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Date: June 1, 2023

Subject: Resolution of Reciprocity Payment Dispute

By terms of an agreement dated May 3, 2023, with the Minnesota Office of Higher Education (MN OHE) and University of Wisconsin System Administration (UWSA), NCHEMS has been asked to mediate a dispute regarding the FY 2022 reciprocity payment. This memo has been prepared in fulfillment of the terms of that agreement.

The assigned task was confined to a review of the limited set of data provided to NCHEMS and to reach a conclusion based on that review. The key findings of our review are as follows:

1. The policy agreements that provide the mechanisms by which Minnesota students can attend postsecondary institutions in Wisconsin and vice-versa at tuition rates substantially below the published rates for out-of-state students have been in place for many years. The current Reciprocity Agreement has been in place since 2007. The implementation of the agreement is governed by an annual Administrative Memorandum of Agreement (MOA). The most recent such MOA went into effect in September 2021.
2. The agreements have been implemented without dispute each year until the 2020-21 academic year. In that year the changes from the prior year were particularly large, as seen in the following table (Figure 1). The one-year change in the balance of what Wisconsin owed Minnesota was \$7,736,876 while the change in what Minnesota owed Wisconsin was \$5,038,989. Throughout this memo
 - a. MN = MN residents attending in WI
 - b. WI = WI residents attending in MN

It should be noted that labeling conventions for reciprocity programs such as this one must be carefully designed and consistently applied. Our review required us to repeatedly return to the source data to understand what directions students and money were flowing. This created unnecessary confusion in our analyses. It is

also clear that it was a source of confusion to those who provided us with information since conventions described in the summary charts were not with data found in the detailed worksheets.

Figure 1. Recent History of Payments and Related Calculations

	2020-21	2019-20	2018-19
Three-Year History of Total Participants			
MN	28,428	28,811	29,703
WI	16,746	17,627	17,716
Three-Year History of Credits			
MN	351,606.50	358,084.50	368,353.52
WI	223,807.48	237,589.30	238,777.70
Three-Year History of Tuition Paid			
MN	\$111,781,923	\$112,326,814	\$112,271,702
WI	\$88,257,814	\$91,296,030	\$88,658,055
Three-Year History of Cost Differential Amounts			
MN	110,052,309	\$102,860,324	\$99,145,088
WI	90,987,834	\$88,987,060	\$81,039,850

3. The calculations reflected in this Figure are calculated as follows:

- a. Minnesota's Obligation to Wisconsin =
 - i. Number of SCH Consumed by MN residents in WI
 - ii. X Variable Costs per Credit Hour
 - iii. = Gross Minnesota Reimbursement Obligation
 - iv. – MN Reciprocity Tuition
 - v. = Net Minnesota Reimbursement Obligation

The determination of Wisconsin's obligation to Minnesota is calculated in the same way. Next the Minnesota obligation is subtracted from the Minnesota obligation, and the difference yields the balance payment to be paid by Wisconsin to Minnesota if positive, and vice versa if negative.

4. In this calculation, the number of SCH consumed and the reciprocity tuition levels are determined in ways that are time-tested and not controversial. It is the determination of the Variable Costs per Credit Hour—the cost differential—that is at the core of the controversy.
5. For many years, this factor was calculated using a program maintained on a mainframe computer at UWSA. In 2019 that computer was declared obsolete and scrapped. It was deemed too expensive to recreate this program using newer technology; the alternative was to approximate the old algorithms using Excel.

The current approach does not exactly replicate the older approach that was used for decades without controversy. Every attempt was made to incorporate the factors that have been used historically, but the attempt at replicating the old program is admittedly imprecise. There is some substance to the argument that the methodology has been changed—out of technical necessity rather than any form of intentionality. The difficult task is to separate the amount of the recent swings in the cost differential that is attributable to changing methodology versus the amount that is caused by changes in underlying cost factors. All of this is made more difficult by the reality that the precise and highly detailed calculations previously done on the old equipment are no longer available.

6. The following chart (Figure 2) shows the changes in cost differentials at each type of institution and calls attention to the substantial increases at the research universities. (Note: Cost differentials for research universities are based on **BUDGETED** costs at UW-Madison). Figure 3 indicates that the funds budgeted for instructional functions at UW-Madison have increased dramatically over the past two years—a 15.1% increase from 2019 to 2020 and an additional 12.8% increase from 2020 to 2021. Together, total budgeted costs at Madison increased over that two-year period by \$416.6M. The SCH enrolled by reciprocity students in the research universities are up slightly at Madison and essentially stable at Minnesota-Twin Cities. These data indicate that the changes in the balance of payments are based in changes in underlying costs not the result of a change in calculation methodology. Having said that, it is also true that it is impossible to determine whether the size of the increase would have been the same using the old methodology or different in some material way.
7. The instruction-related budgets for UW-Milwaukee and the UW-Comprehensives have changed very little since 2019, with Milwaukee decreasing slightly and the Comprehensives increasing a relatively small amount. These changes are not sufficiently large to affect the final results of the calculations in a material way.

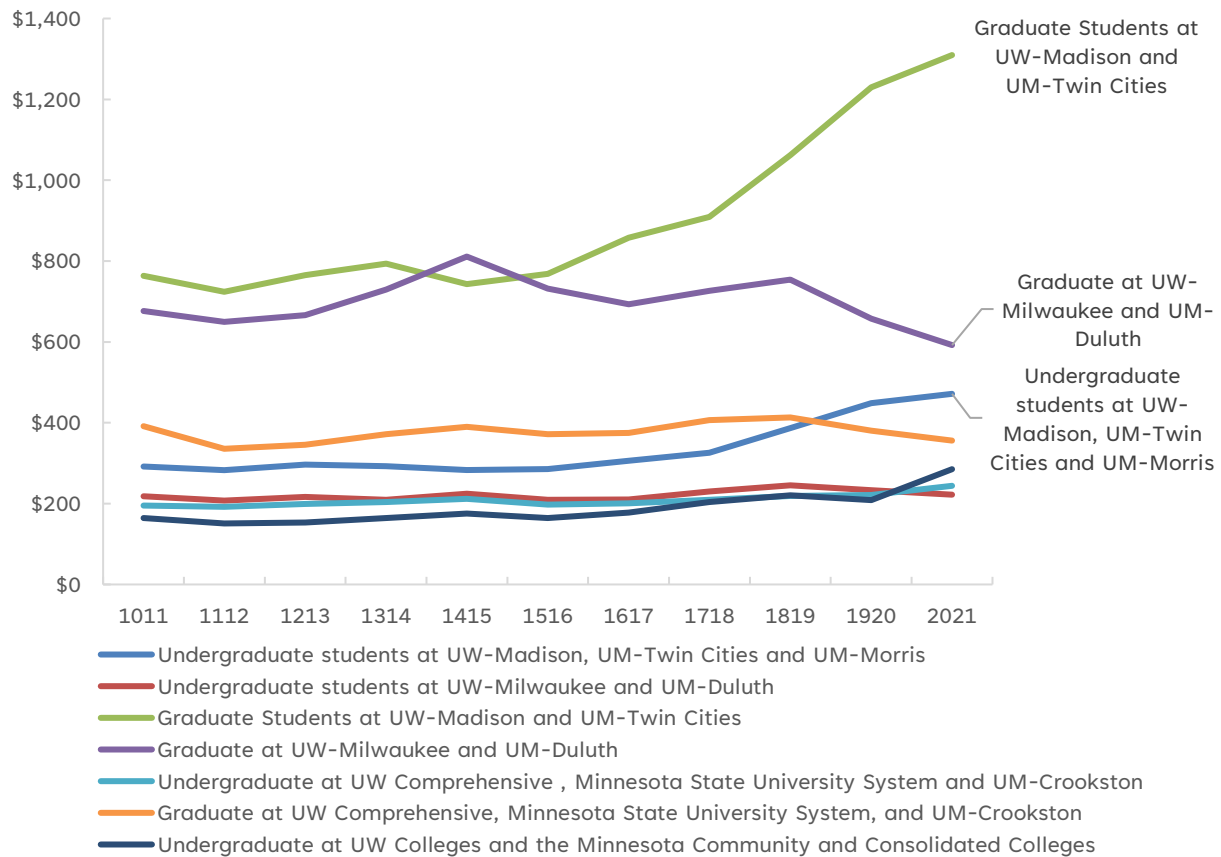
Figure 2. The Bases for Cost Differential Calculations Using New Methodology

University of Wisconsin System Determination of Budget v. Adjusted Budget for Reciprocity Cost Differentials. The Budget number is the total institutional budget amount and the Dollars Removed are those that are not related to instructional costs on which the cost differentials are based. The Adjusted Budget numbers are those on which the cost differential calculations are based.

	2019	2020	2021
UW-Madison			
Budget	\$3,190,326,639	\$3,417,538,505	\$3,606,812,341
Dollars Removed	(\$2,336,585,550)	(\$2,435,038,588)	(\$2,498,068,889)
Adjusted Budget	\$853,741,089	\$982,499,917	\$1,108,743,452
UW-Milwaukee			
Budget	\$694,165,710	\$708,019,891	\$672,288,554
Dollars Removed	(\$449,092,719)	(\$458,147,861)	(\$444,952,095)
Adjusted Budget	\$245,072,991	\$249,872,030	\$227,336,459
UW Comprehensives			
Budget	\$1,996,626,925	\$2,021,399,028	\$2,035,003,564
Dollars Removed	(\$1,212,218,780)	(\$1,233,530,459)	(\$1,234,994,038)
Adjusted Budget	\$784,408,145	\$787,868,569	\$800,009,526
UW Colleges			
Budget	\$119,113,598	\$43,709,784	\$57,925,014
Dollars Removed	(\$48,287,373)		
Adjusted Budget	\$70,826,225	\$57,258,217	\$64,489,471

The history of the Cost Differential Amounts by type of institution is shown in Figure 3 below. This depiction puts the rapid increase since 2017-18 in cost differentials for graduate students at the research universities in sharp relief. During that period, cost differentials skyrocketed by 45%, a rate of increase far beyond any reasonable benchmark (e.g., inflation) that might explain this change.

Figure 3. History of Cost Differentials by Type of Institution and Level of Instruction



8. The calculations for UW Colleges/MN two-year institutions are complicated by two factors:
 - a. The consolidation of the UW-Colleges into the Comprehensives with the resulting loss of capacity to separate their budgets in some instances.
 - b. The infusion of additional funding from the System Office to help stabilize the budgets of institutions that were losing enrollments.
9. Also, enrollments of WI residents attending Minnesota's comprehensive universities fell dramatically, so even though the cost differential calculation in that sector did not change substantially, the balance of payments shifted as a consequence of this enrollment shift, which was not matched by a commensurate decline in the number of MN residents attending WI institutions. For example, SCHs consumed by undergraduates at Lake Superior, MN-Mankato, St. Cloud State, UM-Duluth, and Winona State dropped by 10,916, compared to a decline of just 6,916 SCHs at Stout, River Falls, and Superior.
10. The pandemic likely affected the willingness of students to participate in the reciprocity agreement in ways that were unpredictable and which may not be sustained as we emerge from it.

Summary of Findings

The following are a series of observations that describe the calculations at the core of the reciprocity policy.

- Each state's annual balance is a function of credit hour enrollment times the per SCH cost differential less tuition paid for each type of institution, with differentiation for graduate for undergraduate enrollments.
- Tuition paid amounts are a function of enrollment times the higher of the two states' resident tuition prices in each sector—generally Minnesota's.
- Cost differentials are calculated for each sector by the University of Wisconsin System Administration using Wisconsin's budgetary figures.
- Changes in enrollment will impact both the tuition paid amounts and the cost differential amounts within each sector. The cumulative magnitude of their impact on each state's balance will be based on which sector experiences changes in enrollment and on how resident tuition prices in Minnesota change relative to Wisconsin's calculation of the cost differentials.
- The changes in enrollments coupled with Minnesota's price changes have resulted in general stability in the tuition paid amounts for both states over time.
- Per SCH cost differentials have risen substantially since 2017-18, rapidly narrowing the gap between calculated total cost differentials and tuition paid amounts in both states.

With these observations in mind, we find that the cost differential calculations for 2020-21 have been roughly in keeping with a several years-long trend that is seeing those reduced across the board. However, the calculations for 2020-21 show that these recent trends have accelerated relative to prior years, resulting in a somewhat larger change in the balance of payments from Wisconsin to Minnesota. This is primarily due to two underlying changes:

1. Fewer Wisconsin residents attended Minnesota's comprehensive institutions.
2. The cost differentials calculated by Wisconsin for the research universities have been rapidly increasing, especially for graduate students, and more Minnesota residents have consumed more SCHs at UW-Madison relative to those going the opposite direction.

We find there is nothing to be done about enrollment levels; to the degree that the reciprocity policy is intended to promote choice in college attendance across the two states, changes in the balance of payments due to enrollment shift are the intended consequence of the policy. Therefore the issue that lies at the heart of the current dispute concerns the calculation of the cost differential. The question is whether it is necessary and appropriate to make an adjustment in the cost differential and, if so, can a suitable adjustment be reasonably arrived at?

Based on the information we have been provided, we have come to the conclusions that:

1. In the main, the changes in calculated results are real; they are based on changes in enrollments, tuition payments, and reasonable estimates for most of the cost

differentials—the cost differentials for graduate programs at the research universities being the exception.

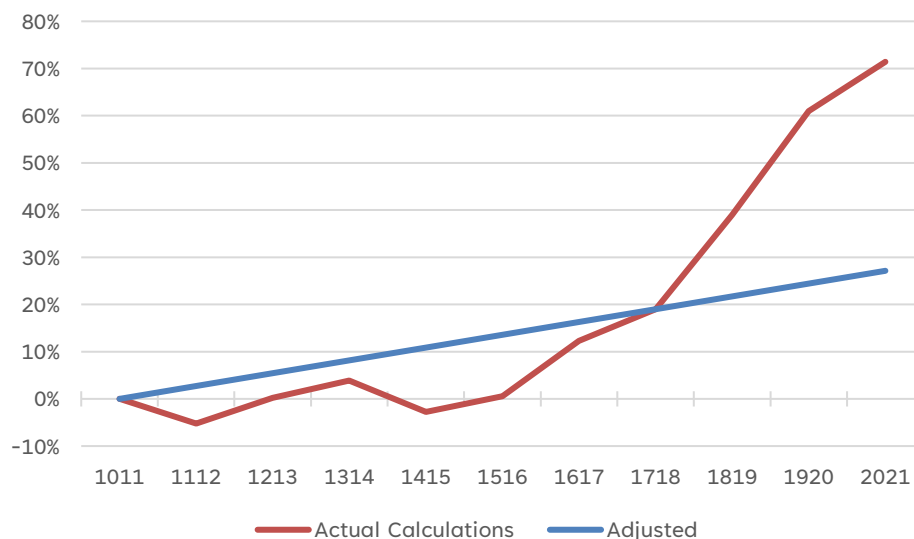
2. The general methodology for calculating the Reimbursement Obligation has been maintained throughout the duration of the current agreement.
3. However, the specific methodology for calculating the cost differentials component of the Obligation has changed as a result of the loss of access to the technology that had been used in the calculations for decades. While every reasonable effort was made to replicate the old approach/methodology, the new one admittedly is not a perfect replica. With the data available it is not possible to determine the size of any variation that may be attributable to the change in methodology.
4. The changes in the cost differentials can be traced almost totally to increases in budgeted expenditures for instruction-related activities, especially at the graduate level, at UW-Madison.
5. Our sense is that the mechanics of the calculations we can fully view—all of them except for the calculation of the per SCH cost differentials themselves—are functioning as designed. But given the uncertainty around potential variation in the calculation of the per SCH cost differential arising from the technology change, we deem it appropriate to make a modest adjustment to the calculated level of reimbursement obligation.

It is sensible that the adjustment to be made should occur where changes in the cost differential amounts are most in question and may also be at least partially related to the change in the technology and processes used to calculate those differentials. The per SCH cost differential that has grown well beyond all others—and beyond any reasonable inflation benchmark—is the one that applies to graduate students in the research universities, which has risen by \$248 since 2018-19 (and by \$541 since 2015-16—or roughly 70%). Minnesota residents attending UW-Madison consumed about 4,800 graduate SCHs while Wisconsin residents attending UM-TC consumed 10,835 graduate SCHs in 2020-21; after factoring in the rapidly rising graduate cost differential in this sector, this widening imbalance favors Wisconsin by ever more each year.

Consequently, we believe the most appropriate place to adjust the balance of payments is for the 2019-20 and 2020-21 amounts by putting a reasonable limit on the rate for growth in the cost differential applicable to graduate students at the research universities. We have elected to do so by calculating the average annual rate of growth in the cost differential between 2010-11 and 2018-19—the last year in which reciprocity calculations were made using the old mainframe—and extrapolating out to the more

recent two years. As reflected in Figure 4, this will yield a lower cost differential than was calculated under the replicated method.

Figure 4. Adjusting the Per SCH Cost Differential for Graduate Students at Research Universities



Applying the new cost differentials will result in changes to the total Obligations as shown in Figure 5. The reduced per SCH cost differentials yield lower total cost differentials for graduate students at the research universities, which in turn reduces the state amounts—the difference between the total cost differentials minus the tuition paid by this group. When the new state amounts for this group replace the original amounts in the calculation of total state obligations for all students, the values uniformly rise, but especially for Wisconsin.

Figure 5. Summary of Original and Adjusted Calculations

	Original Calculations		Adjusted Calculations	
	2019-20	2020-21	2019-20	2020-21
Cost Differential	\$1,229.72	\$1,309.56	\$946.76	\$966.19
SCHs				
MN	4,443	4,796	No Change	No Change
WI	10,544	10,835	No Change	No Change
Credits x Per SCH Cost Differential				
MN	\$12,966,660	\$14,189,083	\$9,983,018	\$10,468,697
WI	\$5,463,646	\$6,280,650	\$4,206,456	\$4,633,860
State Amounts for Graduate Students at Research Universities				
MN	\$3,221,250	\$4,318,304	\$237,609	\$597,919
WI	\$1,796,406	\$2,175,986	\$539,216	\$529,196
Balance	-\$1,424,844	-\$2,142,318	\$301,607	-\$68,722
Total State Amounts				
MN	-\$9,466,490	-\$1,729,614	-\$9,228,881	-\$1,131,696
WI	-\$2,308,970	\$2,730,019	-\$1,769,754	\$3,259,216
Balance	\$7,157,520	\$4,459,634	\$7,459,128	\$4,390,911

Conclusion

In the end, the total balance of payment obligations owed by Wisconsin to Minnesota for 2020-21 is reduced marginally (from \$4.46M to \$4.39M). But it rose slightly for 2019-20. Assuming that Wisconsin already paid Minnesota the \$7,157,520 calculated as its payment to Minnesota for 2019-20, the difference that remains would be \$301,607 (i.e., \$7,459,128 minus \$7,157,520). Adding that remainder to the \$4,390,911 calculated as Wisconsin's payment to Minnesota to reconcile the payment obligations for 2020-21, we find that the total amount to be paid by Wisconsin to Minnesota, in order to resolve the present dispute, should be \$4,692,519.