

# **THE ECONOMIC IMPACT OF NORTHERN MICHIGAN UNIVERSITY ON THE UPPER PENINSULA OF MICHIGAN**

Prepared by:

Robert Eslinger  
Director, Continuing Education and  
Workforce Development

Center for Rural Community and  
Economic Development  
Northern Michigan University

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## PREFACE

This is a review and update to a previous report entitled, “The Economic Impact of Northern Michigan University on the Upper Peninsula of Michigan” written for NMU President Dr. Leslie Wong in preparation for his testimony to the Appropriations Committee of the Michigan state legislature on April 27, 2004. The report, prepared by Dr. David Switzer relied on two previous studies to guide his research: the 1998 and 2001 Economic Impact Reports, conducted by Dr. Harry P. Guenther and Dr. James Scheiner, respectively. While the methodology used here is similar to the previous methodology, there has been new data evaluated as well as some new assumptions added that were necessary to complete this in a timely manner. Some previously reported categories were omitted with reasons explained in the body of the paper.

The purpose of this update differs from previously prepared studies in that the information is not intended for the President’s testimony to the state legislature, but to give the residents of the Upper Peninsula a sense of the economic impact the university has on the region. The question of NMU’s impact on the State of Michigan was more than adequately covered in a recent study coordinated by Dr. Tawni Ferrarini titled, “Economic Contribution of Northern Michigan University; Analysis of Investment Effectiveness and Economic Growth” prepared by EMSI in March 2012. As with past reports the appendix to this report provides detailed analysis allowing anyone to recreate these numbers and, in cases where assumptions are made, examine the different results that can be obtained using different possible assumptions.

As in previous reports, I have made a consistent effort to use the most conservative numbers possible, thus the numbers reported represent a lower bound on NMU’s impact on the Upper Peninsula (U.P.). As stated in previous studies, some of the economic activity generated by NMU has its effects in the Lower Peninsula (L.P.) of Michigan but is unobserved by this study. NMU’s purchases of goods and services from the L.P. and the fact that its graduates often work in the L.P. are two examples of this. Additionally, I have used and/or considered figures provided by off-campus entities such as the City of Marquette and the Marquette Convention and Visitors Bureau which I believe adds a realistic and yet conservative snapshot of NMU’s impact on the community.

Finally, the economic impacts reported in this study are only the direct effects resulting from spending and output associated with the University. They do not reflect the increase in productivity and earnings of Northern students who, upon successfully completing their degrees, contribute more to the U.P. economy and the country at large. Those issues are covered in the 2012 EMSI study mentioned above.

## EXECUTIVE SUMMARY

Direct spending by the University, its students, and University-generated visitors to the Upper Peninsula, totaled over \$205 million in the 2010-11 academic year.

University	\$145,849,000
Students of NMU <sup>1</sup>	\$53,763,307
Visitors to NMU <sup>2</sup>	6,288,000
 TOTAL SPENDING	 \$205,900,307

The total economic impact of these expenditures on the Upper Peninsula is estimated to be in excess of \$311 million, generating over 4,540 jobs in the U.P. The overall impact on output, household earnings, and employment for each of the spending groups identified above are shown in the table below.

### Output, Earnings and Employment Resulting from NMU-related Expenditures, by Spending Source

	Total Increase In Output	Total Increase In Earnings	Total Increase In Employment
University	\$228,168,276	\$86,715,374	3,443
Students	\$74,625,509	\$19,553,577	955
Visitors	\$9,202,540	\$2,754,714	142
 TOTAL:	 311,996,325	 109,023,665	 4,540

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<sup>1</sup> Only including student spending directly caused by NMU, omitting spending by students that would remain in the Upper Peninsula regardless of NMU.

<sup>2</sup> Conservative estimate provided by Marquette Convention and Visitor's Bureau for the period June 2010 through July 2011. CVB estimates that the number could be as high as \$8M if more detailed information was available on business/conference room nights. Info provided June 2012.

## **Part One: Introduction and Methodology**

This is a report on the economic impact of Northern Michigan University on the Upper Peninsula of Michigan, prepared for University President Dr. David Haynes at the request of Dr. Paul Lang, Provost and Vice President of Academic Affairs. While this report is for the 2010-11 fiscal year, some data is based on the 2011 calendar year.

The Department of Commerce, Bureau of Economic Analysis's Regional Input-Output Modeling System (RIMS II) was employed for this report to generate multipliers for a region consisting of all fifteen counties in the U.P., providing detailed data for dozens of broad industry categories. RIMS multipliers are output-based, detailing the effect that a one-dollar increase in output in a given industry will have on output, household earnings and jobs in the specific region provided. <sup>3</sup>

As with previous reports, this report is a study using marginal analysis, examining the economic effects that can be directly attributed to Northern Michigan University, assuming that none of the activity would have taken place in the University's absence. While marginal analysis is ultimately imperfect and must be taken with a full understanding of the limitations of the results, it represents the most attractive option for studies of this sort given the time constraints and purpose of this review.

Any report such as this is based on the best available data. However, in some cases data is not available and I have made some assumptions. Every calculation in this report is noted and every assumption is explained either in the body of the report, in a footnote or in the appendix. Again, this tactic was employed in previous studies and while some may argue about the appropriateness of these assumptions, it was my goal to make this report clear enough so that anyone can change any assumption and directly compute the effect it would have on the results.

## **Part Two: University Expenditures**

For the 2010-11 fiscal year Northern Michigan University spending totaled over \$145 million. Table One below provides a breakdown of spending into a variety of categories.

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<sup>3</sup> The output and earnings multipliers are per dollar spent, while the employment multiplier is jobs per million dollars spent.

**Table One:  
Total University Expenditures, by Category,  
2010-11 Fiscal Year**

<b>Category</b>	<b>Spending</b>
Salary, Wages and Benefits	\$89,083,000
Supplies and Services	\$43,826,000
Construction	\$4,560,000
Bond Principal and Interest <sup>4</sup>	\$8,380,000
<b>TOTAL</b>	<b>\$145,849,000</b>

The intent of this information is to show the economic impact of NMU on the Upper Peninsula. In an effort to duplicate the previous study as much as possible, I used the same RIMS multipliers updated to what BEA is currently using- 2008 Regional Data and the 2002 National I-O Data Year. As in the previous study spending on construction was not considered part of normal University educational spending and fluctuates from year to year much more so than the other categories of spending. Thus, the multipliers for “Construction” were used for all construction spending by NMU. Table Two below shows the resulting amount of output, household earnings and employment resulting from NMU spending in 2010-11.

**Table Two:  
Effect of University Spending on Output,  
Household Earnings and Employment**

	Total Spending	MULTIPLIER FOR:			TOTAL EFFECT ON:		
		Output	Earnings	Jobs	Output	Earnings	Jobs
Education	\$141,289,000	1.5605	0.5954	23.8859	\$220,481,484	\$84,123,470	3,375
Construction	\$4,560,000	1.6857	0.5684	14.9847	\$7,686,792	\$2,591,904	68
<b>TOTAL</b>	<b>\$145,849,000</b>				<b>\$228,168,276</b>	<b>\$86,715,374</b>	<b>3,443</b>

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<sup>4</sup> Actual Bond Principal and Interest was \$13,438,067 but there was a payoff of remaining 1997 Bonds of \$5,057,552 so the figure was adjusted to \$8,380,515 to remove the spike caused by the payoff. This adjustment was suggested by NMU Comptroller.

### Part Three: Student Expenditures

According to the Office of Financial Aid, student spending on room and board was estimated at \$8,026 per person, and spending for books and miscellaneous is estimated at \$2,491 per student for the 2010-11 academic year. However two adjustments that must be made include: first, room and board for students living in University-owned housing must be subtracted, since these expenditures are already factored into University spending in the “Supplies and Services” category. Second, housing costs for students from the U.P. who live at home should be subtracted because there is no direct spending related to their housing. The appendix details how the number of students from three sources (U.P., L.P., out-of-state) are determined to live in three different types of housing (University, rental, family), and the table below shows the results.

**Table Three:  
Estimated Number of Students in  
Different Types of Housing, By Origin**

<b>Undergrads from the U.P.</b>	<b>Students</b>
University Housing	638
Rental Housing	2194
Family Housing	1600
<b>Undergrads from the L.P.</b>	
University Housing	1530
Rental Housing	1725
<b>Undergrads from Out-of-state</b>	
University Housing	862
Rental Housing	708
<b>Grad Students</b>	
Rental Housing	681

Students living with family are assumed to not pay rent, and students living in University housing have already paid for both housing and food. Thus, knowing how many students fall into each category determines how much spending on rental housing, food, and books/miscellaneous occurs. As in previous studies, I used Financial Aid data to form my assumptions. I assumed that all students spend the estimated \$2,491 on books and miscellaneous. Students in rental or family housing spend an estimated \$3,988 on food which is based on the cost of a constant meal pass, and students in rental

housing spend approximately \$3,455 on housing 5. Table Four below details the total amount of spending in these three areas by students.

**Table Four:  
Per-student and Total Spending,  
by Category and Choice of Housing<sup>6</sup>**

Student Residence	Number of Students	SPENDING PER STUDENT			TOTAL APPROXIMATE SPENDING		
		Housing	Food	Other	Housing	Food	Other
University Housing	3,075	-	-	\$2,491	\$0	\$0	\$7,659,825
Rental Housing	4600	\$3,455	\$3,988	\$2,491	\$15,893,000	\$18,344,800	\$11,458,600
Family Housing	1600	\$0	\$3,988	\$2,491	\$0	\$6,380,800	\$3,985,600
<b>TOTAL</b>	<b>9,275</b>				<b>\$15,893,000</b>	<b>\$24,725,600</b>	<b>\$23,104,025</b>

When I total housing, food and other expenses in the table above, NMU students spent a total of approximately \$63,722,625 in the 2010-11 academic year. However, as was indicated in previous studies, not all of this can be attributed to the presence of NMU. In order to determine the impact that NMU has on the U.P. economy, we must make some assumptions regarding what students would do if they were not at NMU. If all NMU students would find other schools or employment in the U.P. in the absence of NMU, then it cannot be truly said that expenditures by these students is due to NMU.

Previous research found through a survey in 2005, that 18% of students then at NMU would still be in the U.P. if NMU were not an option.<sup>7</sup> Due to time constraints and lack of data on this issue, I used the same assumption. I subtracted their spending to determine NMU's impact. Like the previous study I assume these 1,670 students would all be from the U.P., equally distributed between the three different housing groups. Table Five below shows the effect of removing these students from the analysis.

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5 Differing from the 2005 study's anecdotal evidence and assumptions regarding rental housing, I was able to use the results from an off-campus survey done in 2011 by Financial Aid which indicated students pay approximately \$3,455 in rental housing.

6 Actual total number of students was 9273. Number varied slightly as reporting from City of Marquette regarding number of students in city apartments was a close approximate as was the number of students in university housing.

7 The survey found that the actual amount of students remaining in the U.P. is between 10.9% and 18.0%.

**Table Five:  
Spending by Students Who Would Remain in U.P.,  
and Resulting NMU-Attributed Spending**

		Spending Per Student			Total Spending		
Student Residence	Students Remaining	Housing	Food	Other	Housing	Food	Other
University Housing	554	-	-	\$2,491	\$0	\$0	\$138,014
Rental Housing	828	\$3,455	\$3,988	\$2,491	\$2,860,740	\$3,302,064	\$2,062,548
Family Housing	288	\$0	\$3,988	\$2,491	\$0	\$1,148,544	\$717,408
Remaining Students	1,670				\$2,860,740	\$4,450,608	\$2,917,970
All NMU Students	9,275				\$15,893,000	\$24,725,600	\$23,104,025
NMU- Attributed Spending					\$13,032,260	\$20,274,992	20,186,055

Based on these totals, the total effect on the U.P. economy was determined using the RIMS multipliers for the appropriate industries. For housing, food, and other spending, the multipliers for the “Real Estate” industry, the “Food Services and Drinking Places” industry, and the “Retail Trade” industry, respectively, are used. The resulting increases in output, earnings and employment are shown in Table Six below.

**Table Six:  
Output, Earnings and Employment  
Resulting from NMU-Attributed Student Spending**

	Total	MULTIPLIER			TOTAL EFFECT ON:		
	Student Spending	Output	Earnings	Jobs	Output	Earnings	Jobs
Housing	\$13,032,260	1.2030	0.0821	3.4789	\$15,677,809	\$1,069,949	45
Food	\$20,274,992	1.4756	0.4456	26.1367	\$29,538,636	\$9,034,536	530
Other	\$20,186,055	1.4569	0.4681	18.8371	\$29,409,064	\$9,449,092	380
TOTAL	\$53,493,307				\$74,625,509	\$19,553,577	955

Table Six above implies that the economic impact of NMU student spending on the U.P. is in excess of \$74 million dollars.



Previous studies examined lost tuition, output, earnings and employment from Michigan residents who would leave the U.P. in NMU’s absence. Due to time constrains and the purpose of this review, the table and data were omitted from this paper.

**Part Four: Other University-related Expenditures**

In previous studies Visitors, Northern Initiatives, NMU-TV and NMU-FM as well as USOEC information was included. Due to the relational change with Northern Initiatives and USOEC, that information was not included in this review. Additionally, the NMU Comptroller advised that counting NMU-TV and NMU-FM as part of the NMU overall expenditures would have less risk of duplicity so their information is included in the NMU totals. Table Eight below details total spending by visitors and its effect on output, earnings and jobs. Detailed explanations of these calculations are included in the Appendix to this report.

**Table Eight:  
Total Spending and the Resulting Increase in  
Output, Earnings and Jobs - Visitors to the University**

Group	Total Spending	Increase in Output	Increase in Earnings	Increase in Jobs
Visitors	\$6,288,410	\$9,202,540	\$2,754,714	142

**Visitors**

Northern Michigan University brings a variety of visitors to the Upper Peninsula that would not otherwise visit the area. Campus visits, sporting events, conferences and the United States Olympic Education Center (USOEC) brought over \$6 million in spending to the U.P. in 2010-11. Most of this spending is in the form of hotel and motel rooms and food. Spending by visitors accounts for over \$9 million in output.

Differing from previous studies, this review used information provided by the Marquette Convention and Visitor’s Bureau (CVB) for the estimated spending by NMU Visitors due to university events. The estimated \$6 million spent by visitors included \$2,838,410 in accommodations figured by event based on actual average room rates by month over the time period of this review. And \$3,450,000 which was based on average spending of \$150 per room night, an estimated figure used the by the CVB.

## Part Five: Summary and Conclusions

A summary of the economic impacts of Northern Michigan University is presented in Table Nine below.

**Table Nine:  
Output, Earnings and Employment  
Resulting from NMU-related Expenditures,  
by Spending Source**

	Total Increase In Output	Total Increase In Earnings	Total Increase In Employment
University	\$228,168,276	\$86,715,374	3,443
Students	\$74,625,509	\$19,553,577	955
Visitors	\$9,202,540	\$2,754,714	142
<b>TOTAL:</b>	311,996,325	109,023,665	4,540

Every effort was made to obtain the most accurate information possible, but since this report requires a counterfactual approach, and not every answer to every hypothetical question can be answered, the results are somewhat open to interpretation. The appendix to this report details the assumptions made in each part of this report, allowing the reader to change an assumption and calculate its effect on the results. I am confident in the assumptions that were made in this report and used whatever data was available to help inform assumptions and make more accurate calculations. However, whenever an assumption was not informed by existing data, the most conservative assumption possible was made.

## APPENDIX

### University Expenditures

Previously, study authors used travel and sales tax as line items in the university expenditures table. On suggestion from the NMU Comptroller, those lines were omitted from this study as travel is included in Supplies and Services and sales tax does not have a direct economic impact in the Upper Peninsula as it is paid to the State of Michigan. Additionally, it should be noted that utilities are included in Supplies and Services. Actual Bond Principal and Interest was \$13,438,067 but there was a payoff of remaining 1997 Bonds of \$5,057,552 so the figure was adjusted to \$8,380,515 to remove the spike caused by the payoff.

### Student Expenditures

Accurate measures of student spending, one must know how many students from the U.P., L.P. and out of state live in University housing, rental housing, or family housing. Unfortunately there was no data base made available for this report that contains all of this information. Thus, one must use other information available and make a few assumptions.

#### University Housing

The Office of Housing and Residence Life provided information regarding the number of students living in dorms and apartments, distinguishing between Michigan residents and residents of other states for previous studies. Due to the timing of the required information, they were not able to respond with the requested data. For Table Three: Estimated Number of Students in Different Types of housing by Origin, the data was obtained from Institutional Research and some numbers were extracted using estimated figures from other sources. The number of students who live on campus was taken from the document “10 NMU Numbers to Remember” (Fall 2011). The number residing off-campus was obtained from the Marquette Fire Chief, Tom Belt in a personal interview on Thursday, June 28<sup>th</sup>, 2012. Marquette City Fire Department is responsible for inspections of all rental housing in Marquette and as such Belt was able to provide information on the number of students living off-campus.

#### Family-provided Housing

Family-provided housing is an elusive figure as it is sometimes calculated by student zip codes provided, which may or may not reflect where a student is actually residing. In this case, the number of students residing in family housing was a result of taking two known numbers (university housing and rental housing) and subtracting them from the student total.

To determine the impact NMU students would have on the local economy, I had to make some assumptions regarding what students would do if they were not at NMU. It was again important in this study as in previous studies to determine how many NMU students would stay behind in another school or find employment in the U.P. in the absence of NMU.

Previous research found through a survey in 2005, that 18% of students currently at NMU would still be in the U.P. if NMU were not an option.<sup>8</sup> Due to time constraints and lack of current data on this issue, I used the same assumption. I subtracted their spending to determine NMU's impact. Like the previous study I assume these 1,670 students would all likely be from the U.P., equally distributed between the three different housing groups.

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<sup>8</sup> The survey found that the actual amount of students remaining in the U.P. is between 10.9% and 18.0%.

Relevant multipliers for this part of the report are included in the table below.

Multipliers for:	Output	Earnings	Employment
Real Estate	1.2030	0.0821	3.4789
Food Services and Drinking Establishments	1.4756	0.4456	26.1367
Retail Trade	1.4569	0.4681	18.8371
Educational Services	1.5605	0.5954	23.8859

## Visitors

Unlike past studies, visitor information was provided by Marquette Convention and Visitor's Bureau for the time period in question (see below). The below multipliers were applied to the information provided:

Multipliers for:	Output	Earnings	Employment
Accommodations	1.4486	0.4289	18.3028
Food Services and Drinking Establishments	1.4756	0.4456	26.1367

ESTIMATED NUMBER OF ROOM NIGHTS SOLD  
IN MARQUETTE COUNTY JULY 1, 2010 TO JUNE 30, 2011  
FROM NMU EVENTS

### 2010

June	Orientation/Campus Visits Room Nights	1,500 @ \$75.25 ADR	\$112,875
July	Orientation/Campus Visit Room Nights	1,500 @ \$80.90 ADR	\$121,350
Aug	Student Return Room Nights	4,000 @ \$84.34 ADR	\$337,360
Sept	Athletic/Homecoming Room Nights	1,200 @ \$ 80.29ADR	\$ 96,348
Oct	Parents Weekend/Athletic Room Nights	3,100 @ \$80.07 ADR	\$248,217
Nov	Misc/ Athletic Room Nights	500 @ \$73.16 ADR	\$ 36,580
Dec	Misc/Athletic Room Nights/Graduation	1,000 @ \$70.59 ADR	\$ 70,590
ESTIMATED TOTAL 2010			\$1,023,320

### 2011

Jan	Campus Visits/Athletic Room Nights	1,700 @ \$72.95 ADR	\$124,015
Feb	Athletics Room Nights	500 @ \$81.01 ADR	\$ 40,505
Mar	Athletics Room Nights	500 @ \$72.83 ADR	\$ 36,415
Apr	Graduation/End of Semester Room Nights	3,000 @ \$79.36 ADR	\$238,080
May	Campus Visits/Orientation Room Nights	1,500 @ \$73.51 ADR	\$110,265
June	Campus Visits/Orientation Room Nights	1,500 @ \$76.63 ADR	\$114,945
July	Campus Visits/Orientation Room Nights	1,500 @ \$85.03 ADR	\$127,545
ESTIMATED TOTAL FOR SEVEN MONTHS 2011			\$1,815,090

Total Rooms Sold for 2010/2011 Time Period: 23,000 @ \$150 per room average spending = \$3,450,000

Summation: the room nights total is a estimate based on limited information available to the CVB. However, the numbers may be actually higher based on no information available to the CVB on meetings and conference rooms directly linked to NMU. The average room rates are based on information provided on CVB financials and are accurate. The average spending of \$150 per room night is the estimated figure used by the CVB. This also could be higher.

Total Estimated Revenue to the Marquette County area from NMU in the visitor market for the fourteen month period is \$6,288,410. However the numbers could be as high as \$8,000,000 adding in business/conference room nights.

\*The above table and data was provided by Pat Black, Marquette Convention and Visitor's Bureau, June 2012.