

The Economic Benefits of the Michigan New Jobs Training Program



Commissioned by:

Michigan Community College Association

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I. Executive Summary

INTRODUCTION

As Michigan employers continue to regain their footing following the Great Recession, many are considering hiring new workers to help them meet the increased demand for their products and services. For some of these firms, the newly created jobs require specific skills and training. Historically, this training has been provided through a number of venues, including employer-sponsored programs as well as publicly funded programs.

One such program, the Michigan New Jobs Training Program (MNJTP), leverages the job training strengths of local community colleges to help employers fill newly created jobs. These localized, employer-driven job training programs are funded with the state Individual Income Tax revenue captured from newly created jobs. Demand for the program has outstripped the available funding (there is a statutory \$50 million aggregate cap on the amount of outstanding training programs in any calendar year), which has prevented many employers from participating and has resulted in a waiting list.

PURPOSE OF REPORT

The Michigan Community College Association (MCCA) commissioned Anderson Economic Group (AEG) to review the MNJTP working under the current \$50 million cap to determine the economic benefit of the program in 2012 and in the long-run. The MCCA also asked AEG to estimate the net impact on tax collections, after accounting for the colleges' capture of the state Individual Income Tax revenue associated with newly created jobs.

OVERVIEW OF MICHIGAN NEW JOBS TRAINING PROGRAM

The Michigan New Jobs Training Program was created in state law in 2008 as an employer-initiated customized job training economic development incentive program. The program is designed to leverage the workforce development capabilities of Michigan's 28 community colleges.¹

Using the existing community college network, the MNJTP provides job training programs to Michigan employers that create documented *new* jobs at existing facilities or expanded facilities in the state. Colleges work with employers in their area to design, develop, and deliver training programs to the employees of the new jobs. The program is open to all firms in the state, regardless of industry or size.

The costs of the training programs are initially financed by the colleges themselves, either through current resources (e.g., pay-as-you-go) or through the issuance of revenue bonds. Colleges are reimbursed for these costs through a state tax capture mechanism. Specifically, colleges receive repayment from the

1. Public Act 359 of 2008 added Chapter 13 (entitled New Jobs Training Programs) to Public Act 331 of 1966 (Community College Act).

capture of Individual Income Tax withholding for all the *new* jobs associated with the training program. Withholding capture can be used to pay the annual debt service if colleges issue debt to finance training costs.

Under the MNJTP, employers and colleges enter into agreements that require the employer to remit to the college, instead of the state treasury, income tax withholding. Colleges capture these funds until all training expenses and their administrative costs are repaid in full.

OVERVIEW OF APPROACH

In the first section of this report, we provide a brief summary of the MNJTP, including an overview and description of current firm and college participation in the program (see “MNJTP Overview” on page 9). In the second section, we analyze MNJTP activity in 2012. We assume that only a portion of the new jobs and earnings are due to the MNJTP and estimate the program’s net economic impact in 2012 (see “Economic Impact” on page 16). We then estimate the MNJTP’s impact on state and local taxes (e.g., income, sales, and property) in 2012 (see “Fiscal Impact” on page 18).

In the third section, we model the MNJTP operating under a “steady state” scenario, which we define as an environment where contracts are regularly being completed and new contracts originated (see “Steady State Analysis” on page 20).² This section includes an economic impact analysis and fiscal impact of the program operating in the steady state. Our analyses assume that the program will operate, uninterrupted, beyond the current statutory sunset date of December 31, 2018.³

In the fourth section, we discuss other benefits associated with the MNJTP, including its role in addressing the oft-mentioned skills gap (see “Discussion” on page 27). We do not quantify these ancillary benefits, but provide a general discussion to inform a more comprehensive understanding of the program and its attributes.

OVERVIEW OF FINDINGS

1. We estimate that colleges will capture \$4.2 million of Individual Income Tax revenue in 2013. This annual amount will increase consistently and gradually through 2030 when it reaches \$13.3 million.

We estimate that community colleges will capture \$4.2 million of Michigan Individual Income Tax withholding revenue in 2013 from existing contracts.⁴

2. The steady state must be modelled because at the time of this report, the program had yet to reach this stage of operation.

3. Public Act 359 of 2008 prohibits community colleges from entering new contracts after December 31, 2018.

4. We define *existing* contracts as all contracts in place as of December 31, 2012.

Under current law provisions, this same amount will be available for new contract activity in 2014. As more new jobs are filled under existing contracts, the amount of income tax capture increases. This in turn frees up room for colleges to enter into new training contracts with employers.⁵

In the future, as the program matures and becomes fully implemented (see “Baseline Steady State Scenario” on page 21), we estimate that the total amount of income tax captured each year will escalate gradually until it reaches \$13.3 million in 2030 (last year of tax capture for existing contracts). After this time, the amount of income tax capture plateaus at about \$12.2 million annually. Figure 1 below shows the amount of annual tax capture from 2013 to 2042.

FIGURE 1. Annual Income Tax Capture Associated with MNJTP, 2013-2042



Source: Michigan Department of Treasury
Analysis: Anderson Economic Group, LLC

2. We estimate that the MNJTP net economic impact on the State of Michigan was over \$76 million of additional earnings and 2,266 additional jobs in 2012, and in the steady state will increase to \$143 million of additional earnings and 4,768 additional jobs.

We estimate the total direct and indirect economic impact of MNJTP in Michigan to be \$76.6 million of additional new earnings and 2,266 new jobs in 2012. Table 1 on page 4 summarizes the components of our economic impact estimates. Operating in the steady state, we estimate that the MNJTP will create

5. We define *new* contracts as all contracts issued after December 31, 2012.

over \$143 million additional earnings and 4,768 additional jobs.⁶ See “Economic Impact” on page 16 and “Economic Impact in Steady State” on page 24.

TABLE 1. Estimates of MNJTP Economic Impact in 2012 and the Steady State

	Estimate of Net New ^a	Weighted Multipliers ^b	Indirect Impact	Total MNJTP Impact
Calendar Year 2012				
Earnings	\$34.1 million	2.2433	\$42.4 million	\$76.6 million
Employment	841	2.6923	1,424	2,266
Steady State				
Earnings	\$63.8 million	2.2433	\$79.4 million	\$143.2 million
Employment	1,771	2.6923	2,997	4,768

*Source: Michigan Department of Treasury; MNJTP Agreements; RIMS II multipliers
Analysis: Anderson Economic Group, LLC*

- a. Net new estimates of earnings and employment were determined using AEG’s substitution parameters, which takes into account economic activity that likely would have occurred without the existence of the MNJTP.
- b. There were eight industry-specific multipliers that we used for this analysis. The multiplier shown is a weighted compilation of all firms engaging in MNJTP agreements that were active in 2012 and we used this as a representative mix for the steady state.

3. We estimate that the MNJTP generated an additional \$3.3 million of state and local tax revenue in 2012 and will have little to no net fiscal impact in the steady state.

The net economic benefits arising from the MNJTP generate public sector benefits in the form of increased state and local taxes. Table 2 summarizes the net tax revenue, by major tax, associated with MNJTP economic activity in 2012 and operating under a steady state scenario. Although \$2.9 million of state Individual Income Tax revenue was diverted to reimburse colleges for job training expenses in 2012, this revenue loss was more than offset by additional state

6. The steady state is an indefinite time in the future, which we do not have data available for, which is why we base our steady state on the data we have on the MNJTP thus far. As such, we decided to use a higher substitution rate in the steady state than in 2012 to be conservative with our estimate of economic impact. We discuss this further in “Substitution Differences for 2012 and Steady State” on page A-1.

income tax (\$1.6 million), sales tax (\$1.7 million), and state and local property tax (\$2.8 million).

TABLE 2. Tax Revenues Associated with MNJTP Activity in Michigan in 2012 and Steady State (millions \$)

	<u>Calendar Year 2012</u>			<u>Steady State</u>		
	New Tax Revenue	Income Tax Capture	Net Tax Collection	New Tax Revenue	Income Tax Capture	Net Tax Collection
Individual Income Tax	\$1.6	(\$2.9)	(\$1.3)	\$3.0	(\$12.0)	(\$9.1)
Sales Tax	\$1.7	\$0	\$1.7	\$3.1	\$0	\$3.1
Property Taxes	<u>\$2.8</u>	<u>\$0</u>	<u>\$2.8</u>	<u>\$6.0</u>	<u>\$0</u>	<u>\$6.0</u>
Total Tax Revenue	\$6.1	(\$2.9)	\$3.3	\$12.1	(\$12.0)	\$0

Note: Amounts may not sum due to rounding.

Sources: AEG estimates based on MNJTP contracts; Michigan Department of Treasury; and RIMS II multipliers.

Analysis: Anderson Economic Group, LLC

After the expiration of all existing contracts and as the program operates in the steady state, we estimate that at least \$12.0 million of income tax will be captured annually. This revenue loss will be offset by an equal amount of additional income, sales, and property tax revenue generated by the MNJTP's economic activity. See "Fiscal Impact" on page 18 and "Fiscal Impact In Steady State" on page 26.

4. Shorter training contract lengths free up funding sooner for new training contracts and increase the amount of funds available annually for new contracts under a steady state scenario.

Operating under the current statutory \$50 million aggregate cap provision, reducing the assumed average contract length for new contracts effectively frees up room under the cap sooner. The faster that firms hire workers and income tax is captured, the sooner training funds become available for new contracts. We modeled two alternative steady state scenarios where the terms of all new contracts are either shorter (five years) or longer (ten years) than the assumed seven-year term (see "Alternative Steady State Scenarios" on page 22).

As the program ramps up under the under the five-year alternative steady state scenario, the amount of annual income tax capture increases each year until it reaches \$17.4 million in 2030. Under the ten-year alternative, the amount of annual income tax capture rises each year, but more slowly, until it reaches \$10 million in 2030. In 2031, after the expiration of all existing contracts, annual income tax capture under the five-year and ten-year alternative scenarios is/ arrives/steadies at about \$16.5 million and \$9.0 million, respectively.

LIMITATIONS

This report and the analyses contained herein are limited in their respective scopes. The report is not intended to serve as a program evaluation per se. Also, the report is not a financial or performance audit of the MNJTP. For example, we did not verify the new employment gains associated with individual contracts; however, we are confident that the total wages associated with the new jobs are accurate. Documentation of actual jobs and wages associated with new jobs created would require access to private, confidential records of the business firms and individuals involved. We received actual, aggregate state Individual Income Tax withholding information for new jobs at each college (by contract) from the Michigan Department of Treasury. Finally, we are unable to comment on the type or quality of jobs associated with the program.

This report does not constitute a true cost/benefit analysis. We did not endeavor to compare the foregone state resources resulting from the program (effectively a state tax expenditure) with other possible uses (e.g., alternative tax relief, direct spending through the state budget, etc.).

One final limitation of this report relates to the amount of actual data that we had access to for our analyses. This is due to the newness of the MNJTP. We collected all training agreement information since the first agreement was issued in 2010 through the end of 2012; however, it is difficult to say whether future activity will look similar to the experience of the first three years. Many of our assumptions about future agreement activity are based on the experiences to date. As the program ages and there is more actual contract activity to examine, we recommend that another independent review of the economic and fiscal impact of the MNJTP be undertaken.

ABOUT ANDERSON ECONOMIC GROUP

Anderson Economic Group is a research and consulting firm specializing in economics, public policy, finance, business valuation, and industry analysis. The firm was founded in 1996, and has offices in East Lansing, Michigan and Chicago, Illinois. For additional information about the firm and the report's authors please see "Appendix B: About AEG" on page B-1.

**MICHIGAN JOB
TRAINING
PROGRAMS: BRIEF
HISTORY**

II. Michigan New Jobs Training Program

For decades, the State of Michigan has financed, either directly through grants or indirectly through various tax capture or tax credit mechanisms, customized job training programs for Michigan businesses. While the design, structure, financing, incentives, specific criteria, and other factors associated with these job training programs have varied, each has endeavored to improve the economic condition by increasing employment levels and/or raising workers' earnings.

State financed job training programs have been used in tandem with other economic development incentive programs (e.g., property tax abatements, business tax credits, loan subsidies, expedited public infrastructure construction). Over the years, state programs have supplemented other publicly-financed job training programs, including those run by local entities and the federal government.⁷ In the absence of publicly-financed job training, business are often left to fund training programs themselves.⁸ Below, we provide a brief history of state job training programs.

Beginning in 1992, the state administered the Economic Development Job Training program that provided direct grants to educational providers, including community colleges, and private entities, including businesses directly, to train workers of specific firms. This program mainly targeted large firms as the job creation threshold to be eligible for a grant was 100 new hires within two years of receiving a grant. These grants covered 30% to 50% of the job training costs for existing workers and 100% of the costs for training new workers. The program received an annual appropriation from the state General Fund of \$4.7 million in Fiscal Year 2010 (FY2010), the last year in existence. This amount was considerably less than FY2000, when the program received an appropriation of \$31 million. The state appropriation to the program was eliminated in FY2011.

The Michigan New Jobs Training Program was established in state law in 2008.⁹ The program was designed to leverage the job training expertise of Michigan's 28 community colleges to help local employers fill new jobs by offsetting the costs of job training through the diversion of state individual income tax revenue. In this context, the MNJTP represents a new chapter in the state's

7. The primary current federal job training program is the Workforce Investment Act (WIA) of 1998, which replaced the Job Training Partnership Act. The focus of the WIA is dislocated (unemployed) workers, but training for employed adults is also eligible.

8. Rod Kackley, "Out of hands: With skills scarce, some West Michigan manufacturers train their own talent," *Crain's Detroit Business*, January 9, 2013.

9. Public Acts 359 and 360 of 2008 amended the Michigan Community College Act (Public Act 331 of 1966) and the Income Tax Act (Public Act 281 of 1966), respectively.

evolving history of job training economic development incentive programs. Below we provide a brief overview of the MNJTP, including how it works administratively, the financing mechanisms available, and descriptive statistics of current participation in the program, both colleges and employers.

PUBLICLY-FINANCED JOB TRAINING PROGRAMS

Generally speaking, two common goals of nearly all state and local economic development policies are to improve employment levels and/or increase earnings in a geographic region (e.g., state, region, etc.). With these overarching goals in mind, many economic development policies target either the demand side or the supply side of the labor market. Targeting the demand side involves interacting with businesses to improve the number or quality of jobs in an area of interest. Interventions on the demand side involve specific policies designed to lower the marginal costs to businesses of adding jobs and/or improving the quality of jobs. Common demand-side policies that states and local governments employ include lowering general business taxes, providing business tax credits, and wage subsidies. The most cost-effective demand-side policies are those that lower business marginal labor costs by amounts that far exceed the costs of the policy (e.g., higher public spending or forgone taxes).

In terms of supply-side policies, interventions focus on improving the skills or employability of workers. These policies are intended to improve the productivity of workers, which can improve labor market outcomes (e.g., employment and earnings). Examples of labor supply policies include job training for the disadvantaged and chronically unemployed, universal pre-K education, and public education (primary and post-secondary) generally. The most cost-effective of these policies are those that increase workers' wages by amounts that exceed the costs of the policy interventions.

Customized job training programs for businesses are generally considered demand-side policies. When the government pays for job training needs of select businesses, these businesses do not have to incur the associated costs and their marginal labor costs are lowered. Resources that a business would have spent on training can be used to hire more workers, raise wages of existing workers, and/or increase shareholder dividends. In addition to the potential for improving employment levels and raising earnings, these programs contribute to improvements in the human capital stock. Participants in these programs receive benefits that will help their future earnings potential through the acquisition of new skills, knowledge, and experiences. From the human capital perspective, training programs can take on some of the attributes of supply-side economic development policies.

As an economic development tool, customized job training programs are often compared against other alternatives, including other demand-side policies such as business tax incentives. Policymakers will use these comparisons in their

decision making about how to allocate limited public economic development resources.

While a comprehensive literature review of job training programs vis-a-vis alternative economic development policies is not within the scope of this paper, it is important to provide a general sense of how job training programs stack up to other economic development pursuits. Academic research on the topic has shown that customized job training programs are 10 to 16 times more cost-effective in creating jobs than business tax incentives.¹⁰ Previous research by Anderson Economic Group has demonstrated that State of Michigan tax incentive programs have had mixed results; some have been effective, others ineffective, and some programs have had a negligible effect.¹¹

MNJTP OVERVIEW

The MNJTP is modeled after a similar program in Iowa that has been in existence since 1983.¹² In Michigan, like Iowa, colleges design, develop, and deliver specialized training programs at the request of eligible businesses. Employers of any size or in any industry can take advantage of the program. The program is demand-driven. In other words, firms initiate the process and determine whether to train workers as opposed to state government, individual colleges, or state policymakers. If there is a fit between the training needs of the employer and the job training expertise and capabilities of the college, and funding is available, the two will enter into a legally-binding “new jobs training agreement.”¹³ Agreements must be approved by the board of trustees of a participating college.

The participating college is responsible for overall program administration, including required reporting to the State of Michigan. The Michigan Department of Treasury is involved in the administration and oversight of the individual income tax withholding aspects of the program.

10. Kevin Hollenbeck, “Is There a Role for Public Support of Incumbent Worker On-the-Job Training,” W.E. Upjohn Institute for Employment Research, Working Paper 08-138, January 2008.

W.H. Hoyt, C. Jespen, K.R. Troske, “Business Incentives and Employment: What Incentives Work and Where,” Working Paper, University of Kentucky.

11. Anderson Economic Group, LLC, *Effectiveness of Michigan’s Key Business Tax Incentives*, 2010.

12. The Iowa New Jobs Training Program is administered by Iowa’s fifteen community colleges and coordinated by the Iowa Department of Economic Development. The Iowa program is considerably larger than the MNJTP, totalling nearly \$70 million annually in 2008.

13. In this report, we use the term “agreement” as a shortened version of “new jobs training agreement” authorized under the Community College Act.

State law limits the MNJTP agreements for *new jobs* being created by the employer, either at existing facilities or expanded facilities in the state.¹⁴ Employers can not use the program to provide training for existing jobs or job retraining that does not result in added jobs. The program is intended to increase the aggregate employment level in the state. Additionally, to qualify for the MNJTP, employers must pay wages for the new jobs that are at least equal to 175% of the state minimum wage (\$12.95 per hour in calendar year 2013).¹⁵

Initially, the costs of the training programs are financed by the community colleges themselves, either on a pay-as-you-go basis (e.g., using current resources or reserves) or through the issuance of revenue bonds.¹⁶ State law allows a participating college to receive reimbursement for its training costs (or annual debt service if revenue bonds are issued) through a capture of the state individual income tax withholding associated with all new jobs created by the training. Under this tax capture mechanism, participating employers are required to remit the income tax withholding associated with all new jobs to the community college instead of the State of Michigan.¹⁷ In addition to the direct training costs, the state income tax withholding payments are used to finance the administrative costs of the participating colleges. Colleges are eligible to retain 15% of withholding payments to cover their administrative costs.

Colleges capture the income tax withholding until all training expenses and their administrative costs are repaid in full. If the amount of income tax withholding revenue from the new jobs is insufficient to repay the college for its training expenses, the employer, not the college, is responsible for the difference. This “claw back” provision is intended to safeguard the college from ultimately having to pay for the training provided.

State law caps the amount of outstanding training agreements at \$50 million in any calendar year. This cap is intended to limit the costs to the state treasury. At any given time, the cap is the total *future* withholding that can be captured under

14. Public Act 359 of 2008 defines “new job” as a full-time job in Michigan that did not exist within the last 12 months, a job that existed in a similar operation of the employer, and results in a net employment increase for the employer.

15. For calendar year 2013, the state minimum wage rate is \$7.40 per hour; therefore, all new jobs created under the MNJTP must have a wage rate of at least \$12.95 per hour. Under state law, Michigan’s minimum wage rate has been \$7.40 per hour since 2008.

16. In addition to authorizing the MNJTP, Public Act 359 of 2008 authorized community colleges to issue a new form of secured debt, called “new jobs training revenue bonds,” to finance the costs of MNJTP services provided to employers in the state.

17. Public Act 281 of 1967, Income Tax Act of 1967, requires employers that have a training agreement with a college to remit the withheld income taxes to the college on the same schedule as they remit withheld taxes to the Michigan Department of Treasury. Generally, this occurs within 15 days after the end of the month.

all current training agreements. It is not a cap on the *annual* amount of income tax withholding that is actually being captured nor is a cap on the *annual aggregate* amount of new contracts that can be issued. From a practical standpoint, the greater the amount of future withholding that is tied up in current contracts, the less room there is under the statutory cap to enter into new contracts. Similarly, contracts with longer terms tie up funds and make them unavailable for new contract activity.

As income tax withholding is captured by the colleges for training reimbursement, the total amount of future income tax withholding is reduced. In other words, the *outstanding* balance on the contract is reduced and the income tax capture effectively “frees up” room under the statutory cap. As room under the cap accumulates with each tax capture, additional funds become available for colleges to enter into new training agreements. The aggregate annual amount of withholding that occurs under the program (i.e., captured taxes) is directly tied to the total amount of annual wages paid to the newly hired workers. The amount of wages paid under any agreement in any year is a function of the number of new jobs created and the wage levels of these jobs. As new job creation accelerates and positions are filled, the aggregate amount of wages increases. This increases the amount of tax capture.

The MNJTP has an effective sunset date of December 18, 2018, as state law prohibits colleges from entering new training agreements after this date. Agreements signed before this date will continue until the term of the agreement expires and income tax withholding will continue to be captured for training cost reimbursement.

TRAINING AGREEMENT ACTIVITY TO DATE

Although the MNJTP was authorized in state law in 2008, the first training agreement between a college and an employer was not signed until 2010. Since that time, demand for the program by employers has been strong. The statutory cap was reached in 2011 and a waiting list was established to prioritize funding for new agreements when the funding becomes available. In this section of the report we provide a descriptive summary of MNJTP agreement activity since the inception of the program and through the end of calendar year 2012.

Number of Agreements, Amounts, and Geography

As of December 31, 2012, Michigan colleges had entered into 31 agreements with businesses and 28 agreements were still active.¹⁸ Also, in 2011 the \$50 million cap had been reached and a waiting list established to prioritize future agreements.¹⁹

18. Of the three inactive agreements, the 2010 agreement was terminated in 2011 before any income tax withholding occurred, and other two were dissolved before completion, with the unused funds (i.e., future income tax withholding) returned.

Of the 31 MNJTP agreements issued to date, the average amount of a training agreement is approximately \$1.7 million. Agreements range in size from \$47,000 to \$19.6 million. Ten different colleges have issued training agreements since 2010; however, three colleges accounted for 68% of the activity (21 agreements). Grand Rapids Community College issued the most agreements (8), followed by Jackson Community College (7) and Oakland Community College (6). Table 3 summarizes the MNJTP agreements as of December 31, 2012

TABLE 3. Summary of MNJTP Agreements as of 12/31/2012

College	# of Agreements	Total Amount of all Agreements	Largest Agreement	Smallest Agreement
Delta Community College	2	\$6,390,048	\$6,190,048	\$200,000
Grand Rapids Community College	8	\$29,358,471	\$19,630,500	\$200,000
Jackson Community College	7	\$4,161,318	\$3,430,910	\$46,897
Lansing Community College	2	\$1,533,938	\$1,333,938	\$200,000
Monroe Community College	1	\$507,001	\$507,001	NA
Mott Community College	1	\$200,000	\$200,000	NA
Muskegon Community College	1	\$200,000	\$200,000	NA
Northwestern Michigan College	2	\$280,122	\$199,622	\$80,500
Oakland Community College	6	\$8,024,645	\$2,961,250	\$200,000
Schoolcraft College	1	\$199,273	\$199,273	NA

*Source: Michigan Department of Treasury
Analysis: Anderson Economic Group, LLC*

Figure 2, “Distribution of MNJTP Agreements Across Michigan Since 2010,” on page 13 shows the geographical dispersion and relative size of the existing MNJTP contracts in Michigan. Contracts are largely concentrated in the Grand Rapids and Detroit regions, which is not surprising given the number of employers and workers in these two parts of the state and the concentration of community colleges in these areas. Equally revealing from the map is the fact that employers and colleges across the state are taking advantage of the program, including those in the northern Lower Peninsula.

19. Beginning in June 2011 when the \$50 million cap was reached, the Michigan Community College Association queued the 28 colleges on the waiting list using a random assignment method. As funding becomes available under the cap (currently at least \$500,000), the next college on the list is offered the available funding for a new training agreement. If a college does not want to avail itself of the funding, the funding is offered to the next college on the list. This process repeats until the available funding is accepted. Colleges that forgo funding maintain their place in the queued list and do not become the first college offered funding when it next becomes available.

Agreement Amount

- \$5,000,001-\$20,000,000
- \$1,000,001-\$5,000,000
- \$500,001-\$1,000,000
- \$200,001-\$500,000
- \$0- \$200,000

* Does not include agreements that have been cancelled.

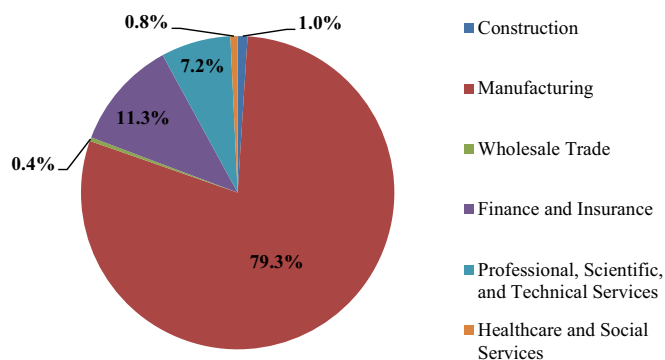
Source: Michigan Community College Association, ESRI Inc.

Analysis: Anderson Economic Group, LLC

Agreements by Industry

At the time of this report, the MNJTP has only been active for about three years. Therefore, the composition of agreements by industry is not necessarily representative of future agreements. However, based on the agreements enacted from 2010 through 2012, the industry concentration is shown below in Figure 3. Note that industries are defined based on the North American Classification System (NAICS). NAICS is the standard used by Federal statistical agencies to classify business establishments in terms of industry.²⁰

FIGURE 3. MNJTP Agreements by Industry, 2010-2012



Source: Michigan Department of Treasury
Analysis: Anderson Economic Group, LLC

As shown above, the vast majority of agreements are in the manufacturing industry.²¹ The remaining 20% are primarily in the finance and insurance industry, as well as construction. Within the manufacturing industry, we found that nearly 80% were in the electrical equipment, appliance, and component manufacturing industry.²² The remaining 20% of manufacturing agreements are primarily in transportation equipment manufacturing.

Income Tax Capture Activity

Through the end of calendar year 2012, colleges have captured a total of \$4.7 million in income tax withholding to finance training programs.²³ The annual income tax withholding activity is presented in Table 4. The amount of annual income capture increases each year, from about \$100,000 in 2010 to \$2.9 mil-

20. The U.S. Census Bureau uses NAICS data and methodology to analyze and provide to the public statistical data related to the U.S. business economy.

21. For this analysis, we used 2-digit NAICS, which includes only the broadest classification of industry categories. Each additional NAICS digit provides more industry detail, with the most detail being 6 digits.

22. This is based on AEG's analysis of more detailed NAICS codes.

lion 2012. This progression reflects both the ramp-up of the MNJTP among the colleges (i.e., each year more MNJTP agreement activity occurs), but also the gradual hiring of new jobs by businesses participating in the program. Under many agreements, new jobs are created gradually over the life of the training contract as opposed to all of them being created in the first year.

TABLE 4. Annual Income Tax Capture Activity of MNJTP Agreements, 2010-2012

	2010	2011	2012	Total
Estimated Income Tax Capture ^a	\$539,855	\$1,779,366	\$3,681,623	\$6,000,844
Actual Income Tax Capture ^b	\$98,697	\$1,781,972	\$2,859,645	\$4,740,313
Actual v. Estimated	18%	100%	78%	79%

*Source: Individual MNJTP agreements; Michigan Department of Treasury
Analysis: Anderson Economic Group, LLC*

- a. Estimated income tax capture information from individual MNJTP agreements “Exhibit C” as of December 31, 2012.
- b. Actual income tax capture from Michigan Department of Treasury through December 31, 2012.

When colleges enter into a MNJTP agreement with a Michigan business, the business is required, by law, to provide an estimate of the number of new jobs to be created. In addition to the number of jobs, nearly all agreements contain an estimate of the gross wages associated with the new jobs and the estimated income tax withholding by calendar year.²⁴ The income tax withholding represents the amount of estimated income tax capture that the community college expects to receive to cover the costs of the training programs it provided to the business. This also represents the amount of state tax revenue diverted from the Michigan Department of Treasury through the income tax withholding process.

As Table 4 illustrates, only 18% of the planned income tax capture for 2010 occurred in 2010. By 2012, this percentage increased to 78%. In aggregate, through the first three years of MNJTP agreement activity (2010 to 2012), nearly 80% of the planned income tax capture for these years had occurred.

23. This information was provided by the Department of Treasury and reflects all income tax withholding activity through December 2012 (data submitted to AEG on February 19, 2013). Some withholding activity associated with MNJTP agreements for 2012 may have been in transit at the time of the February data submission.

24. Generally, “Exhibit C” of each MNJTP agreement contains this information. AEG collected information from individual agreements and compiled it for this part of the analysis.

III. Economic and Fiscal Impact of MNJTP in 2012

This section discusses the impact that the Michigan New Jobs Training Program (MNJTP) has on jobs and income throughout the State of Michigan. It begins with our definition of “economic impact” that we use to assess the state-level impact. We then summarize the earnings and jobs that were created through MNJTP in 2012. The section concludes with a detailed discussion of the 2012 fiscal impact on state and local governments in terms of increased income, sales, and property tax revenues.

ECONOMIC IMPACT

To quantify the economic impact of the MNJTP, we asked, in effect, “What would be the loss to the state if this program did not exist?” This is because the hiring of workers through the MNJTP, and the earnings of those workers encourage additional economic activity throughout the State of Michigan. When firms enter into a training agreement with a community college, they hire workers to train, whose salaries are then re-spent as businesses and households purchase other goods and services throughout Michigan.

Definition of Net Economic Impact

We define *net economic impact* as the new economic activity directly or indirectly caused by the MNJTP, excluding any economic activity associated with this program that merely replaces other economic activity in the state. By only including “net new” economic activity, we avoid double counting or overinflating the economic impact. We do this by applying substitution parameters, which we discuss in “Creating Substitution Parameters” on page 17.

There are two components that comprise the net economic impact: direct impact and indirect impact. The direct impact stems from the net new earnings and employment associated with MNJTP, while the indirect impact stems from the recirculation of dollars within the state. We present two measures of economic impact:

- *Earnings*

This measure includes net new earnings created through the MNJTP in Michigan (after substitution), plus indirectly-generated activity by those earnings going to households in Michigan.

- *New Jobs*

This measure includes net new jobs created through the MNJTP directly, as well as the jobs that are indirectly created due to the multiplier effect of employee spending in the state.

Estimates of Net New Earnings and Employment

Using the actual amount of income tax withholdings, which were diverted by participating firms in 2012, we estimate total earnings for that year associated

with the MNJTP.²⁵ We then extrapolate employment by either using average worker wages reported in a training agreement, or dividing a firm's total earnings by the average wage for that firm's industry in Michigan.²⁶ To estimate net new, we create substitution parameters, which essentially "discounts" our initial estimates of earnings and employment.²⁷

Creating Substitution Parameters. As previously discussed, we assume that a portion of the earnings and employment under the MNJTP would have occurred in Michigan without the program. As shown in Table 6 on page 18, we estimate that 45% of earnings and 60% of employment associated with MNJTP would not have occurred in the absence of the program. Our logic for this is as follows:

- It is plausible that a portion of the people hired by companies participating in the MNJTP would have been hired by other firms in Michigan. Likewise, some of the earnings of those employees may have been paid by other firms in the state.
- A portion of the people hired by firms participating in the MNJTP might have been hired by those same firms had the program not existed. While we cannot know the timing of this, it is still something we considered.
- Rather than hiring additional workers, firms might have trained existing employees. In doing so, they would have likely compensated them for their additional work load by increasing their wages (thereby creating additional earnings).
- It is generally more expensive to hire additional people rather than pay current employees to do more, which is why we attribute a lower substitution rate to the employment substitution parameter.

For additional discussion of our reasoning, see "Substitution Parameters" on page A-1.

After applying these parameters, we estimate over \$34 million in net new earnings and 841 new jobs were created in Michigan through the MNJTP.

25. AEG received income tax data from the Michigan Department of Treasury. To estimate total earnings, we divided the actual amount diverted from Treasury by the tax rate provided in each agreement. This tax rate was reasonably within Michigan's income tax rate and ranged between 3.5% and 4.0%. See "Substitution Parameters" on page A-1.

26. Some agreements that were active in 2012 provided an estimate of employment and earnings. We adjusted employment based on how different each agreement's estimate of earnings were compared to actual (based on the diverted income tax data from Treasury). If an employment estimate was not provided, we used Michigan industry average wage to estimate employment. For further explanation of our methodology see "Economic Impact Analysis" on page A-1.

27. In each of our economic impact models, we think through the counterfactual, or things that likely would have occurred otherwise. To do this, we lower the initial earnings and employment estimates in order to only include those that we could consider as being due to the program alone. For additional descriptions of our analysis see "Economic Impact Analysis" on page A-1.

TABLE 5. Estimates of Net New Earnings and Employment from the MNJTP, 2012

	Initial Estimate	Substitution Parameter ^a	Estimate of Net New ^b
Earnings	\$75.8 million	55%	\$34.1 million
Employment	1,402	40%	841

Source: Michigan Department of Treasury; U.S. Census Bureau County Business Patterns, 2012
Analysis: Anderson Economic Group, LLC

- Substitution parameters are used so that we only include earnings and employment that would not have likely occurred in Michigan without the MNJTP.
- Net new* estimated by reducing our initial estimates of earnings and employment by our substitution parameters. See Table A-1 on page A-3.

Indirect Economic Impact

Additional earnings and new jobs in the state spur additional economic activity; new employees at those companies have more money to spend on local goods and services—the majority of which will be spent within the state. In order to estimate this indirect economic activity, we used industry- and region-specific multipliers to determine the extent to which net new earnings and employment would have a local economic impact.²⁸ Below in Table 6, we show our estimates of the MNJTP's economic impact in the State of Michigan in 2012.

TABLE 6. Estimates of MNJTP Economic Impact, 2012

	Estimate of Net New ^a	Weighted multiplier ^b	Indirect Impact	Total MNJTP Impact
Earnings	\$34.1 million	2.2433	\$42.4 million	\$76.6 million
Employment	841	2.6923	1,424	2,266

Source: Michigan Department of Treasury
Analysis: Anderson Economic Group, LLC

- Net new estimates of earnings and employment were determined using AEG's substitution parameters, which takes into account economic activity that likely would have occurred without the existence of the MNJTP.
- There were eight industry multipliers that we used for this analysis, based on the industry that each firm was in. This multiplier is a weighted compilation of all firms engaging in MNJTP agreements that were active in 2012.

As shown above, the MNJTP's net economic impact on the State of Michigan was over \$76 million in additional earnings, and 2,266 jobs in 2012.

FISCAL IMPACT

In addition to the net economic benefits (e.g., jobs and earnings), the MNTP generates public sector benefits in the form of increased state and local taxes.

28. The multipliers we use are RIMS II from the Bureau of Economic Analysis (BEA).

Although the Individual Income Tax revenue directly associated with MNJTP earnings is captured by the community colleges for training program reimbursement and diverted from the state treasury, other tax revenues are generated by the program and result in additional government funds. In this section we estimate the fiscal impact of the MNJTP in 2012. We estimate the amount of major state and local taxes (income, sales, and property) paid by MNJTP participants as well as the amount of taxes generated from the indirect and induced economic activity resulting from direct MNJTP activity.

In 2012, we estimate that the MNJTP generated an additional \$3.3 million in state and local tax revenue in Michigan, see Table 7. This includes the amount of tax revenue generated by MNJTP participants as well as taxes from indirectly-generated earnings. Also, this total accounts for the roughly \$2.9 million in actual Individual Income Tax diverted from the State of Michigan to reimburse colleges for new job training. See “Fiscal Impact Analysis” on page A-6.

After accounting for the amount of captured state income taxes, we estimate that income taxes declined by \$700,000 in 2012 as a result of the program. However, we estimate that this revenue loss was fully offset by an additional \$2.3 million of state sales tax revenue and an additional \$3.3 million of state and local property taxes generated in 2012.

TABLE 7. Tax Revenues Associated with MNJTP Activity in Michigan, 2012 (millions \$)

	MNJTP Participants	Indirect & Induced	Income Tax Capture	Total Taxes
Individual Income Tax	\$0.7	\$0.9	(\$2.9)	(\$1.3)
Sales Tax	\$0.8	\$0.9		\$1.7
Property Taxes	<u>\$1.1</u>	<u>\$1.8</u>		<u>\$2.8</u>
Total Tax Revenue	\$2.5	\$3.6	(\$2.9)	\$3.3

Note: Amounts may not sum due to rounding.

Sources: AEG estimates based on MNJTP contracts; Michigan Department of Treasury; and RIMS II multipliers.

Analysis: Anderson Economic Group, LLC

IV. Steady State Analysis

As previously noted and shown, the MNJTP is a relatively new program. While a number of contracts have been issued, training programs developed and administered, new employees hired, and income tax captured, only a couple contracts have been fully completed. The vast majority of the contracts are still in their infancy and firms are ramping up their hiring of new employees. As colleges complete their training of workers and firms add new employees to their payrolls, the annual amount of income tax withholding capture will increase. As income tax is captured under existing contracts and room under the statutory cap created, new contracts will be issued. At this time, however, the program has not reached a steady state of operations, which we define as an environment where contracts are regularly being completed and new contracts originated.

In this section of the report, we model the MNJTP operating under this steady state environment. We begin by estimating the amount of annual income tax withholding capture through 2042, for both existing and assumed new contract activity. To model the economic impact of the program under the steady state scenario, we rely on our estimate of income tax capture in 2031. At this time, all existing contracts will be expired and all annual income tax capture activity will be related to new contracts having the same contract length. We use the same general methodology to assess the steady state economic impact as we used for the 2012 economic impact; however, we change some underlying assumptions about substitution parameters. Similarly, we use the same methodology to assess the fiscal impact of the program operating under the assumed steady state. In order to model the program operating in the steady state, we assumed that colleges will continue to enter into training agreements with Michigan businesses, without interruption, after the statutory “sunset” date.²⁹

ANNUAL INCOME TAX CAPTURE

In this section we estimate the amount of annual income tax withholding associated with existing and new training contracts under various steady state scenarios. The basis for this steady state analysis is the current contracts in place as of January 1, 2013. Additionally, we make assumptions about future contract activity to estimate income tax capture prospectively. We provide a 30-year illustration of the MNJTP operating under the steady state environment. The data, assumptions, and methodology used for this analysis are described in detail in “Steady State Analysis” on page A-8.

The amount of annual income tax capture available for new contract activity is largely a function of the contract length. Currently, the average length of the existing contracts is about seven years, with the shortest term being one year and the longest term being 20 years. Holding the contract amount constant, lon-

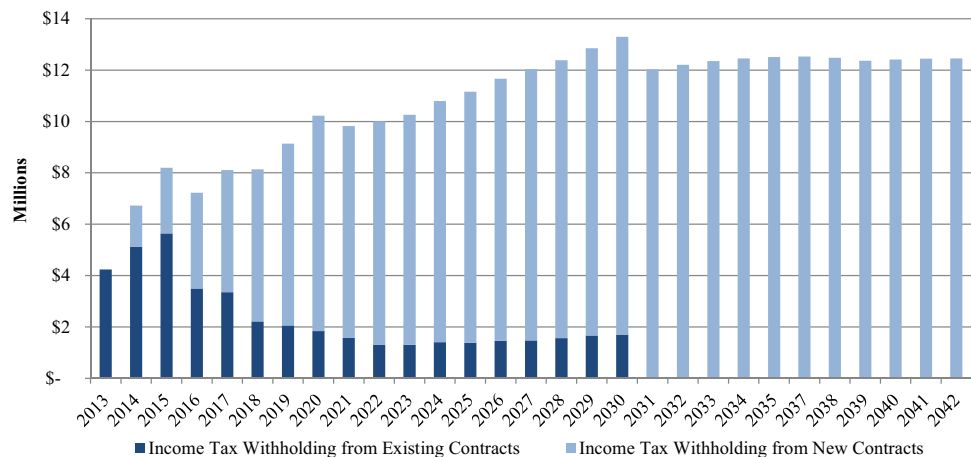
29. The MNJTP has a statutory “sunset” that prohibits colleges from signing new contracts after December 31, 2018.

ger contract lengths reduce the amount of annual income tax capture that will occur because contracts are amortized over a longer period. This effectively ties up the amount of available funds for new contract activity operating under the current statutory \$50 million aggregate cap. On the other hand, shorter contract lengths result in faster contract turnover and increase the amount of annual income tax capture. In short, it takes longer to burn through longer contracts than it does shorter contracts.

Baseline Steady State Scenario

For our baseline steady state scenario, we assumed that the term of all new contract activity beginning in 2013 will be seven years, regardless of the individual contract amount. Figure 4 on page 21 shows the effective annual cap based on scheduled income tax capture for current contracts (as of January 1, 2013) and the projected withholding activity under assumed new contract activity (after January 1, 2013). We estimate that the 2013 income tax withholding will total \$4.2 million for all existing contracts. In 2014, assuming all available funds are allocated for new contracts, the amount of income tax capture increases to \$6.7 million.³⁰ The annual amount of tax capture grows gradually to \$13.3 million in 2030, the last year of tax capture for all existing contracts.

FIGURE 4. Annual Income Tax Capture Under Steady State



Source: Michigan Department of Treasury
Analysis: Anderson Economic Group, LLC

While the total annual cap increases consistently over time, the relative shares of the component pieces (e.g., existing contracts versus new contracts) changes. Initially, the total amount of tax capture is dominated by existing contract activ-

30. In addition to the \$4 million of existing contract income tax withholding for 2013, there is approximately \$7 million of available cap space as of January 1, 2014. Our analysis assumes that the full amount of available funding (\$11 million) will be allocated for new contracts

ity. As these contracts expire, tax capture from new contract activity assumes a larger share of the total. One very large contract has a 20-year term that expires in 2030 and accounts for nearly all of the income tax capture from 2022 through 2030.³¹

Beginning in 2031, after all current contracts expire, the amount of annual tax capture plateaus at approximately \$12.2 million. This reflects a fully phased-in steady state operation of the program. Actual withholding is likely to look much different from this because contract terms and amounts for new contracts beginning in 2013 are going to vary from our model. Also, our model assumes that all funds are allocated for new training contracts and not held back in reserve.

Alternative Steady State Scenarios

We also modeled the steady state scenario to show the effects of changing the assumed contract length for new contracts. Changing the term of a contract changes the burn rate, which changes the total amount of annual income tax capture when the program reaches a steady state of operations. Also, changing the burn rate influences the amount of new contract activity that can take place each year while the MNJTP operates under the current \$50 million cap. Figure 5 below illustrates the amount of annual income tax capture that will take place in the steady state, under a five-year burn rate.

FIGURE 5. Annual Income Tax Capture in Steady State (five-year contracts)



Source: Michigan Department of Treasury
Analysis: Anderson Economic Group, LLC

31. LG Chem Michigan, Inc. entered into a \$19.6 million training contract with Grand Rapids Community College in 2010, which is effective through December 8, 2030. The income tax capture for this contract accounts for 89% of all existing contract income tax capture in 2022 and 100% of all existing contract income tax capture in 2030.

Compared to the baseline steady state scenario with a seven-year burn rate, the amount of income tax capture increases *more* rapidly. The annual income tax capture grows to \$17.4 million in 2030 (last year of all existing contract withholding) under this alternative scenario. After 2030, the amount of annual tax capture plateaus at approximately \$16.5 million, representing a fully phased-in steady state.

Changing the assumed contract length to ten years for all new contract activity results in a slower “burn rate,” thereby decreasing the total amount of annual income tax capture when the program reaches a steady state of operations. This scenario also yields less funding for new contract activity each year. Figure 6 on page 23 shows the annual income tax capture under this alternative scenario.

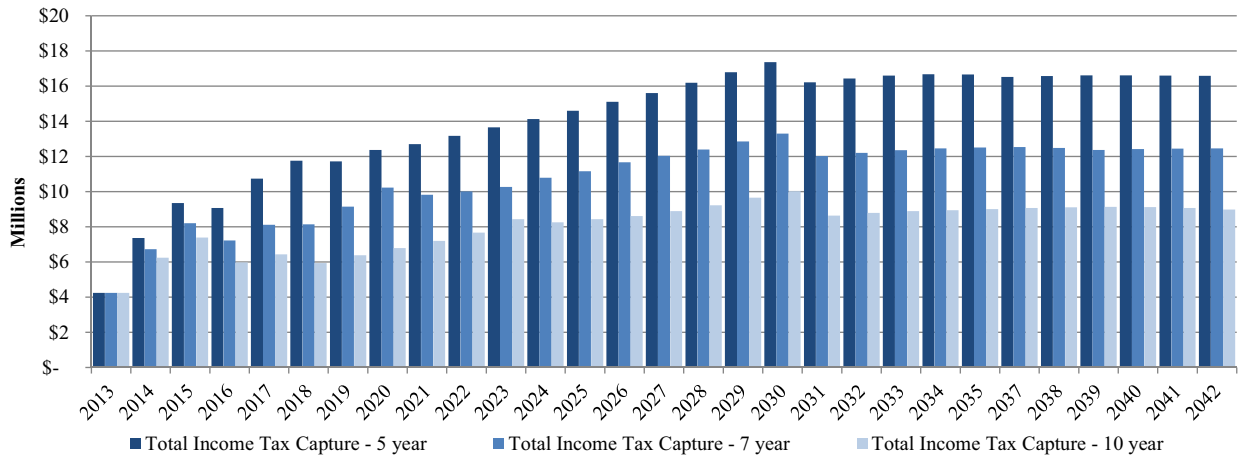
FIGURE 6. Annual Income Tax Capture in Steady State (ten-year contracts)



Source: Michigan Department of Treasury
Analysis: Anderson Economic Group, LLC

Compared to the baseline steady state scenario, the amount of annual income tax capture increases *less* rapidly. The annual income tax capture grows to \$10 million in 2030 under this alternative scenario and plateaus at approximately \$9 million thereafter, representing a fully phased-in steady state.

For comparison purposes, Figure 7 on page 24 presents the total annual income tax capture under the three steady state scenarios modeled: baseline, five-year, and ten-year burn rates.

FIGURE 7. Total Income Tax Capture Under Various Steady State Scenarios

Source: Michigan Department of Treasury
 Analysis: Anderson Economic Group, LLC

ECONOMIC IMPACT IN STEADY STATE

To estimate the economic impact of the MNJTP in the steady state, we assumed a seven year burn rate. Building off of that steady state analysis, we estimated the earnings and employment due to MNJTP. We did this by taking the estimated amount of income tax withholdings from the steady state analysis and dividing them by the effective income tax rate (3.77%) for MNJTP workers in 2012.³² We then extrapolated employment by using the average wage for MNJTP workers in 2012.³³

As we discussed in “Estimates of Net New Earnings and Employment” on page 16, some of these earning and employment might have occurred without the MNJTP. To account for this, we apply substitution parameters. For the steady state, we used higher substitution (80% of earnings and 70% of employment).³⁴ As shown in Table 8 on page 25, we estimate that in the steady state, approximately \$127 million in earnings and 2,952 new jobs in Michigan would be due to the MNJTP.

32. This is likely a conservative estimate because although the income tax rate in Michigan is over 4%, the effective rate, or the rate that the majority of residents pay is just under 3%. See Michigan Department of Treasury, *Michigan's Individual Income Tax 2010*, Office of Revenue and Tax Analysis, July 2012.

33. We estimated average wage by dividing 2012 earnings by 2012 employment (before substitution).

34. It is much more difficult to attribute net new earnings and employment in the steady state, which is based on 2012 data, but the surrounding conditions are hypothetical. See our discussion and reasoning in “Substitution Differences for 2012 and Steady State” on page A-1.

TABLE 8. Estimates of Net New Earnings and Employment from the MNJTP, 2012

	Initial Estimate	Substitution Parameter ^a	Estimate of Net New ^b
Earnings	\$319.2 million	80%	\$63.8 million
Employment	5,903	70%	1,771

Source: Michigan Department of Treasury, MNJTP agreements
Analysis: Anderson Economic Group, LLC

- Substitution parameters are used so that we only include earnings and employment that would not have likely occurred in Michigan without the MNJTP. For additional discussion see “Substitution Parameters” on page A-1.
- Net new estimated by reducing our initial estimates of earnings and employment in the steady state by our substitution parameters. See Table A-3 on page A-5.

Indirect Economic Impact in the Steady State

As discussed in “Indirect Economic Impact” on page 18, additional earnings and new jobs in the state create additional economic activity. In order to estimate this indirect economic activity, we used a weighted multiplier based on our 2012 analysis. This assumed that the 2012 agreements gave a representative mix of what the industry composition would be in the steady state.³⁵ Below in Table 9, we show our estimates of the MNJTP’s economic impact in the steady state on the State of Michigan.

TABLE 9. Estimates of MNJTP Economic Impact in the Steady State

	Estimate of Net New ^a	Weighted Multiplier ^b	Indirect Impact	Total MNJTP Impact
Earnings	\$63.8 million	2.2433	\$79.4 million	\$143.2 million
Employment	1,771	2.6923	2,997	4,768

Source: Michigan Department of Treasury
Analysis: Anderson Economic Group, LLC

- Net new estimates of earnings and employment were determined using AEG’s substitution parameters, which takes into account economic activity that likely would have occurred without the existence of the MNJTP.
- This is the same weighted multiplier shown in Table 6, “Estimates of MNJTP Economic Impact, 2012,” on page 18. This multiplier is a weighted compilation of all firms engaging in MNJTP agreements that were active in 2012.

As shown above, we estimated that in the steady state, the MNJTP would contribute over \$143 million in new earnings to the State of Michigan, and create 4,768 jobs.

35. There is no way of knowing the industry make-up in the steady state, which is why we use 2012 as representative. The multipliers in each industry vary. Therefore, if the industry composition were to greatly change in Michigan, so would the estimate of indirect earnings and employment.

FISCAL IMPACT IN STEADY STATE

To estimate the net fiscal impact of the program in steady state, we relied on the same methodology used for the 2012 fiscal impact analysis (see “Fiscal Impact” on page 18). Specifically, we used the net new earnings in steady state to estimate the additional income, sales, and property taxes generated by the program. These additional tax revenues, however, are offset by the amount of state Individual Income Tax revenue captured by community colleges in steady state, which we estimate to be \$12.0 million.

Operating under the steady state, we estimate that the MNJTP will generate little to no additional net state and local tax revenue (see Table 10 on page 26). The amount of additional tax revenue generated by MNJTP participants as well as taxes from indirectly-generated earnings (\$12.0 million) will offset the revenue loss associated with colleges’ income tax capture for training reimbursement (\$12.0 million).

TABLE 10. Tax Revenues Related to MNJTP Activity in Steady State (millions \$)

	MNJTP Participants	Indirect & Induced	Income Tax Capture	Total Taxes
Individual Income Tax	\$1.3	\$1.6	(\$12.0)	(\$9.1)
Sales Tax	\$1.4	\$1.8	\$0	\$3.2
Property Taxes	<u>\$2.2</u>	<u>\$3.7</u>	<u>\$0</u>	<u>\$6.0</u>
Total Tax Revenue	\$4.9	\$7.1	(\$12.0)	\$0

Note: Amounts may not sum due to rounding.

Sources: AEG estimates based on MNJTP contracts; Michigan Department of Treasury; and RIMS II multipliers.

Analysis: Anderson Economic Group, LLC

V. Discussion

Throughout this report, we identify and estimate the economic benefits of the MNJTP in 2012 and the program operating under a future assumed “steady state” scenario. In each section, we estimate the direct and indirect impact on earnings and employment in Michigan. Additionally, we estimate how the program benefits the public sector in terms of generating additional state and local tax revenue. In this section of the report, we identify and discuss other benefits associated with the MNJTP. While it is beyond the scope of this analysis to explore these ancillary benefits in detail, we provide a general discussion of these benefits below.

SKILLS GAP

In addition to its positive economic benefits, the MNJTP helps address a salient challenge facing many Michigan businesses as they emerge from the Great Recession. While the state economy continues to exhibit slow, but steady growth, and the state’s unemployment rate drops from its recent peak, many open jobs have still gone unfilled.³⁶ Employers cite a skills gap as one reason why certain jobs remain open and why Michigan’s unemployment rate has not come down further. Employers acknowledge that they have jobs to fill and workers are seeking to fill them. The challenge, according to firms, is finding workers with the right skills. While this has been an acute problem for the manufacturing sector, firms in other industries also suggest that they are having a difficult time finding workers with the right skill sets.

The MNJTP, by its very design, is intended to help bridge this apparent skills gap in the Michigan labor market because the program is demand driven.³⁷ Firms, not a government entity (e.g., state, local) determines what skills or training are required to fill new jobs. Firms that participate in the program are involved in the identification, development, and implementation of training. They have firsthand knowledge of the specific training and skills required of workers to fill the new jobs they are creating. Community colleges work in tandem with participating employers to develop and deliver the training to equip workers with the requisite skills needed. Equipped with the proper skills and training, workers are able to enter the workforce.

In the absence of the program, and assuming a firm must increase its employment level to meet the demand for its products or services, a firm has two choices: 1) provide the training itself (at its own expense); or 2) wait until the

36. Michigan’s monthly unemployment rate (seasonally adjusted) has declined from 14.2% in August 2009 to 8.9% in January 2013.

37. We make no attempt here to determine whether a “skills gap” currently exists in Michigan or if there are larger macroeconomic forces that account for unfilled jobs and the state’s current unemployment rate.

right job candidate comes along to fill the open position. The MNJTP provides workers with the skills that are preventing them from obtaining work at the participating firm in the first place, thus addressing the skills gap at a micro level. For those firms that would have shouldered the training expense themselves, the MNJTP lowers a firm's training costs and effectively expedites the filling of new jobs, while at the same time addressing the skills gap for obtaining working at the firm.

HUMAN CAPITAL

The MNJTP, in addition to its role as an economic development incentive designed to increase employment in the state, also contributes to human capital development. In the short term, participants (workers and firms) are the primary beneficiaries of the program. Workers receive free training, which might be required for them to gain employment. Firms benefit from the free training (that they otherwise might have to finance), which provides them with workers with the "right skills" for the job.

The program provides long-term benefits to workers as the training represents a public investment in their human capital. The skills that workers receive from the job training will likely remain with them beyond their current job and workers will be able to translate these skills into future higher wages. Generally speaking, capital markets underfund these human capital investments because they are difficult to value on financial statements and the short-term training costs to businesses are generally higher than the short-term benefits they receive. This labor market externality is often one justification for public intervention in job training.

WORKER RETENTION

Job training programs have shown to increase worker retention rates.³⁸ This means that participating employers experience lower worker turnover rates. Additionally, research on an Iowa job training program that is similar to the MNJTP has demonstrated that program participants were more likely to remain in Iowa for longer periods of time, compared to nonparticipants.³⁹

These benefits can pay real, financial dividends to firms and to the state at large. For firms, this means that they do not have to provide training as frequently (because of less turnover), which can save them considerable resources when they are funding the training themselves. Under a scenario where state government is funding the training (e.g., MNJTP), higher worker retention results in more efficient use of limited training dollars. Also, in this scenario, a participat-

38. Mark Harris, "Is Wyoming's Workforce Development Training Fund Helping the State Retain Labor?" Wyoming Department of Labor, Research and Planning, 2005.

39. Jin Zhong and Michael Lipsman, "Iowa New Jobs Training Program (206E), Part 2: Economic Impact Analysis," Iowa Department of Revenue, Tax Research and Program Analysis Section, July 2011.

ing firm is able to train more workers because of the lower worker turnover rate. This allows the state to effectively train more workers.

INCREASED WAGES

Job training programs benefit workers by providing them with sustained higher average wages, compared to similar workers in similar industries.⁴⁰ These wage premiums vary across industries.⁴¹ While these benefits primarily accrue to the individual worker (e.g., higher standard of living), the public sector also benefits through higher tax revenues collected from these individuals. In the case of the MNJTP, the higher income tax receipts do not immediately increase state tax receipts because these funds are diverted to reimburse colleges for training expenses. However, when the training contracts expire, the higher income tax revenues are deposited in the state treasury.

Research has demonstrated that the wage premiums are long-lasting and not just a temporary phenomenon. An evaluation of the Iowa New Jobs Training Program revealed that workers enjoyed higher wages for up to four years after receiving the training.⁴²

40. Ibid.

41. The MNJTP requires that workers receive a wage rate of at least 175% of the state minimum wage.

42. Ibid.

ECONOMIC IMPACT ANALYSIS

Appendix A. Methodology

To estimate the economic impact of the MNJTP, we used a model that translates an increase in earnings and jobs into economic impact, which can be expressed in earnings and employment. We summarize our approach in “Economic Impact” on page 16 and go into greater detail below.

Defining Net Economic Impact

We define the net economic impact as *new* economic activity, which, in this case, occurred in Michigan as a result of MNJTP. There are two components that comprise the net economic impact: direct impact and indirect impact. The direct impact stems from the net new earnings and employment associated with MNJTP, while the indirect impacts stems from the recirculation of dollars within the state. We assume that only a portion of the new earnings activity is attributable to the program and some of the activity would have occurred in the absence of the program. By only including “net new” economic activity, we avoid double counting or overinflating the economic impact. We provide specific substitution parameters for the MNJTP in 2012 and in steady state operations.

Substitution Parameters

As discussed in “Economic Impact” on page 16 and “Economic Impact in Steady State” on page 24, it is not plausible that all earnings and employment produced by the MNJTP would have not occurred. Likewise, it is implausible that all earnings and employment would have occurred in Michigan without the MNJTP. To estimate the earnings and employment in Michigan due to the MNJTP (what we call “net new”) we used professional judgement, and data about the firms participating in the program, as well as the structure of the program itself. *At the time of this report, AEG was not aware of existing economic or industry literature, which could assist in informing these assumptions.*

We list our assumptions for 2012 in Table A-1 on page A-3. Additionally, we considered other possibilities including (a) a firm that pays its workers more because it did not have to cover the cost of training; (b) the MNJTP accelerating a firm’s ability to train and hire workers; (c) a firm that invests in workers and makes them permanent rather than temporary; (d) the MNJTP makes Michigan more attractive for firms looking to relocate, which could mean additional firms in the state and/or new concentrations of industry; (e) the MNJTP allows firms to cultivate curriculum and partner with community colleges to tailor their needs, which may allow other workers and/or firms to be receive better training in the future.

Substitution Differences for 2012 and Steady State. We used a slightly different set of assumptions for the 2012 versus steady state economic impact because the two differ in several aspects:

-
- In 2012, we have a firm time period; one calendar year. The steady state is much more abstract, making it much more difficult to think through the proportion of jobs and earnings that would have occurred throughout the state without the MNJTP.
 - In 2012, the job market in Michigan is slack, meaning that there is a surplus of workers available to firms. That may not be the case in the steady state. In fact, it is likely that it will not be case, and the economy will return to equilibrium.
 - In 2012, we have actual data from the Michigan Department of Treasury, and we have the agreements of each firm with the community college they partnered with. In the steady state there is a great deal more that is unknown (e.g. economic conditions, industry composition of future agreements).

Keeping those things in mind, we have a higher substitution rate for the steady state than 2012. It is much more difficult to attribute net new earnings and employment, when we are working with a hypothetical, such as the steady state. Based on that reasoning, we estimated 45% of 2012 earnings to be net new (55% substitution) and 20% of MNJTP earnings as net new in the steady state (80% substitution). For employment, we estimate 60% of MNJTP jobs to be net new in 2012 (40% substitution) and 30% in the steady state (70% substitution). See Table A-3 on page A-5.

The Economic Impact Model and Its Multipliers

The specific model we used is the U.S. Department of Commerce Regional Input-Output Modeling System (RIMS II), which uses multipliers to estimate the economic impact of a change in earnings and employment on a region's economy.

The BEA's RIMS II system has five types of multipliers. We chose to use the direct-effect set of multipliers, based on the available data on the MNJTP and our professional judgement:

1. The direct-effect earnings multiplier, which is an earnings-per-earnings multiplier; and
2. the direct-effect employment multiplier, which is a jobs-per-jobs multiplier.⁴³

To use the direct-effect earnings multiplier, we estimated the change in earnings and employment **only** due to the MNJTP. To avoid the common problems of "black box" models where some of the methodology and assumptions are hidden, we clearly identify our assumptions for inputs, substitution effects, and multipliers. Our estimates of economic impact for 2012, which builds from Table A-1 on page A-3, is shown in Table A-2 on page A-4. Our estimate of economic impact in the steady state is shown in Table A-3 on page A-5.

43. The initial changes in earnings and employment factor in both full-time and part-time employees residing in the region who work in the industry producing the final-demand output.

Appendix A-1: Estimate of MNJTP Net New Earnings and Net New Employment, 2012

(b) Substitution Parameters			
2012 Earnings	Earnings paid by other firms	Earnings paid due to training taking place anyways	Estimate of Net New Earnings
(a) \$ 75,839,722	(c) 40%	(d) 15%	(e) \$ 34,127,875

(b) Substitution Parameters			
2012 Employment	Hired by other firms in Michigan	Company hires additional workers to train anyways	Estimate of Net New Jobs
(f) 1,402	(c) 35%	(d) 5%	(g) 841

Source: Michigan Department of Treasury, MNJTP Agreements

Analysis: Anderson Economic Group, LLC

Notes:

- (a) Earnings were estimated by dividing the amount of diverted income taxes (reported by treasury) by the taxable rate each firm listed in their agreement, which ranged from 3%-4.2%. Firms that did not divert earnings in 2012 were not included in this analysis.
- (b) Substitution parameters are used to account for any activity that replaces or displaces other economic activity. In this case, we only want to include earnings and employment that would not have likely occurred in Michigan without the Michigan New Jobs Training Program. Substitution parameter determined using professional judgment, as there is not existing economic or industry literature to assist in informing these assumptions. We explain our logic of substitution for earnings in footnote (c) and (d), and employment in footnotes (g) and (h).
- (c) We assume that a portion of the earnings and employment under the MNJTP would be earned by workers in Michigan anyways. The workers hired by firms engaging in the MNJTP are willing to be trained, which suggests they could be desirable employees for other firms in Michigan. However, it is more expensive to hire additional people rather than pay current employees to do more, which is why we attribute a lower substitution rate to the employment substitution parameter.
- (d) We assume that a small portion of the earnings and employment would be generated by these same firms that enter into agreements without the MNJTP. We have to consider this possibility because the companies that engage in the MNJTP clearly have the need to train workers, although the timing of when they might be able to do this is unknown. Again, we think the substitution for earnings will be higher than employment because it is more expensive and risky to hire a new worker, rather than training an existing one.
- (e) Net new earnings (or earnings attributable to MNJTP) estimated by reducing the estimate of 2012 earnings by 55% (the total of the earnings substitution parameters).
- (f) Employment was estimated by dividing AEG's estimate of earnings under each agreement by annual expected wages. To estimate annual expected wages, we began by using the expected annual wages of workers listed in each agreement (estimated by dividing expected earnings by number of expected employees). When the agreement did not provide the number of expected workers or expected earnings, we used the 2010 Michigan County Business Patterns to estimate the average annual wages for a worker at a firm in their given industry (using the NAICS for each firm). As in our estimate of earnings, our analysis did not include any agreements that did not divert earnings in 2012.
- (g) Net new jobs (or employment attributable to MNJTP) estimated by reducing the estimate of 2012 employment created under MNJTP agreements by 40% (the total of the employment substitution parameters).

Appendix A-2: Estimate of MNJTP's Economic Impact on the State of Michigan, 2012

3 Digit NAICS	Industry	Estimate of Net New Earnings (from Table A-1)	RIMS Industry	Direct Effect Earnings Multiplier	Estimate of Indirect Earnings	Total Earnings Attributeable to MNJTP
230	Construction	\$ 465,495	Construction	1.8453	\$ 393,483	\$ 858,977
332	Fabricated metal product manufacturing	\$ 2,886,639	Fabricated metal product manufacturing	2.2987	\$ 3,748,879	\$ 6,635,518
333	Machinery manufacturing	\$ 453,041	Machinery manufacturing	1.9652	\$ 437,275	\$ 890,316
334	Computer and electronic product manufacturing	\$ 289,925	Computer and electronic product manufacturing	1.8252	\$ 239,246	\$ 529,171
335	Electrical equipment, appliance, & component man	\$ 8,319,938	Electrical equipment and appliance manufacturing	2.2148	\$ 10,107,061	\$ 18,427,000
336	Transportation Equipmen manufacturing	\$ 6,606,940	Other transportation equipment manufacturing	3.1823	\$ 14,418,325	\$ 21,025,265
337	Furniture and related product manufacturing	\$ 2,146,297	Furniture and related product manufacturing	2.1567	\$ 2,482,622	\$ 4,628,918
339	Miscellaneous manufacturing	\$ 108,803	Miscellaneous manufacturing	1.9483	\$ 103,178	\$ 211,980
420	Wholesale Trade	\$ 176,451	Wholesale trade	1.8571	\$ 151,236	\$ 327,688
520	Finance and Insurance	\$ 11,756,274	Insurance carriers and related activities	1.8319	\$ 9,780,044	\$ 21,536,318
540	Professional, Scientific, and Technical Services	\$ 221,787	Professional, scientific, and technical services	1.6341	\$ 140,635	\$ 362,422
620	Healthcare and Social Services	\$ 696,284	Ambulatory health care services	1.6153	\$ 428,424	\$ 1,124,708
		\$ 34,127,875			\$ 42,430,408	\$ 76,558,282

3 Digit NAICS	Industry	Estimate of Net New Jobs (from Table A-1)	RIMS Industry	Direct Effect Employment Multiplier	Estimate of Indirect Jobs Created	Total Jobs Created Attributeable to MNJTP
230	Construction	13	Construction	1.9511	12	25
332	Fabricated metal product manufacturing	96	Fabricated metal product manufacturing	2.7974	172	268
333	Machinery manufacturing	13	Machinery manufacturing	2.8210	24	37
334	Computer and electronic product manufacturing	6	Computer and electronic product manufacturing	2.2339	8	14
335	Electrical equipment, appliance, & component man	144	Electrical equipment and appliance manufacturing	3.1120	303	447
336	Transportation Equipmen manufacturing	154	Other transportation equipment manufacturing	3.3165	358	512
337	Furniture and related product manufacturing	74	Furniture and related product manufacturing	2.7918	133	208
339	Miscellaneous manufacturing	3	Miscellaneous manufacturing	2.8920	6	8
420	Wholesale Trade	4	Wholesale trade	2.5605	6	10
520	Finance and Insurance	294	Insurance carriers and related activities	2.2323	362	656
540	Professional, Scientific, and Technical Services	3	Professional, scientific, and technical services	2.1420	3	6
620	Healthcare and Social Services	38	Ambulatory health care services	1.9881	37	75
		841			1,424	2,266

Source: Michigan Department of Treasury, BEA RIMS II multipliers

Analysis: Anderson Economic Group, LLC

Appendix A-3: Estimate of MNJTP "Steady State" Economic Impact on Michigan

(b) Substitution Parameters						
Steady State Earnings	Earnings paid by other firms	Earnings paid due to training taking place anyways	Estimate of Net New Earnings	Direct Effect Earnings Multiplier	Estimate of Indirect Earnings	Estimate of Total Earnings
(a) \$ 319,217,625	(c) 50%	(d) 30%	(e) \$ 63,843,525	(f) 2.2433	\$ 79,375,197	\$ 143,218,722

(b) Substitution Parameters						
Steady State Employment	Hired by other firms in Michigan	Company hires additional workers to train anyways	Estimate of Net New Jobs	Direct Effect Employment Multiplier	Estimate of Indirect Jobs Created	Estimate of Total Jobs Created
(a) 5,903	(c) 45%	(d) 25%	(e) 1,771	(f) 2.6923	2,997	4,768

Source: Michigan Department of Treasury, BEA RIMS II multipliers

Analysis: Anderson Economic Group, LLC

Notes:

- (a) Earnings estimated by dividing the diverted income in the steady state by the average effective income tax rate of the 2012 agreements (3.77%). This is still a conservative estimate of potential earnings for the steady state of the MNJTP, considering that Michigan's effective income tax rate in 2012 was just over 2%. See Michigan Department of Treasury, Michigan's Individual Income Tax 2010, Office of Revenue and Tax Analysis, July 2012. Employment estimated by dividing steady state earnings by the average annual wages from our 2012 economic impact analysis.
- (b) Substitution parameters are used to account for any activity that replaces or displaces other economic activity. In this case, we only want to include earnings and employment that would not have likely occurred in Michigan without the Michigan New Jobs Training Program. These substitution parameters were determined using professional judgment, as there is not existing economic or industry literature to assist in informing these assumptions. We explain our logic of substitution for earnings in footnotes (c) and (d).
- (c) We assume that a portion of the earnings and employment under the MNJTP would be earned by workers in Michigan anyways. The workers hired by firms engaging in the MNJTP are willing to be trained, which suggests they could be desirable employees for other firms in Michigan. However, it is more expensive to hire additional people rather than pay current employees to do more, which is why we attribute a lower substitution rate to the employment substitution parameter.
- (d) We assume that a small portion of the earnings and employment would be generated by these same firms that enter into agreements without the MNJTP. We have to consider this possibility because the companies that engage in the MNJTP clearly have the need to train workers, although the timing of when they might be able to do this is unknown. Again, we think the substitution for earnings will be higher than employment because it is more expensive and risky to hire a new worker, rather than training an existing one.
- (e) "Net new" earnings and "net new" jobs were estimated by reducing both estimates by the total of their substitution parameters.
- (f) Direct Effect Earnings and Employment Multipliers were created by AEG using the weighted average from the 2012 economic impact analysis shown in Table A-2.

FISCAL IMPACT ANALYSIS

Using the direct earnings derived from the economic impact analysis, we were able to estimate the amount of income, sales, and property taxes paid by MNJTP participants as well as estimate the amount of taxes arising from the indirect economic effects associated with the MNJTP. We discuss our methodology below and include a summary of this analysis for 2012 in Table A-4 on page A-6 and for the program operating under the steady state in Table A-5 on page A-6.

TABLE A-4. Tax Revenues Related to MNJTP Activity in 2012 (millions \$)

	MNJTP Participants	Indirect & Induced	Income Tax Capture	Total Taxes
Individual Income Tax	\$0.7	\$0.9	(\$2.9)	(\$1.3)
Sales Tax	\$0.8	\$0.9	\$0	\$1.7
Property Taxes	<u>\$1.1</u>	<u>\$1.8</u>	<u>\$0</u>	<u>\$2.8</u>
Total Tax Revenue	\$2.5	\$3.6	(\$2.9)	\$3.3

Note: Amounts may not sum due to rounding.

Sources: AEG estimates based on MNJTP contracts; Michigan Department of Treasury; and RIMS II multipliers.

Analysis: Anderson Economic Group, LLC

TABLE A-5. Tax Revenues Related to MNJTP Activity in Steady State (millions \$)

	MNJTP Participants	Indirect & Induced	Income Tax Capture	Total Taxes
Individual Income Tax	\$1.3	\$1.6	(\$12.0)	(\$9.1)
Sales Tax	\$1.4	\$1.8	\$0	\$3.2
Property Taxes	<u>\$2.2</u>	<u>\$3.7</u>	<u>\$0</u>	<u>\$6.0</u>
Total Tax Revenue	\$4.9	\$7.1	(\$12.0)	\$0

Note: Amounts may not sum due to rounding.

Sources: AEG estimates based on MNJTP contracts; Michigan Department of Treasury; and RIMS II multipliers.

Analysis: Anderson Economic Group, LLC

Individual Income Tax. To determine the effects of the MNJTP on Individual Income Tax collections, we used the estimate of net direct earnings (after substitution) from our economic impact analysis as the tax base. We used the average effective income tax rate from the Michigan Department of Treasury to calculate the amount of new Individual Income Tax revenue that is attributable to the MNJTP.⁴⁴ For the income tax associated with the MNJTP's indirect and

44. Michigan Department of Treasury, *Michigan's Individual Income Tax 2010*, Office of Revenue and Tax Analysis, July 2012. This report cites the 2010 average effective rate (rate after all exemptions and credits) as 2.07%. This rate is well below the nominal flat rates in effect in 2012 (4.35% (January through September) and 4.25% (October through December)) when community colleges were withholding income taxes.

induced economic activity, we used the indirect earnings from our economic impact analysis and applied the average effective income tax rate to arrive at the amount of Individual Income Tax revenue collected from “spin-off” activity.

To arrive at the net impact, we combine the estimates of income tax collections (direct and indirect) attributable to MNJTP activity with the amount of income tax withholding captured by colleges in 2012 and under the steady state. We estimate that the Individual Income Tax revenue was reduced by \$1.3 million in 2012. Under steady state, income tax revenue would be reduced by \$9.1 million as a result of the MNJTP.

It is worth noting that the income tax capture by community colleges was based on withholding rates that ranged from 3.0% to 4.35%. In contrast, we applied the much more conservative (i.e., lower) average effective income tax rate to the net direct earnings to arrive at the income tax collected as a result of the MNJTP. Using this lower rate has the effect of reducing the estimate of income tax revenue collected and therefore the overall fiscal impact.

Sales Tax. To determine the amount of consumption by MNJTP participants and others in Michigan that was taxed at the 6% sales tax rate, we used the direct and indirect earnings from our economic impact analysis. First, we subtracted the amount of individual income tax from the earnings to determine the amount of wages available for consumption. Second, we assumed that 10% of individuals wages are spent outside of the state where Michigan sales tax is not collected. Finally, we made an assumption about the share of earnings devoted to taxable consumption. We relied on data from the Bureau of Economic Analysis (Make and Use Tables and Disposable Personal Income), Bureau of Labor Statistics (Consumer Expenditure Survey), and the *State Tax Handbook 2012* to estimate the share of consumption subject to tax for Michigan. We estimate that 41.9% of after-tax earnings are spent on taxable items.

We applied Michigan’s 6% sales tax rate to the amount of earnings (direct and indirect) spent on taxable items to determine that \$1.7 million in Sales Tax was collected in 2012. See Table A-6 on page A-8. We used this same methodology for our estimate of sales tax collections in steady state, replacing the amount of net new earnings in 2012 with our estimate of new earnings in the steady state.

TABLE A-6. Estimate of Sales Tax Paid by MNJTP Participants and Indirectly-Generated Earnings in 2012 and in Steady State

	2012 (millions \$)	Steady State (millions \$)	Sources and Notes
Earnings of MNJTP Participants and Others	\$76.6	\$143.2	AEG Estimate based on Michigan Department of Treasury data
Share of Earnings Spent in MI	* 88%	* 88%	AEG Estimate (after income taxes and assuming 10% spent out of state)
Estimated Expenditures in MI	\$68.9	\$126.0	
Share Spent on Taxable Items	* 41.9%	* 41.9%	AEG Analysis
Taxable Expenditures	\$28.9	\$52.8	
State Sales Tax Rate	* 6%	* 6%	
Estimated Sales Tax Revenue	\$1.7	\$3.2	

*Source: AEG Estimate using Michigan Department of Treasury and U.S. Bureau of Labor Statistics data
Analysis: Anderson Economic Group, LLC*

Property Taxes. To determine the amount of property taxes (state and local) paid by MNJTP participants and the taxes associated with the indirect economic activity generated by MNJTP, we used the direct and indirect jobs from our economic impact analysis and our professional judgement. First, we began with the number of full-time jobs (direct and indirect) and assumed that one-half of the individuals in these jobs were homeowners. Second, we estimated the amount of property taxes paid by homeowners in Michigan based on median home value. We relied on the U.S. Census, American Community Survey for the median home value in Michigan (\$137,300) and multiplied this by 1.82% to estimate the amount of property taxes paid by homeowners in 2012.⁴⁵ Finally, we multiplied the number of homeowners by the amount of property tax to estimate the total amount of property taxes collected. We estimate property tax collections totaled \$2.8 million in 2012. In steady state operations of the program, property tax collections would approach \$6.0 million.

STEADY STATE ANALYSIS

Annual Income Tax Capture

In order to model the MNJTP operating under a steady state environment and perform the requisite analyses, we rely on information culled from the actual training contracts issued and the related activity through the end of calendar year 2012. We rely largely on the “Exhibit C” schedule from each contract. This schedule provides us with the following information for each contract:

- term length (in years);

45. Tax Foundation, “Property Taxes on Owner-Occupied Housing as Percentage of Median Home Value, by State, Calendar Year 2010,” February 16, 2012.

-
- estimated average weekly pay per employee;
 - estimated number of new jobs;
 - estimated cumulative payroll; and
 - estimated annual diverted income taxes.

Additionally, we received information about actual income tax withholding activity, by contract, through December 2012 from the Michigan Department of Treasury.

In addition to the scheduled income tax withholding for each current contract, we made assumptions about new contracts issued after January 1, 2013. Assumptions about these new contracts were based on our analysis of the current contracts, discussions with the Michigan Community College Association, and our own professional judgement. We took the following steps to arrive at our steady state model:

Existing Contracts. The first step involved looking at all *existing contracts* (contracts issued as of December 2012) to determine the amount of planned income tax capture.

1. We captured the scheduled income tax withholding for each existing contract by year. For approximately one-half of the contracts, the sum of the annual withholding amounts matched the total contract amount. For these, we assumed that actual withholding going forward will match the scheduled withholding. For the remaining contracts, the total amount of withholding for all years of a contract exceeded the contract amount. We needed to adjust the withholding schedule for these contracts because the agreed-to contract amount governs the amount of tax withholding allowed over the life of the contract.
2. To arrive at an adjusted withholding schedule, we assumed that the contract amount governed and that the annual scheduled amount of withholding contained in “Exhibit C” of each contract would be reduced to meet the capped amount. Also, for these contracts we assumed that the term (number of years) from “Exhibit C” would not change. Thus, we reduced the amount of annual withholding in each year by the same percentage. We present these adjustments in Table A-7 on page A-11.

New Contracts. The second step involved modeling *new contract activity* (contracts issued after January 1, 2013).

1. Beginning in 2013, we assumed that the income tax withholding diversion for existing contracts will be used immediately for new contract activity. This means that as room under the \$50 million cap is freed up, employers will have projects ready and colleges will work with them to enter into new training contracts. Also, this means that funds made available as a result of tax capture will **not** be reserved for purposes of building up a “fund balance” for future activity.

Currently, there is a \$500,000 maximum cap for all new contract activity. This cap was established when the \$50 million program cap was reached in 2011.

Our steady state model does not make any assumptions about the size of *individual* new contracts. We assumed that all available funds will be devoted to new contract activity in the *aggregate*. For our model, there is no difference between a single contract for \$4 million or eight contracts of \$500,000 each.

2. We assumed that approximately \$7 million in unused funds from 2012 will be used for new contract activity beginning in 2013. This is in addition to the amount of withholding available from existing contracts (\$4 million) that will be used for new contracts in 2013.
3. The total amount available for new contract activity in any year consists of the amount of income tax withholding from existing contracts from that year plus any withholding associated with new contracts issued since January 2013.
4. We assumed that the term for all new contracts will be seven years. This assumption is based on our calculation of the average term for existing contracts and our professional judgement.
5. We assumed that income tax withholding diversion for new contract activity will occur evenly over the seven-year period. For the total amount of new contracts issued each year, we assumed that one-seventh of the tax capture would occur in each of the next seven years.

All Contracts. After combining the adjusted income tax withholding for current, existing contracts and the estimated tax withholding for new contracts, we had a picture of total annual income tax capture under our steady state scenario from 2013 to 2030. We present this in Table A-8 on page A-12.

Table A-7: Income Tax Capture of Existing Contracts as of 1/1/13

Adjusted "Exhibit C" Income Tax Capture (based on proration)																									
		Original Contract		"Exhibit C" Scheduled Withholding Total	Annual Withholding Proration (2013 2030)	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030		
Notes	Contract #		Amount																						
(a)	1	\$	-																						
(b)	2	\$	551,378	\$	2,217,600	75%	38,290	\$	38,290	\$	38,290	\$	38,290	\$	38,290	\$	38,290	\$	-	\$	-	\$	-	\$	-
	3	\$	1,023,195	\$	1,126,710	9%	69,063	\$	77,563	\$	77,563	\$	77,563	\$	77,563	\$	77,563	\$	-	\$	-	\$	-	\$	-
	4	\$	5,692,279	\$	8,963,722	36%	1,353,100	\$	1,537,910	\$	1,688,398	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
(c)	5	\$	70,249	\$	70,249	0%	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
	6	\$	1,333,938	\$	1,333,935	0%	266,787	\$	266,787	\$	266,787	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
	7	\$	2,047,690	\$	2,629,323	22%	199,438	\$	213,258	\$	256,692	\$	256,692	\$	256,692	\$	256,692	\$	-	\$	-	\$	-	\$	-
	8	\$	213,429	\$	265,000	19%	8,054	\$	9,665	\$	9,665	\$	9,665	\$	9,665	\$	12,081	\$	12,081	\$	12,081	\$	12,081	\$	12,081
(c)	9	\$	3,430,910	\$	3,430,910	0%	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
	10	\$	80,500	\$	113,865	29%	16,100	\$	16,100	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
	11	\$	19,630,500	\$	52,122,915	62%	298,684	\$	449,032	\$	599,291	\$	648,056	\$	765,855	\$	879,688	\$	882,332	\$	935,503	\$	1,057,709	\$	1,164,492
	12	\$	199,622	\$	199,622	0%	42,995	\$	49,138	\$	53,744	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
	13	\$	928,050	\$	950,114	2%	128,501	\$	144,573	\$	163,540	\$	163,540	\$	163,540	\$	-	\$	-	\$	-	\$	-	\$	-
	14	\$	1,684,007	\$	1,684,008	0%	248,254	\$	291,764	\$	291,764	\$	291,764	\$	291,764	\$	-	\$	-	\$	-	\$	-	\$	-
	15	\$	507,001	\$	518,671	2%	128,048	\$	128,048	\$	128,048	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
	16	\$	184,965	\$	184,965	0%	27,116	\$	40,481	\$	52,003	\$	50,017	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
	17	\$	1,911,170	\$	1,911,170	0%	259,272	\$	334,004	\$	410,989	\$	410,989	\$	200,000	\$	-	\$	-	\$	-	\$	-	\$	-
	18	\$	275,195	\$	275,339	0%	39,314	\$	39,314	\$	39,314	\$	39,314	\$	39,314	\$	-	\$	-	\$	-	\$	-	\$	-
	19	\$	6,190,048	\$	7,794,000	21%	468,900	\$	730,035	\$	730,035	\$	730,035	\$	730,035	\$	730,035	\$	730,035	\$	730,035	\$	730,035	\$	730,035
	20	\$	2,961,250	\$	2,961,462	0%	378,813	\$	463,834	\$	551,424	\$	551,424	\$	551,424	\$	-	\$	-	\$	-	\$	-	\$	-
	21	\$	340,168	\$	340,168	0%	28,217	\$	44,559	\$	54,518	\$	65,899	\$	65,899	\$	65,899	\$	-	\$	-	\$	-	\$	-
	22	\$	200,000	\$	200,015	0%	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
	23	\$	200,000	\$	3,402,327	94%	13,199	\$	23,250	\$	26,555	\$	26,555	\$	26,555	\$	26,555	\$	-	\$	-	\$	-	\$	-
	24	\$	199,273	\$	1,078,711	82%	37,983	\$	56,262	\$	74,542	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
	25	\$	200,000	\$	201,253	1%	17,408	\$	23,795	\$	33,594	\$	39,267	\$	39,267	\$	39,267	\$	-	\$	-	\$	-	\$	-
	26	\$	200,000	\$	313,189	36%	24,429	\$	34,886	\$	43,563	\$	43,563	\$	43,563	\$	-	\$	-	\$	-	\$	-	\$	-
	27	\$	48,442	\$	48,442	0%	24,221	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
	28	\$	104,661	\$	104,661	0%	52,331	\$	52,330	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
	29	\$	46,897	\$	46,897	0%	34,824	\$	12,073	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
	30	\$	200,000	\$	304,646	34%	13,793	\$	31,035	\$	34,483	\$	34,483	\$	34,483	\$	34,483	\$	17,242	\$	-	\$	-	\$	-
	31	\$	200,000	\$	279,145	28%	19,980	\$	19,980	\$	19,980	\$	19,980	\$	19,980	\$	19,980	\$	19,980	\$	19,980	\$	19,980	\$	19,980
					Total		\$ 4,237,115	\$	5,127,966	\$	5,644,782	\$	3,497,097	\$	3,353,890	\$	2,217,432	\$	2,060,771	\$	1,840,008	\$	1,570,641	\$	1,312,406
																</									

Notes

(a) Contract canceled before before training commenced.

(b) Contract amount reduced from \$2.2 million to \$551,378 in December 2012.

(c) Contract terminated and unused funds returned to balance.

Source: Michigan Department of Treasury

Analysis: Anderson Economic Group, LLC

Table A-8: Income Tax Capture of Existing and New Contracts Under "Steady State"

<u>Notes</u>	2013	2014	2015	2016	2017	2018	2019
(a) Existing Contracts	\$ 4,237,115	\$ 5,127,966	\$ 5,644,782	\$ 3,497,097	\$ 3,353,890	\$ 2,217,432	\$ 2,060,771
(b) New Contracts	\$ -	\$ 1,594,012	\$ 2,554,295	\$ 3,725,592	\$ 4,757,404	\$ 5,916,161	\$ 7,078,103
Total Income Tax Withholding	\$ 4,237,115	\$ 6,721,979	\$ 8,199,077	\$ 7,222,689	\$ 8,111,294	\$ 8,133,592	\$ 9,138,873

	2020	2021	2022	2023	2024	2025	2026
(a) Existing Contracts	\$ 1,840,008	\$ 1,570,641	\$ 1,312,406	\$ 1,308,289	\$ 1,407,581	\$ 1,391,196	\$ 1,464,196
(b) New Contracts	\$ 8,383,656	\$ 8,250,167	\$ 8,692,857	\$ 8,950,883	\$ 9,384,667	\$ 9,767,660	\$ 10,199,840
Total Income Tax Withholding	\$ 10,223,664	\$ 9,820,808	\$ 10,005,263	\$ 10,259,172	\$ 10,792,248	\$ 11,158,856	\$ 11,664,037

	2027	2028	2029	2030	2031	2032	2033
(a) Existing Contracts	\$ 1,476,534	\$ 1,567,894	\$ 1,666,481	\$ 1,705,075	\$ -	\$ -	\$ -
(b) New Contracts	\$ 10,560,578	\$ 10,819,642	\$ 11,186,318	\$ 11,593,109	\$ 12,027,253	\$ 12,203,682	\$ 12,352,943
Total Income Tax Withholding	\$ 12,037,112	\$ 12,387,537	\$ 12,852,799	\$ 13,298,183	\$ 12,027,253	\$ 12,203,682	\$ 12,352,943

	2034	2035	2036	2037	2038	2040	2041	2042
(a) Existing Contracts	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(b) New Contracts	\$ 12,451,358	\$ 12,510,537	\$ 12,528,108	\$ 12,481,724	\$ 12,365,086	\$ 12,413,348	\$ 12,443,301	\$ 12,456,209
Total Income Tax Withholding	\$ 12,451,358	\$ 12,510,537	\$ 12,528,108	\$ 12,481,724	\$ 12,365,086	\$ 12,413,348	\$ 12,443,301	\$ 12,456,209

Notes

(a) All contracts as of 12/31/12.

(b) All new contract activity after 12/31/12.

Source: Michigan Department of Treasury

Analysis: Anderson Economic Group, LLC

Appendix B: About AEG

Anderson Economic Group, LLC was founded in 1996 and today has offices in East Lansing, Michigan and Chicago, Illinois. AEG is a research and consulting firm that specializes in economics, public policy, finance, business valuation, and industry analysis. AEG's past clients include:

- *Governments* such as the states of Michigan, North Carolina, and Wisconsin; the cities of Detroit, Cincinnati, Norfolk, and Fort Wayne; counties such as Oakland County, Michigan, and Collier County, Florida; and authorities such as the Detroit-Wayne County Port Authority.
- *Corporations* such as GM, Ford, Delphi, Honda, Taubman Centers, The Detroit Lions, PG&E Generating; SBC, Gambrinus, Labatt USA, and InBev USA; Spartan Stores, Nestle, automobile dealers and dealership groups representing Toyota, Honda, Chrysler, Mercedes-Benz, and other brands.
- *Nonprofit organizations* such as Michigan State University, Wayne State University, University of Michigan, Van Andel Institute, the Michigan Manufacturers Association, United Ways of Michigan, Service Employees International Union, Automation Alley, the Michigan Chamber of Commerce, and Detroit Renaissance.

Please visit www.AndersonEconomicGroup.com for more information.

ABOUT THE AUTHORS

This project was completed under the direction of Craig Thiel, a Senior Consultant in the firm's Public Policy and Economic Analysis practice area. Brief biographical information of the project team follows.

Craig Thiel

Craig Thiel is a Senior Consultant at Anderson Economic Group, working in the Public Policy and Economic Analysis practice area. Mr. Thiel's background is in state fiscal policy, including tax and budget.

Mr. Thiel has over 15 years of experience researching and analyzing public policy issues in Michigan. Most recently, he worked at the Citizens Research Council of Michigan, a nonpartisan public affairs research organization, as the Director of State Affairs in Lansing, Michigan. In that capacity, he authored reports in many policy areas, including transportation finance, K-12 education, public sector employment, and corrections. He also completed analyses of various statewide ballot questions. Prior to his employment with the Citizens Research Council, Mr. Thiel worked at the nonpartisan House and Senate Fiscal Agencies for ten years, providing elected officials and staff in the Michigan legislature advice and counsel on various fiscal matters.

Mr. Thiel holds a Master of Public Administration from Wayne State University and a Bachelor of Arts in economics and political science from Kalamazoo College.

Erin Grover

Ms. Grover is a Senior Analyst at Anderson Economic Group, working in the Public Policy and Economic Analysis practice area. Her background is in applied economics and communicating economic ideas.

Ms. Grover's recent work consists of several economic and fiscal impact analyses of counties and business ventures throughout the U.S.; evaluating policy changes and potential public funding mechanisms; as well as an analysis of the economic contribution research universities make in Michigan. She is also currently contributing to the book, *Economics of Business Valuation*, a forthcoming publication of Stanford Press.

Prior to joining AEG, Ms. Grover worked as a contract consultant providing research and detailed data analysis to economic and finance consulting firms in Michigan and Ohio. She was also one of four students selected as a graduate fellow at the Mercatus Center, outside of Washington D.C.. While there she contributed to their Gulf Coast Recovery Project, which received the Templeton Freedom Award for Special Achievement. Ms. Grover has also conducted original fieldwork on the political economy of charter schools in New Orleans, which she presented at an international conference for the Association of Private Enterprise Education.

Ms. Grover holds a masters degree in economics from George Mason University and a Bachelors of Science degree in Political Economy from Hillsdale College.