REPORT:
History of Total Compensation at Michigan Tech, 2008-2017

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Total Compensation plays a critical role in the recruitment of top talent and subsequent employee performance, satisfaction, and retention at any university. At Michigan Tech, there is a palpable feeling that employee benefits have declined substantially over the last decade, and that increases in salaries/wages have not made up for these differences. However, specific data and reporting on trends related to compensation is not readily available, nor is information concerning how these changes at Michigan Tech compare with those of other institutions, or more broadly with national trends. Therefore, compiling and contextualizing factual information on the nature of compensation at Michigan Technological University is an important first step in understanding how compensation levels are impacting employees, and the overall mission of the University. The purpose of this report then is to factually review the total compensation package offered to faculty and non-represented staff at Michigan Tech during the period 2008 to 2017. This report presents, in both written and graphic form, the impact of changes in employee benefits and wage/salary compensation at the University during this period, and contextualizes this information in comparison with selected peer institutions and national trends. Ultimately this report will help clarify what has being happening in relation to compensation at this University, with an eye toward identifying areas for improvement going forward.

1. Introduction

Total compensation includes both salary and fringe benefits, and is an important factor in recruiting and retaining talented faculty and staff at this University. Recruiting and retaining employees for positions at a university is an expensive endeavor, often costing an employer tens of thousands of dollars per hire to set up search committees, advertise and recruit prospective candidates, interview and select, and then hire, train, and acclimate the employee to the institution's culture. While salary offers remain one of the main incentives in convincing the desired candidate to accept a position, the benefit package is also an integral part of the employment decision. The position itself, along with advancement potential and job satisfaction, is perhaps the primary incentive for a candidate to accept a position and continues to play a critical role in whether an employee remains with the employer, but the importance of benefits as part of the total compensation package becomes an increasingly important consideration during an employee's tenure. While Michigan Technological University has many positive attributes that make it a desirable place to work, it is also in a challenging geographic location that makes recruitment more difficult, and by extension, retention even more important.

With these factors in mind, the University Senate Fringe Benefits Committee felt it important to better understand the history of salary/wages and benefits by examining changes to the Total Compensation Package at Michigan Tech over the past decade (2008 - 2017), and how these changes compare with a selection of our peer institutions, as well as with national trends.

Section 1 of the report is a discussion of background information that contextualizes compensation and benefit trends at the University, including a discussion of the peer institutions selected, national trends, local of cost of living, and the results of the 2016 University Senate Fringe Benefits Committee Compensation and Benefits Survey. Section 2 presents information on the history of salary and wage trends at the University over the period under study. Section 3

offers a detailed look at the health related elements of the fringe benefit package, including health care and dental and vision insurance. Section 4 examines the history of retirement benefits at the University. Section 5 examines aspects of additional fringe benefits offered by the University, such as leave, tuition reimbursement for dependents, and parental leave. In Sections 3-5, each component is reviewed in terms of the nature of compensation in 2008, major changes that have occurred since then, and what compensation for that aspect of compensation looks like as of 2017. This information is then compared to what our selected peers are providing today, and what the national trend has been for that particular component. Section 6 integrates information from each of the preceding sections to present a holistic view of the state of compensation and fringe benefits over the period of the study.

The report concludes with a call for faculty and non-represented staff, the University Senate, the University Administration, and the Board of Trustees to begin pro-actively working to create short-, medium-, and long-term plans to begin remedying some of the troubling issues and trends that have developed over the past decade with regard to compensation and fringe benefits at Michigan Tech. It is the hope of the University Senate Fringe Benefit Committee that this report will provide the information necessary for our colleagues to more fully understand the nature of compensation at this university, with the goal of bettering our University community by improving employee satisfaction and attracting and retaining the talented faculty and staff that make this "a globally recognized technological university that educates students, advances knowledge, and innovates to improve the quality of life and to promote mutual respect and equity for all people within the state, the nation, and the global community" (Michigan Tech Strategic Plan).

1.1 Peer Institutions

We selected five leading public universities in the state of Michigan for comparison. The in-state peer institutions used in this report are:

- Ferris State University (FSU)
- Michigan State University (MSU)
- Northern Michigan University (NMU)
- University of Michigan (UM)
- Wayne State University (WSU)

We also selected five out-of-state institutions. Our selection process targeted a mix of institutions of varied sizes, chosen from a group of benchmark institutions that the University Administration and the University Senate have used in prior studies and reports. Of the five universities, four are public and one is private. We take a moment here to acknowledge that some of these institutions may be under state legislation to guarantee specific benefit levels. We do not detail how these programs are different from Michigan Tech's benefit program. Rather, we recognize the differences in benefit packages from the point of view of a faculty or staff on

the job market and comparing opportunities. We hope this report illuminates the face-value differences these comparisons allow.

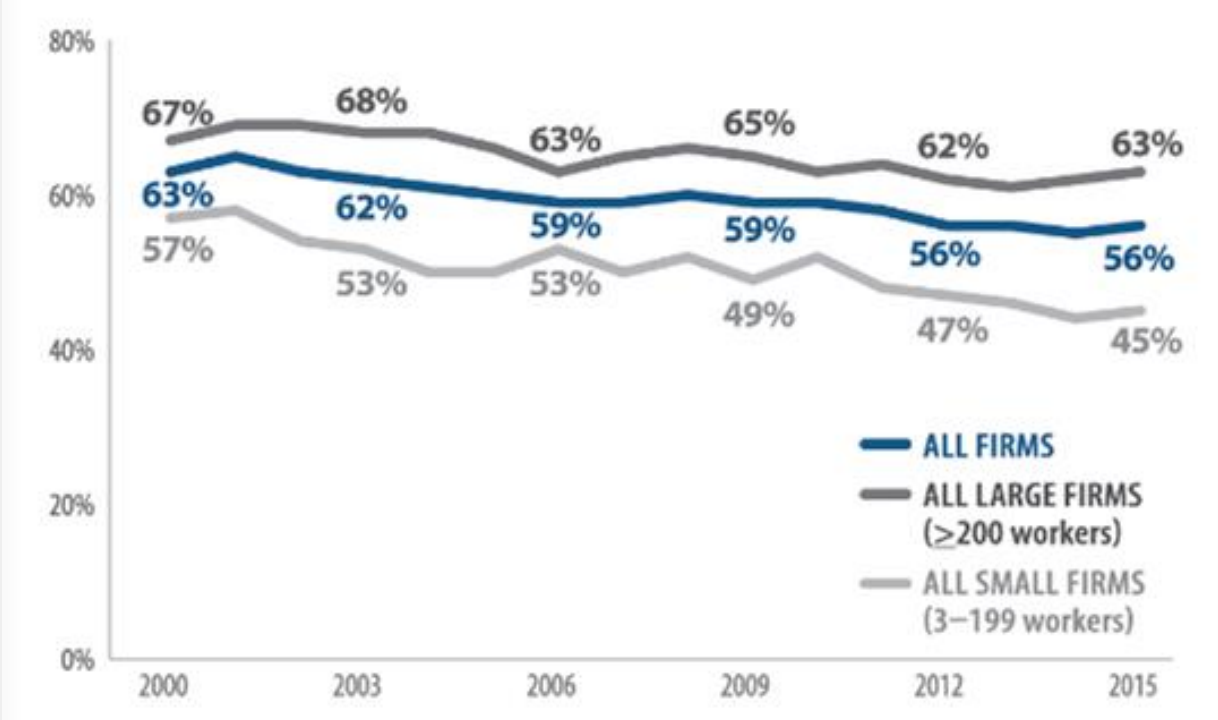
- California Polytechnic Institute (Cal Poly)
- Carnegie Mellon University (CMU)
- Colorado School of Mines (CSM)
- Georgia Institute of Technology (Georgia Tech)
- Missouri School of Science & Technology (MSS&T)

1.2 General National Compensation and Benefit Trends

Overall, a good benefits package is still very important to employees nationally, and companies that provide good benefits have a competitive advantage in hiring desirable employees according to a recent study by the Employee Benefit Research Institute (EBRI). What constitutes a benefit package today is different, however, than it was 20 years ago. Over the past 20 years or more, there has been a distinct trend of cost shifting from employer to employee for certain core benefits, while wage increases have been slow or stagnant over the same period. Certain benefits are required by law to be provided by almost all employers: Social Security, unemployment insurance, workers' compensation insurance, and unpaid family leave. The most commonly provided voluntary benefits include paid time off (vacation, sick time, holidays, etc.), retirement savings plans or retirement pension plans, health insurance, long-term disability insurance, and life insurance. At the same time, additional benefits beyond the core of health and retirement have become more common. Examples of these types offerings include: telecommuting options, childcare support, paid maternity/parental leave, educational support, company cell-phones for personal use, and wellness programs.

According to the Health and Voluntary Workplace Benefits Survey published by the Employee Benefits Research Institute (EBRI) in April 2017, 87% of employees surveyed regarded employment based health insurance as extremely or very important, followed by 77% for a retirement savings plan, and 72% for dental and vision plans. At the same time the percentage of employers that cover a majority percentage of employees health insurance cost has declined from 63% in 2000 to 56% in 2015, with small firms being the least likely to provide coverage (45% in 2015) (**Figure 1**).

Figure 1: Percentage of workers covered by their employers' health benefits since 2000. Note: The data is among firms both offering and not offering benefits.
(**Source**: Kaiser Family Foundation analysis. Original data and detailed source information are available at http://kff.org/JAMA_5-03-2016)



The declining rate of employers that cover a majority of employee health insurance costs is directly related to the rising cost of health coverage over the same period. The United States Bureau of Labor Statistics estimates that the total benefit costs for civilian workers, when adjusted for inflation, has risen 22.5% since 2001 (Pew Research Center, 2018). The rising cost of benefits has grown at a rate of more than four times that of wages, which have risen 5.3% over the same period (**Figure 2**). This change is even more exaggerated among the lower quartiles of the workforce, as most wage growth has occurred amongst the top tenth of wage earners. The rapidly rising cost of benefits has likely played a role in this relative wage stagnation, due to the unwillingness or inability of employers to raise wages in the face of mounting benefit costs. Regardless of the reason, the relatively slow growth in wages has been exacerbated by the increasing tendency of employers to pass a higher percentage of rising benefit costs on to their employees. For example, according to data collected as part of the 2018 Kaiser Family Foundation Employer Health Benefits Survey, changes in premiums and worker contributions for health insurance have increased by an average of 55% for Midwest families covered by firms with more than 200 employees over the period from 2008-2017 (Kaiser Family Foundation, 2018).

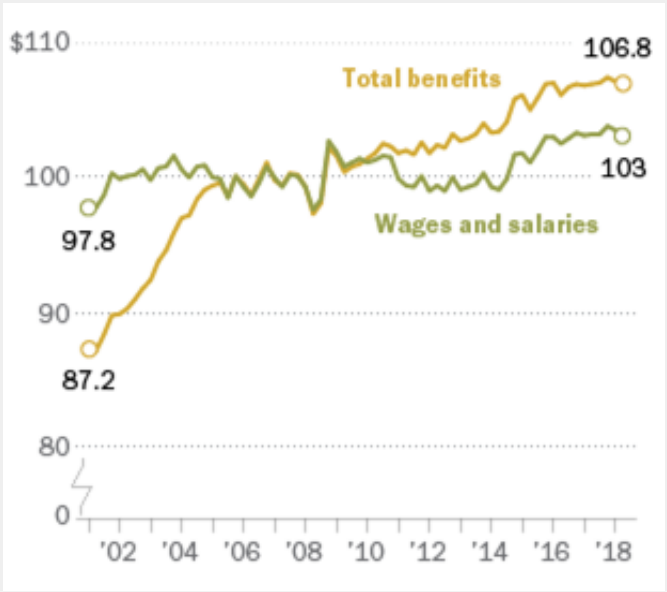
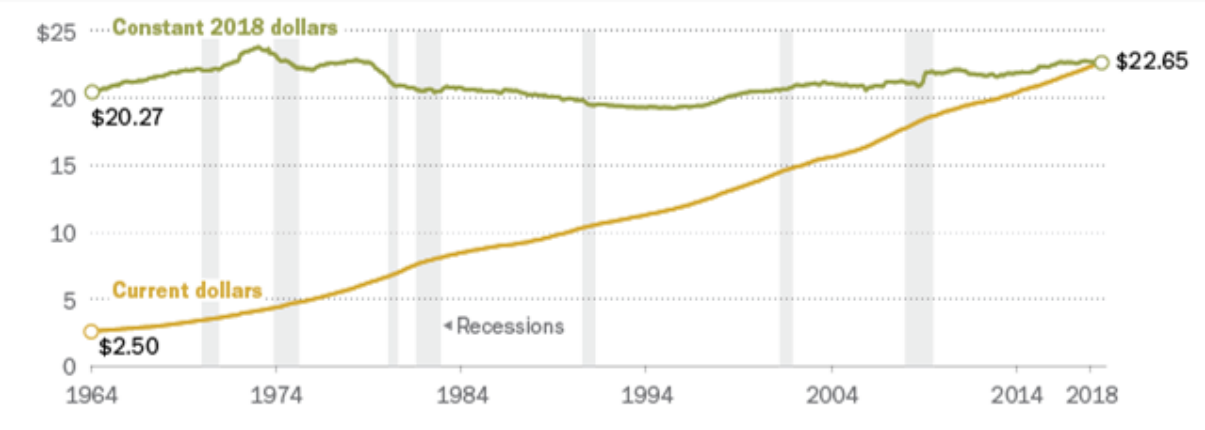


Figure 2: The inflation adjusted cost of total benefits has risen by 22.5% since 2001, while wages and salaries have only grown by 5.3%. This graph shows employment-cost index for all civilian workers in the U.S. in constant dollars, not seasonally adjusted. Note: The employment-cost index is a measure of the change in price of labor, defined as compensation per employee hour workload. "Total benefits" includes overtime payments, paid leave, insurance premiums, retirement contributions and other benefits. (**Sources**: Pew Research Center, (http://www.pewresearch.org/fact-tank/2018/08/07/for-most-us-workers-real-wages-have-barely-budged-for-decades/) and the U.S. Bureau of Labor Statistics.

Therefore, national trends related to wages and benefits have been somber for most employees over the ten year period of this study. As health care costs in particular have skyrocketed, total benefit costs have increased at a rate that has far outstriped wage growth. These trends have manifested themselves in decreasing employer contributions to employee benefit packages, e.g. retirement benefits, and a higher percentage of those costs being shifted to employees, e.g. health care costs. These trends, when coupled with stagnant wage growth that has merely kept pace with inflation (**Figure 3**), has left many employees in a situation where their take home pay today is near equal or perhaps less than it was a decade ago.

Figure 3: Real wages when adjusted for inflation have been relatively flat for the last forty-plus years. The graph shows the average hourly wages in the U.S., seasonally adjusted. (**Source**: Pew Research Center, (http://www.pewresearch.org/fact-tank/2018/08/07/for-most-us-workers-real-wages-have-barely-budged-for-decades/) Note: Data for wages of production and non-supervisory employees on private non-farm payrolls. "Constant 2018 dollars" describes wages adjusted for inflation. "Current dollars" describes wages reported in the value of the currency when received. "Purchasing power" refers to the amount of goods or services that can be bought per unit of currency. **Source**: U.S. Bureau of Labor Statistics.



1.3 Cost of Living

Cost of living - the amount of money a household needs to secure food, housing, and other basic necessities at an accepted standard of living- is a critical factor in contextualizing compensation at Michigan Tech relative to state and national averages, and ultimately, among our peer institutions. The relationship between cost of living and wages is complicated by the need to account for the relative value of those wages within a local context. Comparison of nominal wages - what one earns per hour—between groups, while broadly informative, does not account for the relative purchasing power of that wage within local price structures. Therefore, it is necessary to understand how the living wage—a market based approach to comparing geographically specific minimum earning standards- in Houghton compares to state and national averages. Comparing living wage standards reveals that the overall cost of living in Houghton is comparable with state and national averages, especially when accounting for assumed differences in housing costs.

The Massachusetts Living Wage Calculator (MIT Living Wage Calculator) is an online tool that calculates the minimum employment earnings necessary to meet a family's basic needs in terms of food, housing, transportation, childcare, taxes, health care, and other necessities (e.g., clothing, personal care items, etc.) relative to local expenditure data. The calculator can be used to understand the minimum subsistence wage necessary to support households of various family sizes, compositions, and employment levels on a county-wide and state-wide basis. With this information we can more fully understand cost of living as the correlation between wages and purchasing power, as reflected in the living wage averages for a particular county. It is important to remember that these averages are considered the minimum income standard necessary for household self-sufficiency, meaning that the living wage averages represent the minimum subsistence wage necessary to maintain financial independence, i.e. without need for

public assistance or chronic housing and food insecurity, etc. Additionally, it is also critical to note that these averages do not budget for future financial planning in the form of savings and/or retirement accounts.

In reviewing the cost of living experienced by staff and faculty at Michigan Tech, we can compare the typical expenses and overall living wage for Houghton County, with the same averages for the state of Michigan. In this particular discussion we are using as our basis of comparison a four-person household comprised of two adults and two children, where both adults are working full time. The average typical expenses for such a household in Houghton County compared with the average for the state of Michigan can be found in **Table 1**.

As **Table 1** shows, there is a $2,836.00 difference (4.4%) in the average living wage for a family of four in Houghton County ($61,534) when compared to the average household of the same size in the state of Michigan ($64,370). As a broader point of comparison, the national living wage average for a family of four is $66,842 (MIT Living Wage Calculator). The majority of the difference (65%) between the averages for Houghton County and Michigan is explained by housing costs. Here, it is important to note once again that these averages represent minimum standards. In the case of housing, the Living Wage Calculator uses Housing and Urban Development (HUD) guidelines for determining housing costs (MIT Living Wage Calculator). For our average family of four, the calculator utilizes HUD's Fair Market Rent (FMR) calculation to determine housing costs. In this case the HUD FMR is $681, which represents the average cost to rent a two bedroom apartment, including utilities.

However, it is likely that the HUD FMR average underrepresents the actual cost of housing for many staff and faculty at Michigan Tech; many of whom likely experience higher housing expenditures associated with home mortgages and higher than national average utility costs. For example, if we look more specifically at the average cost associated with home ownership, i.e. mortgage costs and taxes, we find that the median cost for Houghton County is $946 per month, compared to a statewide average of $1242 for home ownership. The Houghton Country average for ownership is already $265 more than the HUD FMR used in the Living Wage Calculator and does not include monthly utilities.

Utility costs represent significant monthly expenditures in the Houghton area, especially when considering the greater number of heating degree days and higher energy usage associated with the colder winter months in the Keweenaw. Take for example the cost of electricity. The state of Michigan ranks 12th in the nation with an average statewide residential electric cost of 14.13¢/kWh, which is 18.94% greater than the national average of 11.88¢/kWh. Compare these numbers to Houghton County where the average residential electric rate is 19.36¢/kWh, which is 37.01% more than the statewide average and 62.96% greater than the national average (Electricity Local). In 2013, UPPCO customers in Houghton County paid an annual electrical bill of $1,260, whereas a similar household in the U.S. paid $727 annually (MSPC 2013).

Table 1: Summary of cost of living differences in Houghton compared to cost of living in the State of Michigan.

Basic Expenses Family of 4	Michigan	Houghton	Difference
Food	$8975	$8975	$0
Childcare	$12449	$12211	$238
Medical	$5274	$5179	$95
Housing	$10009	$8172	$1837
Transportation	$11067	$10868	$199
Taxes	$9911	$9564	$347
Other	$6684	$6563	$121
Total	$64370	$61534	$2836

From the preceding example it is not difficult to imagine that the average cost of housing for Michigan Tech staff and faculty is in most cases much higher than the $681 HUD FMR average used in the MIT Living Wage Calculator. The average monthly cost of home ownership and electricity alone is $1,051, not including other basic utilities such as water and sewage, and natural gas or propane. Given these averages, most families at Michigan Tech likely pay as much or more than the Michigan average of $10,009 per year for housing, effectively bringing the local average cost of living more in line with the statewide numbers and much closer to the national average.

Understanding the relationship between cost of living, living wage, and the effective value of real wages - the total amount of goods and services that can actually be bought with a wage, when adjusted for inflation allows us to contextualize the nature of compensation for staff and faculty at Michigan Tech. The perception that the cost of living in the Keweenaw is low, does not stand up under examination. When we compare living wage calculations for Houghton County with statewide and national averages, it is clear that local expenses are on par with those averages; especially when we breakdown the presumed differences in housing costs. Recognition of this reality has clear implications for any discussion regarding rates of compensation at Michigan Tech, especially when discussing real wages. The fact that real wages at Michigan Tech are comparable to statewide and national averages, indicates the need to match broader trends in terms of rates of compensation if Tech is to be competitive in recruiting and retaining high quality staff and faculty.

1.4 The 2016 FBC Employee Compensation and Benefits Survey

In the Fall of 2016 the Senate Fringe Benefits Committee conducted an *Employee Compensation and Benefits Survey* to gather feedback on how staff and faculty represented by the University Senate view compensation and benefits related issues at Michigan Tech. A total of 536 respondents answered all or most of the 22 likert scale questions, with 179 providing additional comments. Of the respondents, 48% are Professional/Exempt Staff, 22% are Tenured/Tenure-Track Faculty, and 18% are Other Faculty.

In the survey, 70% (359/514) of the respondents indicated that the Benefit Plan was either Important or Very Important in terms of accepting employment. This was particularly true among older respondents. When asked “How concerned are you about the status of benefits at Michigan Tech” 360 respondents indicated that they were either Very Concerned or Concerned with the status of benefits. Furthermore, when respondents were asked “How competitive is Michigan Tech in terms of benefits when compared to institutions that directly compete with Michigan Tech in hiring and retaining faculty and staff?”, 45% (216/481) indicated that the benefits package was Not Competitive or Somewhat Competitive. Of the respondents, 34% (164/481) indicated the package was similar, and only 21% (101/481) indicated the Benefit Package was Competitive or Very Competitive.

Regarding Salaries, in response to the question about “How concerned are you about the status of salaries in MTU”, 55% (280/512) indicated they were Concerned or Very Concerned, compared to 41% (208/512) who were Neutral or Somewhat Concerned, and 4.5% (24/512) that were Unconcerned. In terms of salaries, the survey asked “How competitive is Michigan Tech in terms of salary when compared to institutions that directly compete with Michigan Tech in hiring and retaining faculty and staff?” The perception is that MTU is not, with 65% (324/499) respondents indicating the salaries are either Not or Somewhat Competitive, with only 21.4% (107/499) saying salaries are Similar and 13.6% (68/499) indicating that salaries are Competitive or Very Competitive.

Perhaps a result of the rising rate of benefit costs and the increasingly disproportionate share of those costs that employees are shouldering, employee responses related to the importance of benefits have been increasing. In 2013 a broader, joint survey of benefit eligible employees at Michigan Tech was conducted by the Senate FBC, American Federation of State, County, and Municipal Employees, and the United Auto Workers survey. For this survey, 824 out of 1289 (64%) eligible employees responded. In this 2013 survey 56% indicated that the Fringe Benefits package was very important in accepting employment, compared to 70% who said that it was Important or Very Important in 2016. Interestingly, 48% of respondents in the 2013 survey indicated that salary was very important and in this survey 66% of the respondents indicated that Salary and Benefits were of equal importance. There were not corresponding questions to these two 2013 questions, but the 55% or respondents who indicated that they were Concerned or Very Concerned with salary suggests the importance employees continue to place on the competitiveness of salaries.

The 2016 survey asked questions several questions reflective of how employees make health care decisions and how they view administrative decision making processes related to these issues. When asked, “Have deductibles and co-pays associated with your health plan caused you or someone in your family to delay receiving healthcare?” 53.5% (275/513) respondents indicated that they had in fact delayed health care for themselves or family members due to cost considerations. This number is similar to the results from the 2013 survey, where 54% of respondents indicated they had delayed health care.

When asked, “How would you characterize the degree of transparency and shared governance associated with salary and benefits decisions made at Michigan Tech?”, 49% (249/506) respondents rated transparency and shared governance related to these issues as Very Poor or Poor. Whereas, 33% (167/506) thought transparency and shared governance were Adequate and 17.8% (90/506) responded Good or Very Good.

In the context of all the issues addressed above, the 2016 survey asked “Have you considered looking for and/or actively sought another position due to dissatisfaction with the benefits and/or salary at Michigan Tech?” Of the respondents, 46.5% (237/510) indicated that they had or were actively considering leaving the University due to dissatisfaction with compensation. This number, when combined with broad employee dissatisfaction related to the state of compensation and benefits at the Michigan Tech, highlights important deficiencies that are impacting recruitment and retention of talented faculty and staff.

1.5 Introductory Conclusions

The information in this introductory section begins to bring into focus the angst that many employees at this University have been experiencing with relation to compensation over the past decade. It is small comfort that employees in other institutions and firms across the nation have also been experiencing similar changes and the challenges they bring. The broader national trend certainly has been one increasing benefit costs, stagnant wages, and a tendency to increasingly shift costs onto employees. This last trend is especially true in terms of health care costs and retirement savings. The ultimate question is not whether employees across the country have been experiencing these changes, we all have, but rather how does Michigan Tech compare specifically to the institutions that we evaluate ourselves against, and compete with, in terms of recruitment and retention. Perhaps more importantly, the answer to this question plays a critical with regard to issues of employee satisfaction, productivity, and the overall health of our University community.

The *2016 Employee Compensation and Benefits Survey* has established that faculty and non-represented staff at the University are very concerned with the particular nature of these national trends at Michigan Tech. The fact that majority of respondents feel that Michigan Tech is not competitive with peer institutions and that nearly half of respondents answered in the affirmative as to whether they had or were actively looking for alternate employment - this of course does not include employees had actually already left the University - suggests that these issues are impacting the functioning of the University. It is also clear that faculty and staff are

not confident in the levels of transparency and shared governance by which the University Administration is operating when it comes to compensation related issues.

As stated earlier in this section, Michigan Technological University has many positive attributes that make it a desirable place to work. However, it is also in a challenging geographic location that makes recruitment more difficult, and by extension, retention even more important. In light of the positive aspects of our local environment, both physical and social, we often market our University (individually and as a marketing strategy) as community oriented and family friendly. Despite popular perception, the cost of living here is not significantly different from the rest of Michigan, or the United States as a whole. Competitive salaries are important, and employees should not be in a position where they are deferring health care treatment due to budgetary concerns. Of course, many Americans face similar dilemmas. However, as the rest of this report demonstrates, when compared to broader trends and our peer institutions, compensation related issues - especially as they relate to the increased shouldering of health care costs and retirement funds - are more acute at Michigan Tech. If Michigan Tech is to be competitive in the increasingly challenging environment of higher education, a high quality, productive, and dedicated faculty and staff will be critical; suggesting that in addition to addressing critical concerns related to core benefits and salary/wages, a broader, more inclusive perspective on benefits will be important going forward. Addressing issues related to recruitment, retention, and employee satisfaction in a holistic, and creative manner, is critical if we are to meet the challenges of the future.

2. Salary and Wages

Data and information in this section has primarily been gathered from four main sources: the Compensation Task Force Report from 2016; Senate Financial and Institutional Planning Committee (FIPC) slideshows from December of 2007 and September 2015; and data gathered from a 2018 Oklahoma State University Salary Survey and the American Association of University Professors survey, reported in the University Senate Financial Overview from December of 2018.

2.1 Trends at Michigan Tech

The overall trend for Staff wages at MTU has been to generally keep up with inflation with raises in the 1-2% range per year. There has been more flexible use of bonuses or lump sum payments to reward high performing staff, or provide additional monies to those whose salary is capped by the position. Regarding Faculty wages, the overall trend has been to provide intermittent merit raises in an attempt to bring MTU faculty wages more in line with peers. These raises have tended to be in the range of 1.5%, but as mentioned, their application has been sporadic. A 2008 University Compensation Task Force had noted that Faculty wages were not very competitive, and a 2007 Senate FIPC report echoed the same concern. Over the past 10 years an effort has been made to address this issue, at least for some departments and colleges. As of 2015, the University Senate FIPC report noted that average faculty salaries at

Michigan Tech were roughly on par with our research peers as of 2014.

However, this report also noted that there are significant differences across departments, with several departments, e.g. Social Sciences, Humanities, and Computer Science, showing significantly lower salaries across all ranks when compared with our research peers. In addition, this report noted that the advantage Michigan Tech held in terms of having slightly higher than average Assistant Professor salaries, where lost as individuals moved to the ranks of Associate and full Professor due to salary stagnation. The 2015 FIPC report also noted that regionally Michigan Tech faculty salaries were comparatively very low. Faculty salaries at Michigan Tech also compare poorly with Carnegie class 'Very High Research Activity' R1 institutions, where Michigan Tech salaries are not as competitive, versus R2 research institutions with which we are fairly comparable.

From a national perspective, a more recent study utilizing data from the Oklahoma State University Salary Survey and the American Association of University Professors (*University Senate Financial Overview*, University Senate, Michigan Technological University, December 2018), indicates that average faculty salaries at Michigan Tech fall in the third quintile nationally for Assistant and Associate Professors, while Professors fall to the fourth quintile nationally. Again though these are University averages, and there are significant differences across departments in terms of average salaries.

Another trend at MTU per the Compensation Task Force relates to salaries and fringe benefits as a percentage of salary. In 2008 it was determined that MTU's fringe rate was higher than most of peers, and this was a situation that needed to be addressed. As a result over the last decade there has been a concentrated effort to bring the fringe rate down from 42.4% in 2007 to 37.5% in 2016. At the time the statement was made that this would be accomplished by increasing wages and holding benefits level. As noted in the FIPC report however, this does not seem to hold true in terms of overall salary growth and instead, it seems that this reduction in the fringe rate has primarily been accomplished by increasingly moving the cost of benefits on to employees.

2.2 National Trends

Wages nationally have not kept up with increased costs of benefits for many employees. Since 1999 wages have risen 50% overall, while inflation has risen 40%, per a 2013 study by the Kaiser Family Foundation. The period between 2007 and 2013 however, saw real incomes decline or remain stagnant except at the highest level of income. Since 2013 the trends have improved per the most recent Federal Reserve Survey of Consumer Finances. During this period median family income grew 10%, and mean family income grew 14%, reflecting the fact that the largest gains were made by the top income brackets.

2.3 Salary and Wages Conclusions

In general the information indicates that average wages at Michigan Tech have followed the

national trend, with staff and part-time faculty wages being flat or stagnant in terms of real income. In terms of faculty salary, average salaries across the University tend to be roughly on par with our peer institutions. Although, salaries in recent years have not tended to be stagnant, with the few merit raises that have been implemented not keeping up with inflation. These trend is in part demonstrated by the noticeable decline in salary comparability as faculty advance to the ranks of Associate and full Professor. In general, average faculty salaries at Michigan Tech are not competitive with regional and national averages, and compare poorly with Carnegie R1 institutions. Notably, significant salary discrepancies exist within a number of departments when compared to not only regional, national, and Carnegie R1 averages, but also with our peer institutions. Cumulatively, there are a number of concerns that relate to recruitment and retention rates at this University for quality faculty.

3. History of Health Care, Dental, & Vision Benefits

3.1 Health Care Benefits

3.1.1 Data Sources and Parameters

This section presents data compiled from several sources from MTU, from the websites of Peer institutions, and from the Employee Benefit Research Institute. The MTU sources are the 2015 Salary Comparison Report, from the Financial and Institutional Planning Committee, the 2016 Compensation Task Force, and the 2016 Fringe Benefits Survey. The peer institutions will be cited within the report. The Employee Benefit Research Institute describes itself as the “only private, nonprofit, nonpartisan, Washington, DC-based organization committed exclusively to public policy research and education on economic security and employee benefit issues.” It was founded in 1978 and does not engage in advocacy.

3.1.2 Trends Associated with Rising Costs in Health Care

Over the last decade there has been a significant rise in health care costs nationwide, and the rising costs have brought an associated trend in higher costs of benefits along with increased deductibles and other ways of sharing some of these costs with employees. The sharing or shifting of increased costs to employees is also a nationwide trend. The data in this section are intended to show how the burden is shared by by employees and how Michigan Tech’s methods of burden-sharing compare with its peers.

The trend in the cost and health benefit coverage for Michigan Tech were examined from 2008 through the data available data in 2017. These data show notable increases in the cost of this benefit to the employee over the last ten years as follows:

In 2008, health benefits included 3 plans covering staff and 3 plans covering faculty, with some variations in each plan related to a) monthly premiums, b) deductibles, and c) annual out of pocket maximums. Generally, the faculty plans had slightly lower premiums, deductibles, and

annual out of pocket maximums, but the differences with the staff plans were moderate.

In 2009, health benefits were consolidated into two plans for all employees: a preferred provider (PPO) plan and a high deductible (HDHP) plan. Under the PPO, monthly premiums were increased above the highest of the previous PPO-like plans, the annual deductible was increased, and the annual out of pocket maximum was likewise increased. Under the HDHP, deductibles and annual out of pocket expenses ranged from $1500/3000 and $2500/5000 for individuals or families. For a family of 4 under the PPO, and depending on the specific comparison with 2008 plans, the monthly employee premium increased from a range of $0-95/mo. to $130/mo., a minimum increase of 36%. The deductible also increased from a range of $0-500 to a new range of $1000-3000, depending on plan, a minimum increase of 100%. Additionally, the annual out of pocket maximum increased from a range of $750-4000 for all plans to $1500-6000, a minimum increase of 50%. The PPO benefit costs were stable for 3 years (from 2009-2012). The HDHP deductibles and annual out of pocket maximums increased by 16-20% in 2010-2011.

In 2012, health benefit costs were again changed to incorporate a per person premium cost and to further increase deductibles and annual out of pocket maximums. For a family of 4 under the PPO, the premium increased from $130 to a minimum of $273, an increase of 110%. Additionally, the deductible doubled (100% increase) and the annual out of pocket maximum increased by 20%. From 2013 through 2017, there have been additional increases in health benefit costs under the PPO, but no change to the HDHP plan costs. A primary driver of costs in 2013 included a significant increase in the monthly premium costs per person in the PPO, and an additional doubling of the deductible and further increases in the annual out of pocket maximums. For a family of 4, the monthly premium increased 58% in 2013, 3.7% in 2014, and an additional 1.8% in 2015. The deductible doubled in 2013, but has remained stable since then. The annual out of pocket maximum for the PPO increased by 36% in 2013 and has remained stable since that time.

The net impact of these Michigan Tech. benefit changes from 2008 to 2017 indicate a *minimum* increase in out of pocket increase in expenses for a family of 4 of 470% for monthly premiums ($960 to $5472 per annum), 166% ($1500 to $4000 per annum) for deductible, and 50% ($4000 to $6000 per annum) for maximum annual out of pocket expenses, depending on the plan provisions. These increases represent minimum changes to the costs, not maximum changes, in comparison of the plan provisions. The total annual expense to the employee for health benefits for a family of four, under worst circumstances, would have changed from $2960 in 2008 to $11472 in 2017, an increase of 288%.

3.1.3 Current conditions and National Trends

Available literature exploring the trends in health benefit costs in the state of Michigan and more broadly in the United States unfortunately reflect the trends experienced in the overall costs for health benefits for Michigan Tech. Michigan Tech is not unique in its experience with health benefit costs.

Often referred to as ‘employee health benefits’, the majority of private health insurance in the US is employer-sponsored health insurance. Almost all large employers (97% in 2015) offer employer sponsored health insurance to full-time employees, paying on average 85% of the cost for the employee, and about 75% of employees’ dependents. These percentages have remained about the same since 2000, however premiums for family coverage on employer-sponsored health plans have increased 182% according to a 2013 study by the Kaiser Family Foundation (**Figure 4**). As these costs have increased dramatically, employers have looked for ways to reduce their financial exposure by increasing the amount paid by employees, and providing plans that have larger deductibles, co-pays, and co-insurance. Between 2005 and 2015 the out-of-pocket costs to employees for individual coverage increased 66% from $469 to $778, with increasing deductibles accounting for 50% of the cost sharing. In 2017 the average deductible amount was $1,500 for individuals, and $3,250 for family coverage (**Figure 5**).

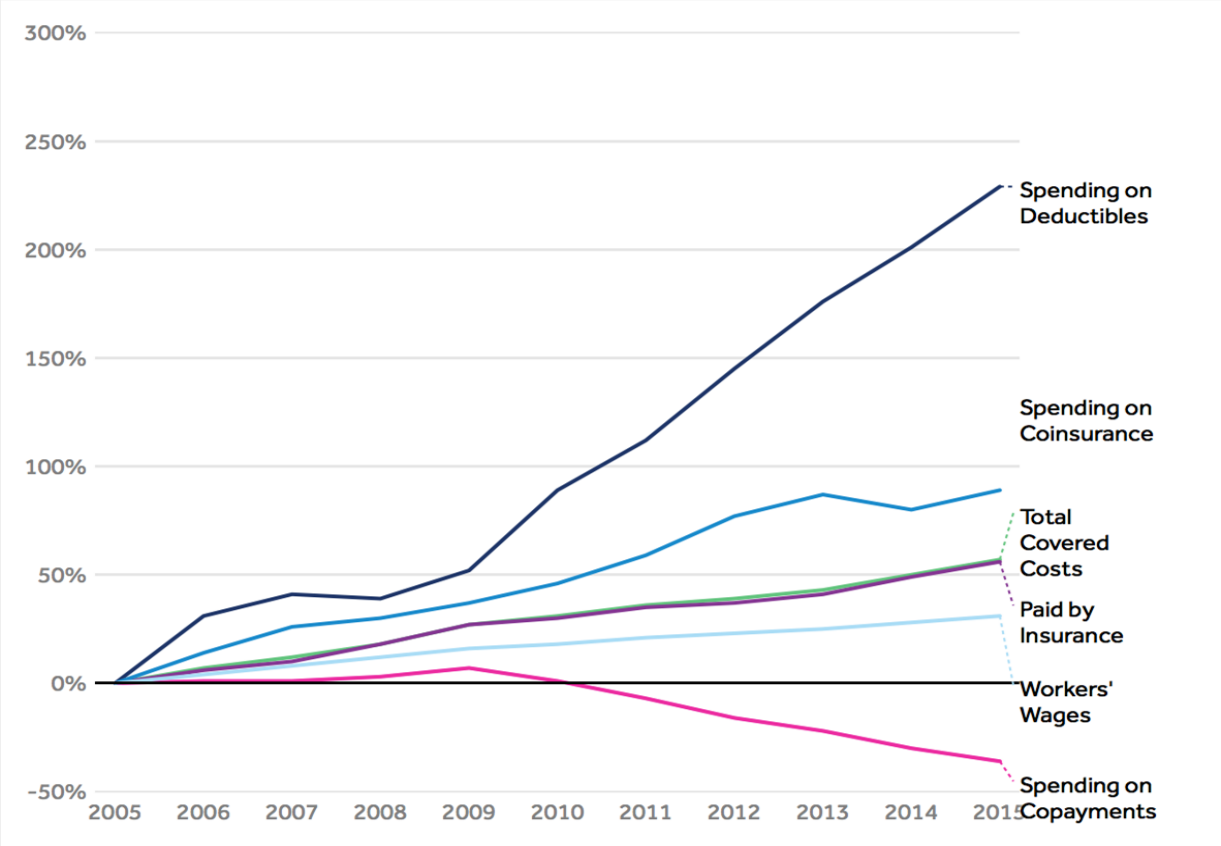
Nationally there has been a growth of High-Deductible Health Care Plans (HDHP) with accompanying Health Savings Accounts (HSAs). According to the Centers for Disease Control and Prevention 40% of individuals with private insurance were enrolled in a high deductible plan in 2016, compared to 30% in 2011. One of the rationales for these type of plans is that as individuals become more responsible for the actual costs for healthcare, they will develop more consumer behaviors related to these costs, by comparing prices or quality ratings, discussing the costs with providers, or negotiating for lower prices. According to AMA research survey published in November 2017, less than 25% of individuals talked with a provider about the cost, only 14% compared prices or quality, and only 6% attempted to negotiate the costs. Some of the obstacles to developing these consumer patterns are: lack of available information on prices, splintering of the costs among many entities (various specialty doctors bill individually, hospital bills, ambulance, and other entities), and requirements by health insurance plans to remain in network, limiting provider options.

A more recent trend in Health Insurance Benefits relates to generational differences, with ‘Millennials’ more open to picking from different levels of plan coverage, and being more engaged in the choices and options available during enrollment. This is beginning to lead to more cafeteria type plans being offered by employers, offering choices in the types of coverage that is more tailored to stages in life.

Figure 4: Total benefits costs, cost-sharing amounts, and amounts paid by insurance in large employer plans, 2005-2015 (**Source**: Kaiser Family Foundation analysis of Truven Health Analytics MarketScan Commercial Claims and Encounters Database, 2005-2015)

Year ▼	Total Benefit Costs	Paid By Insurance	Deductibles	Copayments	Coinsurance	Total Cost-Sharing
2005	$3,400	$2,932	$117	$218	$134	$469
2006	$3,623	$3,098	$153	$219	$152	$525
2007	$3,792	$3,238	$165	$220	$169	$554
2008	$4,011	$3,451	$163	$223	$175	$561
2009	$4,321	$3,725	$178	$234	$183	$595
2010	$4,440	$3,804	$222	$219	$195	$637
2011	$4,615	$3,951	$248	$203	$213	$664
2012	$4,723	$4,016	$287	$183	$237	$707
2013	$4,867	$4,125	$323	$169	$250	$742
2014	$5,101	$4,354	$353	$152	$242	$747
2015	$5,342	$4,563	$386	$139	$253	$778

Figure 5: Cumulative increases in health costs, amounts paid by insurance, amounts paid for cost sharing and workers wages, 2005-2015 (**Source**: Kaiser Family Foundation analysis of Truven Health Analytics MarketScan Commercial Claims and Encounters Database, 2005-2015; Bureau of Labor Statistics, Seasonally Adjusted Data from the Current Employment Statistics Survey, 2005-2015 (April to April).)



3.1.4 Healthcare Benefit Conclusions

Health care benefits at Michigan Tech broadly mirror the national trends affecting other institutions, with relation to continually rising health care costs and the tendency/need for employers to require employees to increasingly shoulder a percentage of these costs. However, at Michigan Tech these rising costs have disproportionately been shifted to employees. For example, a 2018 Senate study (*University Senate Financial Overview,* University Senate, Michigan Technological University, December 2018) has documented how University expenditures for medical benefit claims have decreased 5.6% (CPI adjusted) from 2008-2017, despite the rising cost of medical care and a 12% increase in non-student employees. We can also compare this with the total benefit costs paid by the University for the same period, of which health care costs represent a significant proportion. During this period University expenditures for benefit costs have actually declined by 3% (CPI adjusted), again despite the fact that benefit costs have continued to increase and the number of non-student employees at the University has grown. The numbers then for University expenditures for medical benefit claims and total benefit costs serve as proxies, suggesting that a majority of the rising costs associated with health care have been absorbed by employees.

3.2 Dental and Vision Benefits

3.2.1 Data sources and parameters

The following discussion of dental and vision benefits at Michigan Tech from 2008-2017 is based on information provided by the Michigan Tech Human Resources Office. The FBC has been provided a summary of the basic parameters for these benefits, including plan structures (e.g. Husky Dental/Vision 1, Husky Dental/Vision 2), and cost structures (i.e. cost per number of enrollees). Specifics related to actual plan coverages were not provided, and only plan coverage information for 2017-18 is currently available.

Data related to peer institutions (In-State: Ferris State, University of Michigan, Michigan State, Northern Michigan, and Wayne State; Out-of-State: Cal Poly, Carnegie Mellon, Colorado School of Mines, Georgia Tech, and the Missouri University of Science & Technology) for calendar years 2016/2017 was gathered through an online search of the human resource departments at each institution. No data for calendar year 2007 was available from these institutions.

3.2.2 Dental and Vision Benefit Trends at Michigan Tech

At Michigan Tech, dental and vision benefits have remained relatively stable over the past ten years in terms of both price and plan structure. The University has offered two dental plans and a single vision plan throughout this period. From 2008 to 2012 dental and vision plans were paired as Husky Dental/Vision 1 and Husky Dental/Vision 2 with the ability to opt in or out of coverage. Beginning in 2013, dental and vision plans have been offered as separate benefits with the ability to opt in or opt of either.

During the period under study, Plan 1 has been the premium plan, with lower co-pays compared to Plan 2. From 2008-2010 there was a tiered premium structure based on household size, i.e. 1 person, 2 persons, 3 persons, 4-6 persons, and 7+ persons. Therefore, while the overall premium increased from tier to tier, the average cost per enrollee decreased. For example, during this period for Plan 1 the premium for two enrollees was $19.00 a month, for three enrollees it was $23.00 a month, for 4-6 enrollees the premium was $26.00 per month, and the premium was $36.00 per month for seven or more persons. The tiered premium costs for both Husky Dental/Vision 1 and Husky Dental/Vision 2 remained the same throughout this three year period.

A change took place in 2011 with the removal of the provision for Family Riders (F-Riders) on the dental and vision plans. The removal of the Family Rider provision was likely in part a response to changes in terms of dependents as a result of the implementation of the Affordable Care Act (ACA) that went into effect that year. Under the ACA employers were required to offer coverage to young adults under 26 on their parent’s health plan. Removing the provision for F-Riders meant that the parents of employees were no longer eligible for coverage under their children’s health plan.

For the years 2011-2012 the tiered premium structure was replaced by fixed individual premiums nominally based on a distinction between adults and children, although the premiums for both groups were the same. Premiums for Plan 1 were $8.00 per adult or child, with Plan 2 costing $7.00 per adult or child. This shift from a household based structure to an individual based structure resulted in disproportionately higher premium increases among larger families. For example, the premium costs for a household with four enrollees in 2008-2010 was $26.00 per month.

For the period 2011-2012 the cost for a four person household comprised of two adults and two children would have been $32.00. For a family of seven the premium cost for 2008-2010 was $36.00 and for the period 2011-2012 it was $56.00. The critical change between these two periods involved movement from a structure that offered a discount for family size to one of individually fixed premiums that resulted in increased costs for larger households. The individual fixed premium model continues to the present. [In 2013 the distinction between adults and children was replaced with a fixed premium per person.]

Beginning in 2013 dental and vision premiums were no longer bundled as a single cost. This meant that enrollees could choose to opt in or out of Dental Plans 1 or 2, but could separately decide whether to opt in or out of vision coverage. Under this new structure individuals were charged $7.00 per month for coverage under Dental Plan 1 and $5.00 per month for Dental Plan 2. Vision coverage was offered at an additional cost of $2.00 per month. The premiums for dental and vision have remained fixed over the period 2013-2017. The net outcome of the changes during this period, when compared to 2011-2012, was a slight increase in cost per persons enrolling in both Dental Plan 1 and vision ($9.00 per month per person, as opposed to $8.00 per month per person), with no cost increase for individuals enrolled in Dental Plan 2 with Vision ($7.00 per month per person).

While the changes made between 2012 and 2013 were negligible, the overall benefit changes made from 2008 to 2013 were not insignificant. The greatest impact of these changes have been felt by employees insuring three or more individuals under either dental plan (**Table 2**), as well as those employees opting for Husky Dental 2 and Vision (**Table 3**).

Table 2: History of the Husky Dental 1 Plan at Michigan Tech from 2008-2010. (**Source**:*2008-2017 Dental and Vision History*, data report provided by Michigan Tech Department of Human Resources, September 11, 2017)

Persons Covered	Cost per Year 2008 – 2010	Cost per Year 2013-2017 (+Vision)	Change	Change (+Vision)
1	$108.00	$84.00 (+$24)	- 22.2%	0%
2	$228.00	$168.00 (+48)	- 26.3%	- 5.3%
3	$276.00	$252.00 (+$72)	-8.7%	+ 17.4%
4	$312.00	$336.00 (+$96)	+ 7.7%	+ 38.5%
5	$312.00	$420.00 (+$120)	+ 34.6%	+ 73.1%
6	$312.00	$504.00 (+$144)	+ 61.5%	+ 107.7%
7	$432.00	$588.00 (+$168)	+ 36.1%	+ 175%

Table 3: History of the Husky Dental 2 Plan at Michigan Tech from 2008-2010. (**Source**: *2008-2017 Dental and Vision History*, data report provided by Michigan Tech Department of Human Resources, September 11, 2017)

Cost per Year 2008-2010	Cost per Year 2013– 2017 (+ Vision)	Change	Change (+Vision)
$48.00	$60.00 (+$24)	+ 25%	+ 75%
$96.00	$120.00 (+48)	+ 25%	+ 75%
$120.00	$180.00 (+$72)	+ 50%	+ 110%
$144.00	$240.00 (+$96)	+ 66.7%	+ 133.3%
$144.00	$300.00 (+$120)	+ 108.3%	+ 191.7%
$144.00	$360.00 (+$144)	+ 150%	+ 250%
$192.00	$420.00 (+$168)	+ 118.8%	+ 206.3%

As an example of the increasing premiums associated with family size, a family of four between 2008-2010 would have paid $26.00 for Husky Dental/Vision 1 and $12.00Husky Dental/Vision 2 per month. The restructuring of these benefits in 2011 meant that in 2012 the same family would have paid $32.00 for Husky Dental 1 with vision and $28.00 Husky Dental 2 with vision per month. The subsequent change in 2013 meant that a family of four now pays $36.00 and $28.00 respectively for those same plans per month. The overall changes between 2010 and 2017 represent a 38.5% increase for those enrolling in Husky Dental/Vision 1 and then Husky Dental 1 with Vision; and 133% increase for those enrolling in Husky Dental/Vision 2 and then Husky Dental 2 with Vision. For a family of five, the premium increases between 2010 and 2017 (Husky Dental 1 with Vision, $26 to $45 per month and Husky Dental with Vision, $12 to $35 per month) represent increases of 73% and 192% respectively for the two plans (**Figures 6** and **7**).

Figure 6: Dental 1 and Vision Premium Changes, 2008-2017, by number of persons insured (**Source**:*2008-2017 Dental and Vision History*, data report provided by Michigan Tech Department of Human Resources, September 11, 2017.)

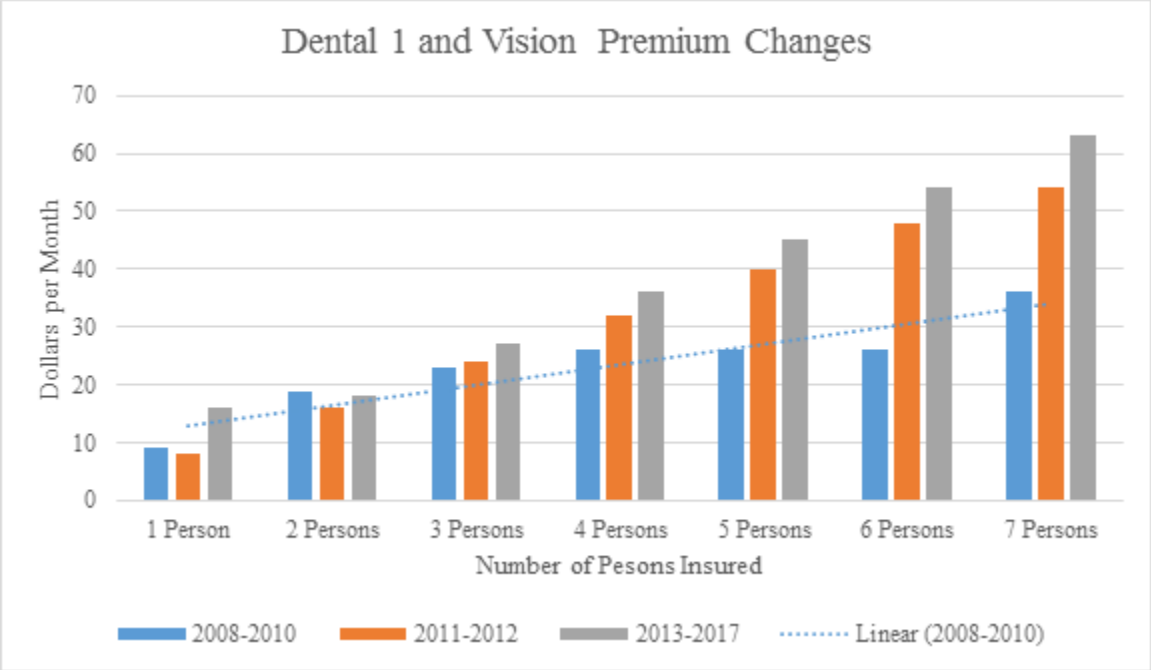
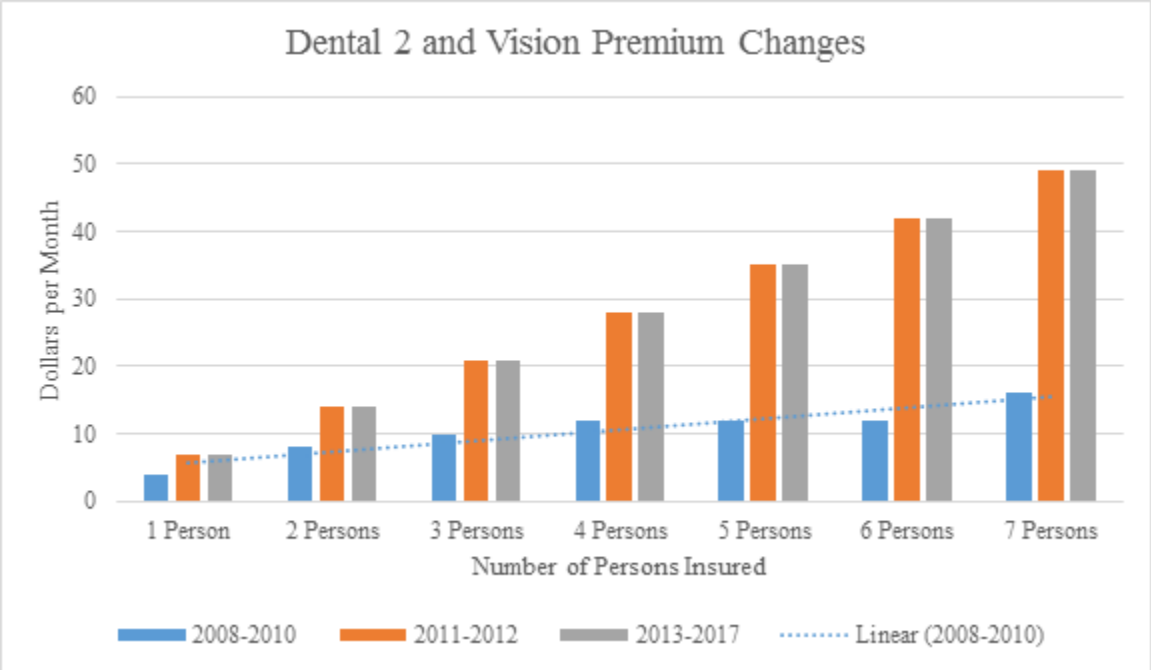


Figure 7: Dental 2 and Vision Premium Changes, 2008-2017, by number of persons insured (**Source**:*2008-2017 Dental and Vision History*, data report provided by Michigan Tech Department of Human Resources, September 11, 2017)



3.2.3 Comparison with Peer Institutions (as of 2016-2017)

Data on dental and vision benefits for 2016-2017 have been collected for the ten peer institutions referenced in this report (**Table 4**). In comparing plans among these institutions, a basic division between in-state and out-of-state institutions is apparent. With the exception of Cal Poly (which covers the premiums for both dental and vision) and the Colorado School of Mines (which covers the cost of dental coverage), employees at all other out-of-state institutions in the study pay the cost of both dental and/or vision premiums, should they choose to enroll in these benefits. The costs for these premiums are based on the number of enrollees and the particular plan, and therefore vary widely from institution to institution. By contrast, dental and vision benefits among the in-state institutions tend to be more generous, especially concerning

Table 4: Comparative Costs for Basic Dental and Vision Benefits (**Source**: Data collected from institution websites, Summer 2017)

Institution (All data are from 2016-2017 and represent the least cost coverage options)	**Dental** **Single / Family**	**Vision** **Single / Family**	**Total Cost per Month** **Single / Family**
Cal Poly	$0 / $0	$0 / $0	$0 / $0
Colorado Sch. Mines	$0 / $0	$6.36 / $17.31	$6.36 / $17.31
Carnegie Mellon	$28.92 / $92.64	$1.06 / $6.36	$29.98 / $99.00
Georgia Tech	$18.00 / $60.42	$6.38 / $18.84	$24.38 / $79.26
U. of Missouri	$14.76 / $50.58	$5.59 / $19.26	$20.35 / $69.84
Ferris State	Cost Included in Health Plan	Cost Included in Health Plan	Cost Included in Health Plan
U. of Michigan	$0 / $0	$8.38 / $22.72	$8.38 / $22.72
Michigan State	$0 / $0	$3.15 / $10.68	$3.15 / $10.68
Northern Michigan	$0 / $22.40 (2 persons = $0)	$0 / $0	$0 / $22.40 (2 persons = $0)
Wayne State (12 or 9 mo. contract)	$6.76 or $9.00 / $22.60 or $30.12	$2.32 or $3.08 / $6.42 or $8.54	$9.08 or $12.08 / $29.02 or $38.66
Michigan Tech	$5.00 / $20.00 (Family of 4)	$2.00 / $8.00 (Family of 4)	$7.00 / $28.00 (Family of 4)

dental coverage, than the out-of-state institutions surveyed. At Northern Michigan dental premiums for 1-2 persons and vision are covered by the institution (there is a premium associated with family dental coverage (>3 persons)). Both the University of Michigan and Michigan State cover premiums for basic dental for all employees and dependents, but do not cover vision premiums. Ferris State includes the cost of dental and vision within its health care plans and Wayne State charges premiums based on whether the employee is on a 9 month or 12 month contract.

A majority (6/10) of the peer institutions surveyed offer multiple plans from which employees may choose, similar to the basic and extended coverages that Michigan Tech offers with Dental 1 and Dental 2 plans.

3.2.4 Conclusions on Dental and Vision Benefits

The structure and cost of dental and vision benefits at Michigan Tech have been relatively stable over the period covered in this report. This time frame is characterized by three primary periods punctuated by changes in premium structuring and cost between the years 2010 / 2011 and from 2012 / 2013. However, as of January 2019 this situation has changed rather dramatically for employees with dependents, as the University has moved to a fixed subsidy format for benefits. Under this new system the full cost of dependent coverage for dental and vision now must be met by employees, disproportionately affecting those with larger numbers of dependents.

4. Retirement Benefits

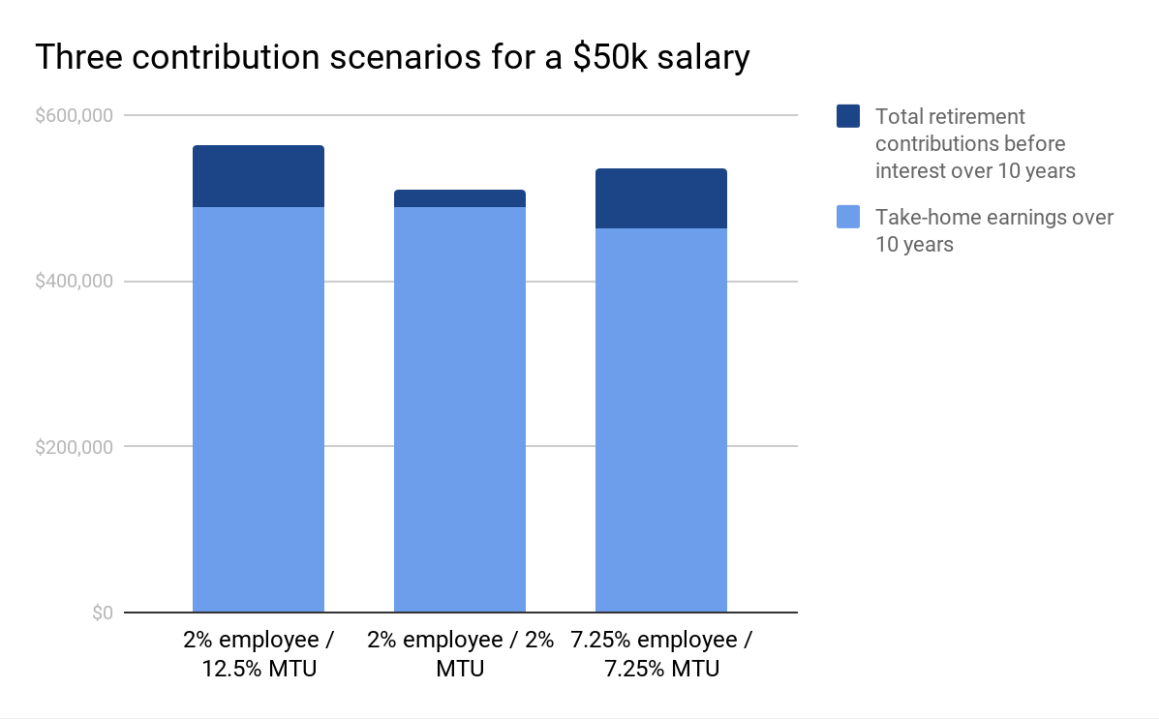
4.1 Data sources and Parameters

The Fringe Benefit Committee gathered retirement benefit data from Michigan Tech Human Resources (HR). We collected data from 2008 to 2017. The data in this section are limited to the retirement benefits offered by Michigan Tech to employees.

4.2 Retirement Benefit Trend at Michigan Tech

By 2008, the beginning time period of this report, Michigan Tech had already moved away from defined benefit plans. In 2000, Michigan Tech responded to the State of Michigan’s cancellation of MiPSRS by offering a 10.5% retirement benefit to try and cover the medical benefits that went away. This was not part of the discussion as further changes were made to the retirement benefit. This note is not shown in any of the trend data, but we wanted to include it briefly here. In 2008, the retirement benefit was as follows: 2% employee contribution with a 12.55% employer contribution. Since then, the contribution of the University has declined to a 7.5% maximum match, a 41% decrease over ten years.

Figure 8: In this column chart, the three scenarios described above result in different take-home pay and retirement accounts. (**Source**: 2018 FBC Committee)



The overall effect of the retirement account is the same if the employee aims to maintain a 14-15% contribution. However, it can be argued that the employee is less motivated to make a contribution. This can be illustrated with the following simple scenarios (**Figure 8** and **Table 5**):

Scenario 1: An employee makes $50,000 a year. With the contribution rates from 2008, that employee would contribute 2% of their salary to the retirement account, or $1,000 per year, and nd Michigan Tech would contribute 12.55% (10.55% contribution plus a 2% match), or $6,275. At the end of the year, the employee would have $7,275 in their retirement account, and $49,000 in what we'll call take-home pay to keep things simple in this illustration. Over 15 years, if we just consider the contributed dollars to the retirement account (not considering interest or market performance) the retirement account would be about $109,125 in total contributions. The employee's take home pay, again simplified to not consider pay increases or other variables, would be around $735,000. The simplified pay and retirement earnings over 15 years would be at $844,125 in this scenario.

Scenario 2: Under the 2018 contribution rates, Michigan Tech contributes a 1:1 match up to 7.5%. An employee might want to keep their retirement account growing at the same pace as before. In order to contribute a total of 14.55% like in 2008, the employee needs to contribute at least 7.275%. That amount plus the Michigan Tech match will equal the 14.55% total contribution rate the employee was used to. However, the employee needs to take more away from their take-home pay to make that happen. 7.275% of $50,000 is $3,637.50. So the

employee takes home about $2,637.50 less per year than the other model. Over 15 years, the retirement account would be similar to the amount in Scenario 1: $109,125 in total contributions. However the employee's take home pay decreased to total around $695,437.50. The simplified pay and retirement earnings over 15 years would be at $804,562.50 in this scenario ($39,562.50 less than Scenario 1).

Scenario 3: Let's say the employee chooses to keep their contribution at 2% due to day-to-day financial constraints. In the 1:1 match model, that means that Michigan Tech's contribution is also 2%. The employee's take home pay stays constant. But now the retirement account is only getting 4% total contribution instead of 12.55%. In this scenario, the retirement account would only receive $2,000 per year. Over 15 years, the retirement account would only have received $30,000 in contributions. While the employee's take home pay stayed the same, the retirement saving took a hit. The simplified pay and retirement earnings over 15 years would be at $780,000 in this scenario ($64,125 less than Scenario 1).

Table 5. A simple illustration of the effects that different employer/employee contribution rates might have on the employee's take home pay and resulting retirement account. (**Source**: 2018 FBC Committee)

	Scenario 1: 2008 rates	**Scenario 2: 2018 rates for employee who wants the same take-home pay**	**Scenario 3: 2018 rates for employee who wants to maintain contributions**
Employee's salary (flat number without increases)	$50,000	$50,000	$50,000
Employee contribution	2%	2%	7.28%
Employer contribution	12.55%	2%	7.28%
Total contribution (%)	14.55%	4%	14.55%
Total contribution ($)	$7,275.00	$2,000.00	$7,275.00
Salary minus employee contribution	$49,000	$49,000	$46,250
Take-home salary over 10 years (with no annual increases for simple illustrative purposes)	$490,000	$490,000	$462,500
Total contribution over 10 years	$72,750	$20,000	$72,750
10 yr salary + 10 yr savings	$562,750	$510,000	$535,250
Difference between scenarios.		($52,750)	($27,500)

4.3 Comparison with Peer Institutions (as of 2016)

Michigan Tech is like all the other in-state peers on our list in that the University does not offer a Defined Benefit Plan (DBP). Four out of the five out-of state schools in our list of peers offer a DBP, ranging from 1% to 8%. Every university on our peer list offers a Defined Contribution Plan (DCP), with five of the ten schools providing a base contribution. Five of the ten schools offer an employer match to an employee's contribution (**Table 6**).

Looking just at the per institution DCPs, most combine an employer contribution (base and/or match) and employee contribution to contribute close to 16% of an employee's salary. An exception to this is Missouri University of Science & Technology where there is mandatory participation in both a Defined Benefit Plan and a Defined Contribution Plan: they contribute 1% in a Defined Benefit Plan after being vested by 5 years, and contribute a 2% base contribution in a Defined Contribution Plan with a match contribution up to 3%. The DCP employer and employer contributions have the potential to total 8% of an employers salary, but they also have the mandatory DBP to provide additional retirement benefits.

Michigan Tech's 1:1 match contribution is simple and straightforward compared to peer institutions, but puts the onus on the employee to generate contributions. If maximized, the total contributions are inline with eight of the ten peer institutions. We are the only university in the list of peer institutions with a 1:1 match without a base contribution or DBP. It is more expensive to Michigan Tech employees to have the same amount of retirement savings than employees at the peer institutions.

Table 6: A Comparison of retirement benefits among peer institutions.

Institution *All measures are from 2016*	**Defined Benefit Plan**	**Years until vested**	**Emp. Cont.**	**Defined Cont. Plan**	**Mand-atory Part.**	**Univ. Base Cont.**	**Emp. %**	**Match-ing %**	**Notes**
Ferris State University	No				No	12.0%			Employee may contribute if they wish up to IRA limits
Michigan State University	No				Yes	0.0%	5.0%	10.0%	Becomes mandatory after certain age and length of employment
Northern Michigan University	No				No	6.5%	5.0%	5.0%	Varies depending on Union, Admin, or staff

University of Michigan	No				No	0.0%	5.0%	10.0%	Univ contributions begin after 1 year employment
Wayne State University	No	2			No	0.0%	5.0%	10.0%	Univ contributions vested after 2 years employment
Cal Poly	Yes	5	5%		Yes				
Carnegie Mellon University	No				No	8.0%		0.0%	Univ. automatically puts base amount into employee account. Employee may contribute more as desired.
Colorado School of Mines	Yes	5	8%	Yes	Yes	0.0%		0.0%	For non-classified staff, no employee contribution required for Defined Benefit. Defined Contribution Plan additional voluntary.
Georgia Tech	Yes	10	6%	Yes	Yes	11.5%	6.0%	0.0%	Mandatory to participate in one plan or the other. Vested in Defined Contribution from Day 1

Missouri University of S&T	Yes	5	1%	Yes	Yes	2.0%	3.0%	3.0%	All employees auto-enrolled in defined contribution plan. Mandatory participation in defined benefit plan. Vested in Univ contribution to defined contribution plan after 3 years.
Michigan Tech	No				No	0.0%	7.5%	7.5%	

4.4 Current Conditions and National Trends

Nationwide, the past 20 years retirement benefits offered by employers has shown substantial change from Defined Benefit Plans to Defined Contribution (DC) Plans. This is a major shift from the employer being responsible for retirement income, to the employee being fully responsible for saving enough to retire.

In a Defined Benefit Plan (often called a Pension), the employer is responsible for funding and managing the plan. Upon retirement at a defined age the employee receives a set amount of retirement income for the remainder of his/her life. This amount was usually based on number of years of service, amount of wages/salary earned, and age of retirement. In the past health insurance was also included as part of the plan for some pensions. The employer typically funded the entire plan, although in the past 20 years there has been an increase in required employee contributions as well. The employer is fully responsible for investing and managing the funds, and employee receives a guaranteed income in addition to any savings or Social Security.

A Defined Contribution Plan (DC) means the employer sets up an account for each employee that wishes to participate, and employees can contribute a portion of their pre-tax income into these savings accounts. Often employers contribute a matching percentage, with about 98% of employers that offer a DC plan offering some type of match. The majority of 401k funds are invested in stocks (66% in 2015), and about 27% invested in stable-value investments. The employee in this situation is fully responsible for retirement funding and planning, and the risk in selecting investing options.

Starting in the 1980’s, then accelerating in the 1990’s and through the 2000’s up to today, there has been a dramatic shift away from Defined Benefit Plans, changing to participation in DC

(401k or 403b). Due to regulatory changes related to how Defined Benefit Plans were managed (due primarily to underfunding concerns) in the 1980s and 1990s, these plans became very expensive and financially burdensome to employers. In 1990 43% of private sector employees were provided a pension plan by their employer, by 2005 that had changed to 22%. In the Public Sector this change has been much less dramatic so far, however there is growing concern regarding the underfunding of many of these plans and political pressure to freeze or end these plans. The State of Michigan actually closed the State Pension Plan in 1997, with all new State employees (including public university employees) hired after that date enrolled in a DCP.

As noted above nearly all employers that offer a DCP to their employees offer some amount of matching or contributing funding. The amount varies, however, with 19% of employers offering dollar for dollar matches up to 6% of the employees' wages as of a 2013 study by Aon Hewitt. 59% of DCPs have automatic enrollment with opt out features, and 59% of employers are offering one-on-one financial counseling as well.

Despite these tools to assist employees in saving for retirement, current estimates are that up to 50% of US employees over the age of 59 have insufficient or no savings for retirement. Current trends are for Americans to retire later and attempting to continue working longer as a result.

4.5 Conclusions on Retirement Benefits

Michigan Tech employees have to contribute more of their earnings to have a similar retirement account value when compared to employee retirement benefits at peer institutions. In fact, University contributions to employee retirement funds (MiPSERS and TIAA-CREF/Fidelity) declined approximately 10% over the period of 2009-2017 (*University Senate Financial Overview*, University Senate, Michigan Technological University, December 2018). Michigan Tech is responding in part to national trends, but changes to the retirement benefits contributions have made us less competitive when compared to peer institutions.

5. Other Benefits Provided

5.1 Data sources and Parameters

Information for this Section came primarily from information provided by Michigan Tech Human Resources Department, and websites from peer institutions researched in 2015 and 2017.

5.2 Additional Benefits Trends

Additional Benefits include Tuition waiver for dependents, Maternity/Paternity Leave, Paid time off (vacation, sick time, and other), wellness programs, additional insurance options, Mental Health benefits, and other various benefits not included in the Major Benefit Categories.

Overall Other Benefits at Michigan Tech have increased over the past 10 years in options

available to employees; some provided by Michigan Tech, and some available to employees to purchase (**Table 7**). Specific examples of changes in this time frame include paid Maternity/Parental leave, which was not provided to Michigan Tech employees in 2008. In 2010 paid Maternity was provided to eligible employees, and in 2017 the benefit was changed to paid Parental leave. Another example is Mental Health, or Employee Assistance Program (EAP) at Michigan Tech. This was a new benefit provided to employees in 2013 paid for by the University. One Benefit that has been eliminated over this time frame is the Sick Leave Pool; this allowed employees to donate unused sick time to other employees who were experiencing a major medical situation. In 2010 this program was eliminated, primarily due to legislative changes that made this benefit taxable.

Table 7: A history of other benefits offered at Michigan Tech.

Benefit	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Life Insurance - employee	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**
Life Insurance - dependant	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**
Accidental Death & Dismemberment	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**
Long-term Disability	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**
Sick Leave Pool	**Y**	**Y**	**Y**	**Y**	no	no	no	no	no	no
Short-term Disability	no	no	no	no	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**
Flexible Spending Account - healthcare	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**
Flexible Spending Account - dependent	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**
Maternity Leave	no	no	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	n/a
Parental Leave	no	no	no	no	no	no	no	no	no	**Y**
TechFit	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**
Employee Assistance Program (EAP)	no	no	no	no	no	**Y**	**Y**	**Y**	**Y**	**Y**
Vacation	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**
Sick leave pool	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**

Employee Education Program (EEP)	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**
Tuition Reduction Incentive Program (TRIP)	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**

Trends at peer institutions for additional benefits are difficult to obtain. Institution websites only provide current plan information, and phone calls to various Human Resource departments were not fruitful in terms of obtaining historical data. Reviewing current Additional Benefits at our peer institutions, both in-state and out-of-state, indicates that many of the same benefits are provided at those intuitions, although at differing levels (**Table 8**).

Table 8: A comparison of leave benefits at peer institutions.

Institution *All measures to the right are from 2016*	**Paternity/Maternity Leave**	**Notes and link (if available)**
Ferris State University	None, must take leave of absence	Jury duty leave is unpaid, 4 paid days for funeral (death in immediate family), 90 days military duty pay (if drafted), 1 paid personal day for any reason
Michigan State University	Up to 6 months full pay, 12 weeks unpaid FMLA	Paid jury duty, study leave for professional improvement: (Two weeks; Three weeks; Four weeks (full pay) Three months (full pay) Six Months (full pay) Twelve months (one-half pay)) 2-4 weeks after 1-2 years of service, 3 months after 3-5 years of service, and 6-12 months after 6 years of service
Northern Michigan University	12 weeks FMLA leave unpaid	1 paid personal day, paid jury duty time, 1-5 paid funeral days (more for immediate family, less for misc people), 40 hours paid dependent care leave+40 hours at 75% pay

University of Michigan	Uses extended sick time policy: (Regular staff members with two or more years of continuous service are eligible for extended sick time pay for up to six months at full pay plus six months at half pay in each five-year period.)	24 hours for funeral time, no loss of pay if called for jury duty - https://hr.umich.edu/working-u-m/my-employment/staff-handbook/absence-work
Wayne State University	8 weeks paid for mother, 12 weeks may be used if FLMA eligible	All vacation time must be used prior to taking a leave of absence. - http://policies.wayne.edu/non-rep/2-2-illness-days.php
Cal Poly	30 days, then must use leave, unpaid	http://www.calstate.edu/hr/benefits/
Carnegie Mellon University	None, must use leave, 12 weeks unpaid	http://www.cmu.edu/policies/human-resources/paid-time-off.html
Colorado School of Mines	Up to 6 weeks, paid	http://family.mines.edu/Employee_Benefits
Georgia Tech	Only short term disability, 4-6 weeks at 60% pay	12 sick for dependants, 4 extra floating days - http://policies.gatech.edu/vacation
Missouri University of S&T	None, must take leave, 12 weeks paid	https://www.umsystem.edu/ums/rules/hrm/hr400
Michigan Tech	Up to 6 weeks or one semester paid (or shared).	2 personal days for non-union, professional development leave up to one year, 3 days paid bereavement leave, paid difference up to 20 days for jury or military service duty.

Among all peer institutions, employees must be full-time to be eligible for vacation time and sick days (**Table 9**).

Table 9: A comparison of vacation time and sick days benefits at peer institutions.

Institution	Length of Employment and Annual Accrual of Vacation Days	Sick Days Earned per Year	Paid Holidays Off	Max. carryover	Notes
Northern Michigan	1-5yrs=15 days, 6-10yrs=20 days, 11+yrs=25 days	30 days	6 plus 6 floating	150% of annual accrual	Part-time staff earn, but pro-rated - https://www.nmu.edu/hr/benefit-summaries
Wayne State	Initial=12 days, 4yrs=15 days, 10yrs=20 days, 15+yrs=23	20 days	12	23 Vacation days, 187.5 sick days	Part-time staff earn, but pro-rated - http://policies.wayne.edu/non-rep/2-2-illness-days.php
Ferris State	20 days	13 days	10	300 sick days, 20 days vacation	Part-time staff earn, but pro-rated - https://ferris.edu/HTMLS/administration/adminandfinance/human/Forms/HRPPs/homepage.htm
University Michigan	<5yrs = 4 days , 5-8yrs =6 days, 8+yrs=8 days	15 days	12, 3 floating	Days stop accruing when employee reaches time equivalent to 24 times the monthly accrual rate	https://hr.umich.edu/working-u-m/my-employment/staff-handbook/absence-work
Cal Poly	24 days	12 days	13, one 'floating'	unlimited sick days, vacation 1 - 10 years = 40 days, 10+ years = 55 Days	http://www.calstate.edu/hr/benefits/
Carnegie Mellon	3 yrs = 17 days, 4-8 yrs = 20 days, 8-16 yrs = 25days, 16+ yrs = 30 days		10, plus 3 'floating'	40 days	Paid Time Off days, not separate sick and vacation - http://www.cmu.edu/policies/human-resources/paid-time-off.html
Colorado School of Mines	5 yrs = 12 days, 6 - 10 yrs = 15 days, 11-15 yrs = 18 days, 16+ yrs = 21 days	5 days	12	5 yrs = 24 days, 6 - 10 yrs = 30 days, 11-15 yrs = 36 days, 16+ yrs = 42 days	Part-time staff earn, but pro-rated - http://family.mines.edu/Employee_Benefits

Georgia Tech	5 yrs = 15 days, 6 - 10 yrs = 18 days, 10+ yrs = 21 days	12 days	12	45 days vacation, no limit on sick days	http://policies.gatech.edu/vacation
Missouri University of S&T	5 yrs = 12 days, 5-15 yrs = 17 days, 15+ yrs = 22 days	12	8	No accrual limits noted	https://www.umsystem.edu/ums/rules/hrm/hr400
Michigan Tech	5 yrs = 15 days, 6 - 10 yrs = 20 days, 10+ yrs = 24 days	13 days	9	60 days sick, 32 days vacation	Part-time staff earn, but pro-rated

National trends regarding Additional Benefits over the past few years indicate employers offering more and varied options, including mental health benefits, increased wellness options, additional voluntary insurance options, student loan repayment options, and increased work flexibility (hours, locations). These increased options are being utilized to increase employee satisfaction, retain important employees, and respond to different generational concerns. At the same time alternate means of providing these options in order to control increased benefit costs are being considered. These include more digital or online services, increased assistance to employees in benefit decision making, wellness incentives such as prizes and tickets versus actual cash payments, and more options for employees to directly purchase.

5.3 Conclusions on Additional Benefits

Additional Benefits at Michigan Tech seem to be following the national trends, and have overall increased in options and benefits over the past decade. In addition, these Additional Benefits are similar to what our peer institutions are offering their employees. While Michigan Technological University is not leading in terms of most Additional Benefits, it does offer a time-off policy that is at the higher end of spectrum, and it does offer a Parental Leave policy that is in the forefront of its peers. In other areas, such as the Tuition Reimbursement Incentive Policy, it is comparable to many other State Universities, but is less than many other peers. Overall, these Additional Benefits might not sway Faculty and Staff to leave for other institutions, however neither will they be a cause to remain.

6. Conclusion

This report documents how employee benefits at Michigan Technological University over the period from 2008-2017 have declined, how employee costs for benefits have increased, and how wages have not kept up with these increased costs. The decline of benefits and the lack of wage growth is not unique to this University, however, if our goal is to attract and retain top faculty and staff, the overall Total Compensation package at Michigan Technological University is not competitive with many of our peer institutions.

The primary drivers behind the trend in declining benefits and increasing employee costs are rising health insurance costs, the increasing cost of medical care and prescriptions, and

declining retirement benefits. Over the past 40 years the cost of healthcare has increased at a rate much faster than inflation. This is a trend that has impacted employees across the nation. However, data covering the ten-year period of this study suggest that at Michigan Tech, employees have absorbed the brunt of these changes. University costs related to medical benefit expenditures and total employee benefit costs to the University have declined over this period when adjusting for inflation (**Table 10** and **Table 11**), this despite the fact that the number of non-student employees has risen 12% over the same period (University Senate Financial Overview, University Senate, Michigan Technological University, December 2018). This suggests that faculty and staff have absorbed the majority of these rising costs.

Table 10. Medical benefit claims paid by Michigan Tech (fiscal year based on audited financial statements, net of employee premiums). (**Source**: *University Senate Financial Overview*, University Senate, Michigan Technological University, December 2018).

Fiscal Year	Actual Expenditure	Expenditure in 2008 Dollars
2008	$13,875,743	$13,875,743
2009	$13,980,633	$14,339,530
2010	$14,310,670	$14,302,470
2011	$14,748,919	$14,503,570
2012	$15,735,827	$15,034,420
2013	$14,377,991	$13,521,240
2014	$12,498,807	$11,571,370
2015	$14,475,538	$13,413,780
2016	$13,333,124	$12,188,150
2017	$14,691,242	$13,101,000

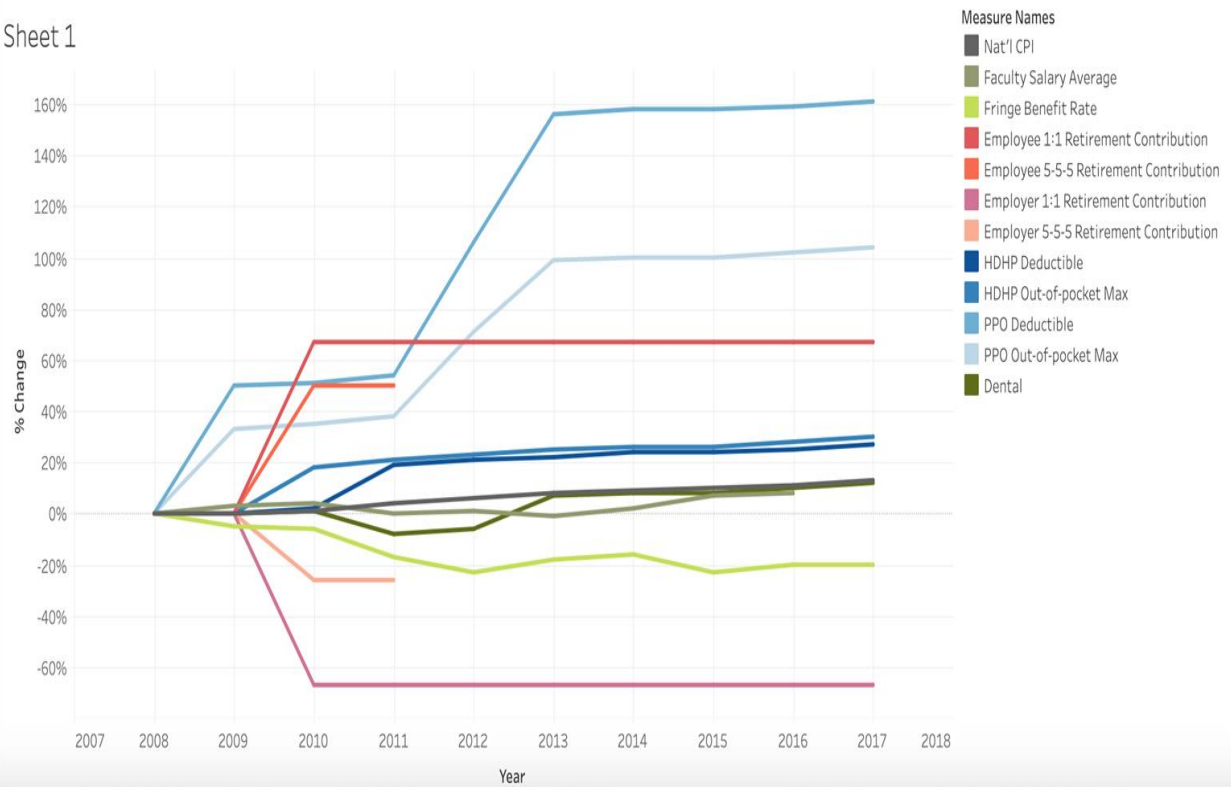
Table 11. Total employee benefit costs to Michigan Tech. (**Source**: *University Senate Financial Overview*, University Senate, Michigan Technological University, December 2018).

Fiscal Year	Payments for Benefits	Expenditure in 2008 Dollars
2008	$35,802,819	$35,802,819
2009	$3 5,859,251	$35,848,551
2010	$34,709,950	$33,811,795
2011	$35,124,359	$33,666,101
2012	$37,803,478	$35,204,191
2013	$34,740,933	$31,844,345
2014	$34,132,400	$30,800,231
2015	$36,256,688	$32,746,395
2016	$36,428,782	$32,456,176
2017	$38,852,584	$31,771,361

At the same time, the cost for retirement benefits has also shifted increasingly onto the individual employee. Similar to healthcare expenses, this is a general nationwide trend over the last several decades. Originally, the University provided a defined benefit retirement plan through the State, which was discontinued for new employees when the State eliminated the plan in the mid-1990's. This report documents how University support for the current defined contribution retirement plan has decreased substantially over the past decade (41%), to the point where many peer institutions provide more competitive retirement plans. Furthermore, this trend is exacerbated by stagnant wage growth and an uneven approach to raises and bonuses that further impact contributions and ultimately account balances come retirement time.

In terms of salary, the University has made some improvements for faculty over the past decade in being, on average, more in line with our peer institutions (i.e. compared to Carnegie R2 institutions) across ranks. Much of this improvement was in fact the result of a one time raise

Figure 9: This graph shows the % change of benefits from 2008 to 2017. For example, the Employee Contribution to the 1:1 match Retirement Benefit increased 60% in 2010 and has not increased since. (**Source**: The FBC generated this data and Jessica Brassard adjusted the data with 2017 CPI data, calculated the % changed, and created a Tableau visualization linked here. The Tableau visualization includes information when hovering over the points on each line and the ability to hide and show lines to better show information: https://public.tableau.com/views/MichiganTechBeneiftChangeOverTime/Sheet1?:embed=y&:display_count=yes&publish=yes)



associated with retirement benefit changes that employees could opt for circa 2008. However, for many staff and some faculty, salaries have remained stagnant and are less than competitive. For example, there are a number of departments represented by double-digit deficits acrossmultiple ranks when compared to average salaries within academic units at our our peer institutions (University Salary Report, Senate Financial and Institutional Planning Committee, September 2015). As documented in this report, the argument that the low cost of living in the Keweenaw compensates for lower salaries is a fallacy, and is not reflective of the actual circumstances in our area. Additionally, in terms of real income, the wage increases that have occurred have not kept up with inflation, let alone the trend of increasing cost of benefits shifted to employees (see **Figure 9**).

It is a fact that as costs rise, a portion of those costs will necessarily be borne by staff and faculty. The question, of course, is how much? As the figures in this report indicate, over the last decade the majority of these increases have shifted to staff and faculty. For instance, the

disproportionate nature of this trend is exemplified by data comparing the average total expenditure for compensation and benefits per instructor at Michigan Tech, with the overall increase in unrestricted current fund expenditures for the University between 2006-2017. During this period, total compensation and benefits per instructor decreased by 10% when adjusted for inflation (CPI adjusted). At the same time, unrestricted current fund expenditures at the University increased by 50% (CPI adjusted) (University Senate Financial Overview, University Senate, Michigan Technological University, December 2018). In part, this reflects the fact that costs to the University have risen across the board, and as a result, expenditures have grown accordingly. However, it is clear that the University has also consistently prioritized spending in areas other than employee wages and benefits. In the long run, prioritizing other initiatives at the expense of supporting faculty and staff is self-defeating. Not only does it harm morale and productivity among employees, but it also impacts retention and recruitment of quality faculty and staff; all factors which lessen the competitiveness and resiliency of the institution, and ultimately, the standing of the University. Going forward, we must ask, are there ways for the institution to lessen the impact of rising costs by not placing the entire burden on employees?

If Michigan Technological University wants to attract talented faculty and staff, and then retain that talent, the Total Compensation Package should be strategically evaluated and upgraded where possible. The market for top talent in higher education, among our peer institutions, in our region, and nationally, is very competitive, and our geographic location creates particular challenges to recruitment and retention. In order to meet the goals of our University Strategic Plan, talented faculty and staff are critical, and the current total compensation package is less competitive when compared to not only our peer institutions, but with our aspirational institutions. Nearly half (46.5%) of respondents to the 2016 FBC Employee Compensation and Benefits Survey said that they had or were actively considering leaving the University due to dissatisfaction with salary and/or benefits. This number of course does not include those who have already left. This statistic alone, indicates that these are issues of serious concern to the University.

Therefore, the University Administration and Board of Trustees, in consultation with the University Senate, should work together to strategically remedy these issues. This includes thinking critically about the rising cost of healthcare and having a medium- to long-term plan for dealing with these costs that is not based solely on reducing benefits and University benefit contributions to counter rising costs. The University should also introduce more transparency, better communication, and more shared governance concerning planning for salary/wages and benefits. For example, as it currently stands, there is a great deal of apprehension and anxiety for employees in the Fall of every year associated with the start of Open Enrollment. There are clear market trends associated with benefits like health care costs, and there is no reason that conversations concerning any upcoming changes and proactive, strategic planning cannot be discussed and implemented throughout the year. Long-term, strategic planning that includes input from across the University would begin to address the confusion, distrust, and hardships currently experienced by many on this campus with relation to these issues.

Ultimately, compensation should be viewed holistically, with an aim to minimize the overall impact of rising costs where possible, while maximizing other benefits that promote employee recruitment and retention as much as possible. For example, the importance of retirement programs, health and wellness benefits, family leave, childcare, and tuition reimbursement programs should be recognized as ways of creating more attractive compensation packages, while at the same time strengthening the University community. Within recent history, the University Administration has seemingly tended to view compensation and benefits from a strictly instrumental perspective. Dollars and cents, and the bottom line, do matter. However, the intrinsic value of such benefits in terms of recruitment, increasing employee satisfaction, performance, and retention rates should not be underestimated. If Michigan Tech is to be competitive in the increasingly challenging environment of higher education, a high quality, productive, and dedicated staff and faculty will be critical; which suggests that in addition to addressing concerns related to core benefits and salary/wages, a broader, more inclusive perspective on Total Compensation will be important going forward. Addressing issues related to recruitment, retention, and employee satisfaction in a holistic, strategic, and creative manner, is critical if we are to meet the challenges of the future as a University.