs by the educational requirement of their occupation, simply by whether they pay above or below the national median of $39,810 (grouping together middle- and higher-wage jobs from previous charts). We see that all four of our education categories have some occupations that earn less than the national median, and some that earn more. What stands out, though, is the trend—the key takeaway of this analysis.

Figure 8. Jobs by education requirement and median wage of occupation, compared to the national median

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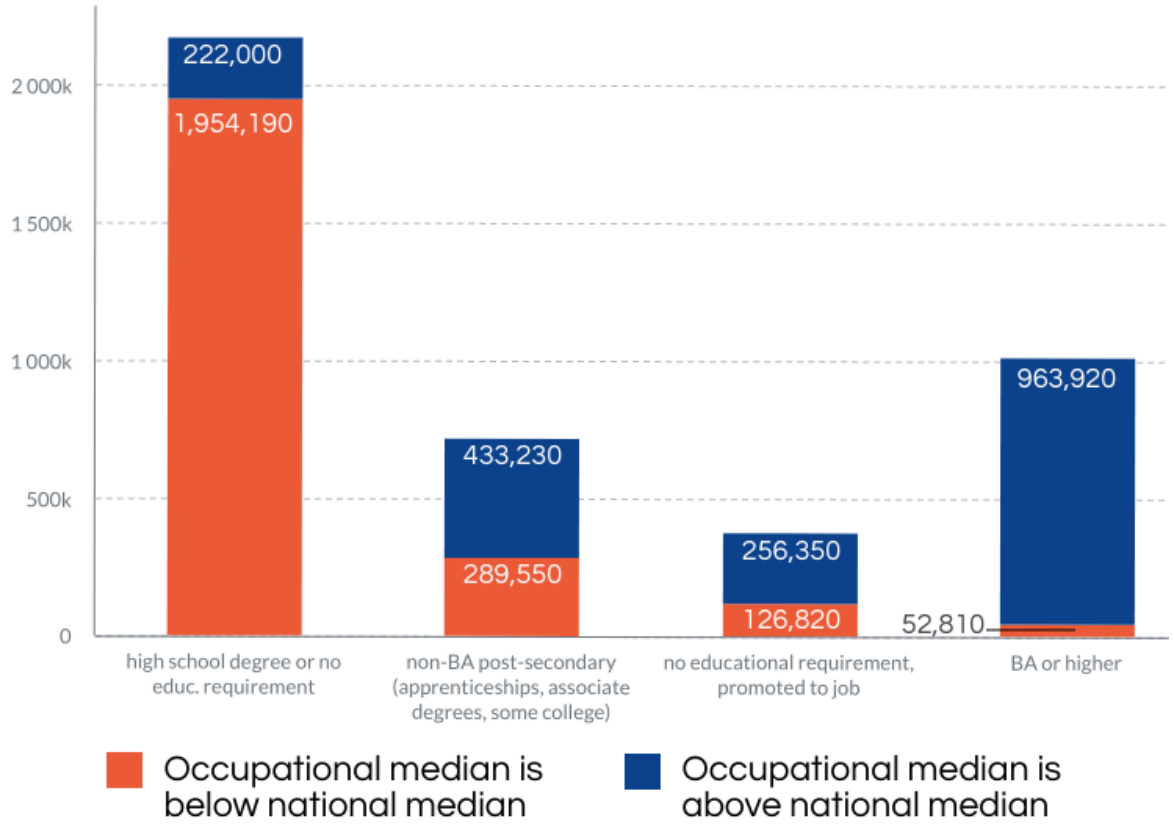

As the educational requirement of an occupation rises, the percentage of jobs that earn more than the national median rises. The difference is significant. Whereas only one in 20 jobs in occupations that only require high school earn more than the national median, almost 19 of 20 jobs in occupations that require a BA pay above the national median. In the two "middle" education categories,

there are more jobs above the national median than below, though there are a substantial number of jobs that are below the national median.

CONCLUSION

This analysis demonstrates a few key characteristics of Michigan's job market in the strong economy of 2019 that we must face with clear eyes to devise policy responses that help all Michigan households grow in prosperity.

1. First, we see that the majority of jobs in Michigan are in low-wage occupations. This prevalence of low-wage work is a structural characteristic of today's economy.

2. More than half of Michigan payroll jobs are in occupations that don't require any education beyond a high school diploma. This part of the labor market largely overlaps with those low-wage occupations.

3. We see that the vast majority (almost 80 percent) of jobs in the higher-wage occupations require a B.A. or more. There are no guarantees (a small portion of B.A.-requiring jobs don't pay above the national median), but a B.A. is the surest way to be prosperous.

4. The highest-wage category is dominated by professional and managerial work that requires a B.A., not by STEM jobs exclusively or by blue collar jobs.

5. And lastly, while there is still a segment of the job market that requires a non-B.A., post-secondary credential and also pays in the middle wages, it's a smaller segment than the popular imagination holds.

ABOUT MICHIGAN FUTURE

Michigan Future, Inc. is a non-partisan, non-profit organization. Our mission is to be a source of new ideas on how Michigan can succeed as a world class community in a knowledge-driven economy.

Our goal is to be a catalyst for recreating a high prosperity Michigan.

THIS REPORT

Data analysis for this report was conducted by Donald R. Grimes, a research area specialist lead at the University of Michigan's Research Seminar in Quantitative Economics and frequent research contributor to Michigan Future.

Charts and text for the report were authored by Sarah Szurpicki, a Vice President at Michigan Future.