

Early Reflections on the State of the Academy September, 2007

The beginning of a new academic year is a good time for taking stock, for reviewing the current state of the institution and setting goals. This year, with the arrival of a new Provost and Vice President (Academic), it seems particularly useful to consider the opportunities and challenges McMaster University is facing.

The word that best describes the recent history of McMaster University is *growth*. The campus has expanded, the undergraduate population has increased, the graduate student body has grown, the sizes of the faculty and of the staff have risen, and the research and clinical activity have expanded.

Student, Faculty and Staff Growth

Figure 1 shows the change in size of four important parts of the McMaster community: full time undergraduate students, full time graduate students, tenured and tenure-track faculty, and the sum of tenured, tenure-track, and CLA faculty. The data include the academic staff and students in all McMaster University Faculties, but exclude students in programs that rely on space off campus. In this and all following material (unless otherwise noted), the academic year 2000-2001 is taken as the base year. We have used McMaster University Data Manuals and information from the Ministry of Training, Colleges, and Universities (MTCU) as sources of data unless otherwise noted.

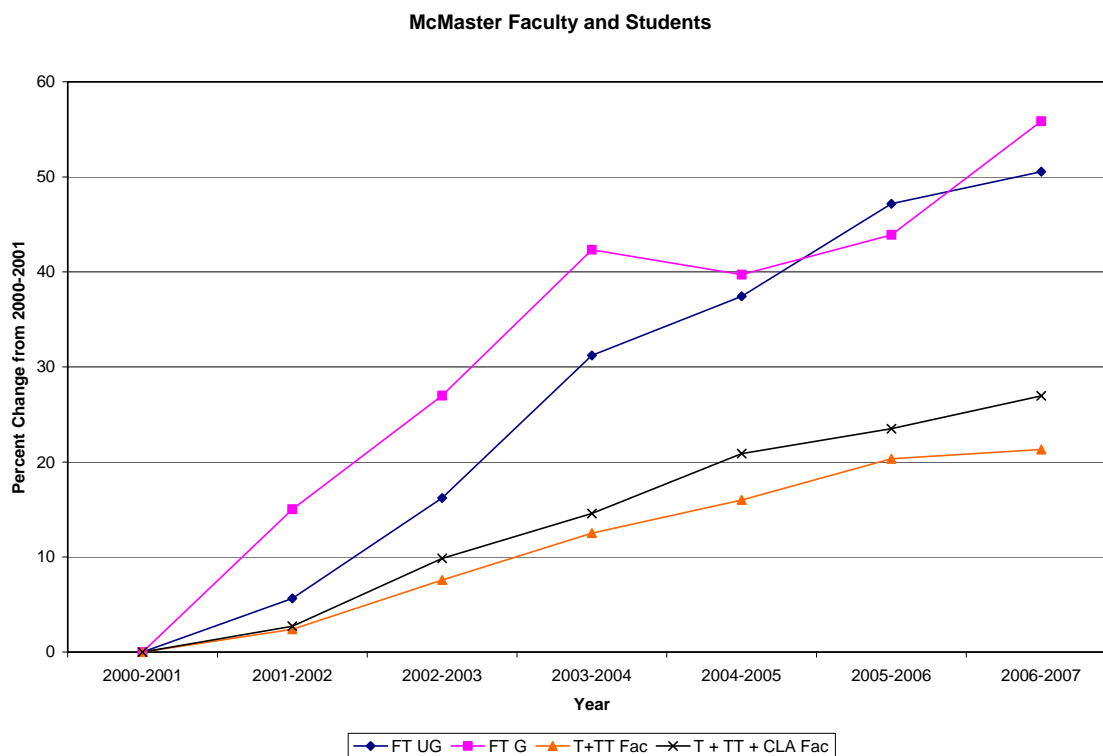


Figure 1: McMaster University Faculty and Student population change since the 2000-2001 academic year.

Since the academic year 2000-2001, the full time undergraduate population has risen roughly 50%, the full time graduate student population by about 55%, the tenured and tenure-track faculty by 20%, and the tenured plus tenure-track plus CLA faculty by nearly 24%. While this represents very rapid expansion, McMaster is in good company amongst the universities in the greater Toronto area (GTA). Figure 2 shows the net increase in full time undergraduate students at Ontario universities identified as GTA institutions between 1995 and 2005. This material was presented by the Deputy Minister of Training, Colleges, and Universities at a meeting on August 8, 2007 to discuss enrolment pressures in GTA. It is interesting to note that in spite of McMaster's large growth, its net change in full time undergraduate enrolment is below the average experienced among these nine Council of Ontario Universities (COU) institutions.

FT Undergraduate Growth from 1995 - 2005

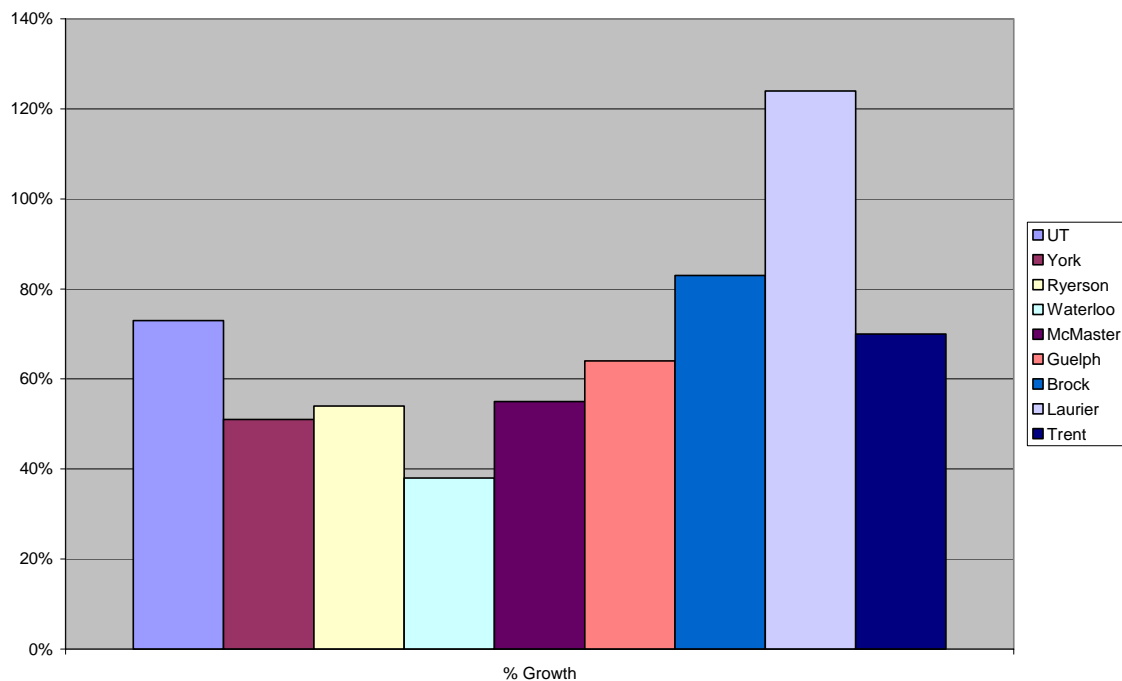


Figure 2: Growth in full time undergraduate students at Ontario universities between 1995 and 2005.

Another way to view the same sort of information is to consider the net change in first year intake of full time undergraduate students from 2000-2001 (pre-double cohort) to 2006-2007. This data is shown in Figure 3 for McMaster University and the same Ontario universities as presented in Figure 2, plus Queen's University, the University of Western Ontario, and the University of Ottawa. On this figure McMaster ranks third behind Wilfred Laurier and York Universities. It ranks first among our six G13 peers in Ontario.

There is no question that the growth of the full time undergraduate population has presented opportunities to McMaster University. For instance, the expansion of the faculty would not have been financially possible without the student growth. Also, student growth has fueled new programs such as the BHSC and Medical Radiation Science degree and allowed others, such as MD internship and residency programs to

grow greatly. However, the rapid increase in the McMaster student and faculty size has strained facilities and infrastructure. Discounted funding of the student expansion and the absence of a correction for inflation in the Provincial grant have prevented the university from expanding infrastructure and faculty numbers at the same rate as student growth, with predictably negative impacts on facilities and on classes. Further, with the dawning realization that there is still a large unmet need to expand undergraduate enrolment in the GTA (where an increase of 45,000-70,000 undergraduate students is anticipated by 2015) MTCU is now investigating options including further university expansion. In this climate it is imperative that the entire university community engage in a serious discussion of future growth and how it interacts with our strategic plan, *Refining Directions*.

Percent Change in First Year Intake from 2000-2006

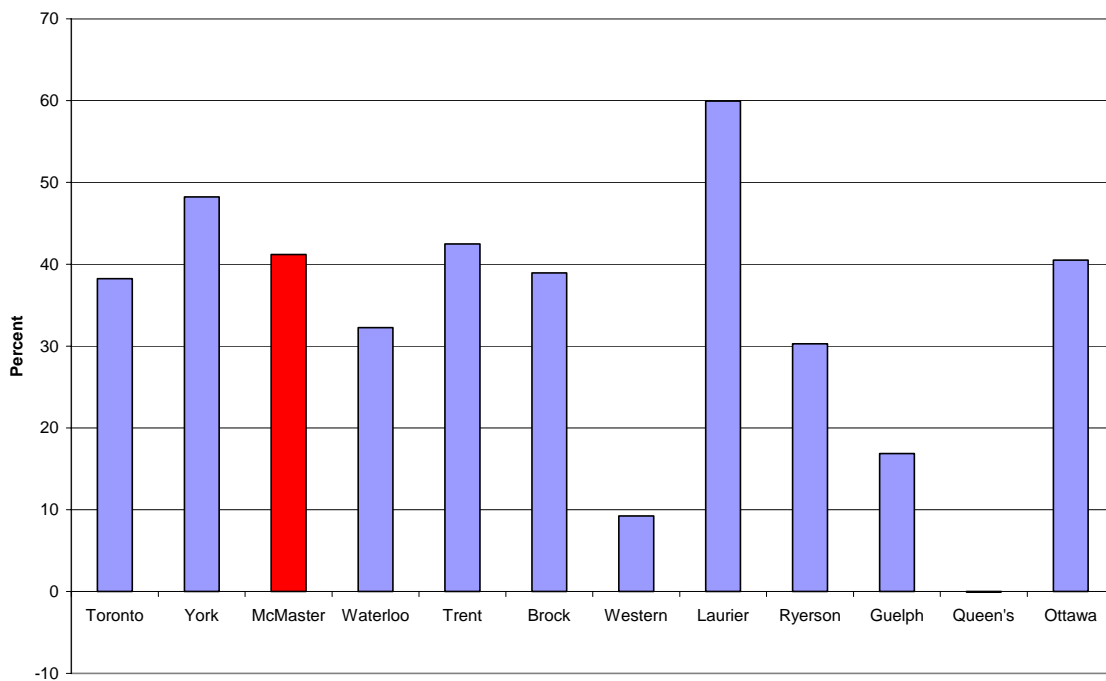


Figure 3: First year intake change from the 2000-2001 academic year to the 2006-2007 academic year at Ontario universities.

Figure 4 shows the change in three faculty to student ratios for McMaster University as a function of academic year from 2000-2001 to 2005-2006 (the last year for which we have accurate data). Over this period, all of the ratios have increased significantly (18-28%). (Note - these figures were generated in a method different from that used in the Data Manuals. They were calculated by simply dividing the number of students by the number of faculty. Thus they include the Faculty of Health Sciences, which the Data Manuals do not.) The increase in the student to faculty ratio is a concern. It reflects an overload on the faculty and a possible decline in service to our students. However, we note that these student to faculty ratios do not consider Sessional instructors who are instrumental in reducing the teaching burden on tenured and tenure-track faculty but generally do not advise students in departments.

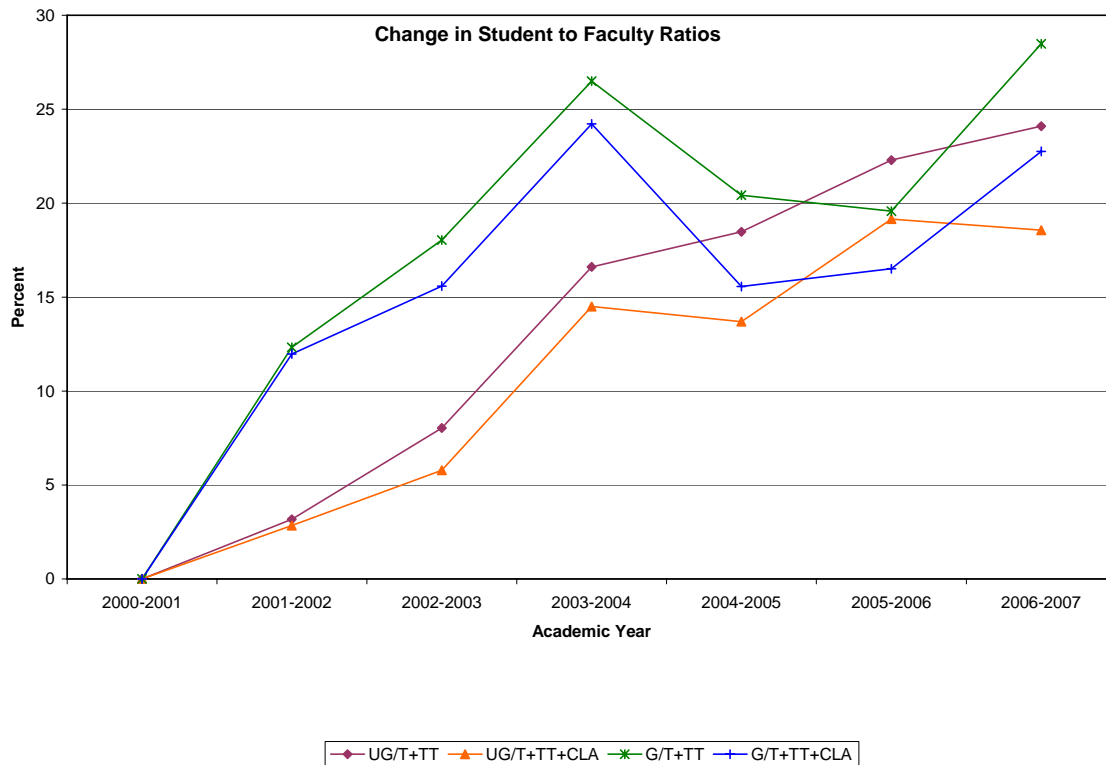


Figure 4: Change in student to faculty ratios as a function of year at McMaster University.

Figure 5 shows the change in the distribution of class sizes for the most recent academic years in the Faculties of McMaster University other than Health Sciences (for which data is unavailable). As in previous material, the base year is the academic year 2000-2001. This data is interesting for what it tells us about our classes – they have generally been getting larger. Classes with fewer than 21 students have decreased as a percentage of classes, whereas classes with more than 20 students have generally increased. Clearly, this issue merits further study and then action. McMaster University (the Faculty of Health Sciences in particular) is known throughout the world as the originator of problem-based learning (often referred to as "the McMaster model"), with a strong emphasis on the development of effective research, inquiry, critical thinking and analytical skills through self-directed study that is active and collaborative. The shift in class sizes threatens this commitment to quality education.

Part-time students are an important part of a university and community. Through part-time programs, working students are able to improve their educational background and skills, offering significant benefits to their employers and their communities. Part-time student enrolments at McMaster have risen at the undergraduate level but shrunk dramatically at the graduate level. Since base year 2000-2001, part time undergraduate enrolment at McMaster University is up about 15%, just about the median change of the Ontario universities. Part-time graduate enrolment has declined by about a third since 2000-2001, the sharpest decline among our Ontario university peers. However, this drop is due to a rapid decline in graduate enrolment in a single Faculty – an issue in the process of being addressed. Expansion of part-time programs, particularly those which

are linked to employment sectors, is a potential opportunity for McMaster University to exploit. Such an expansion need not significantly add to the burden of the tenured and tenure-track faculty, nor further crowd facilities during the day.

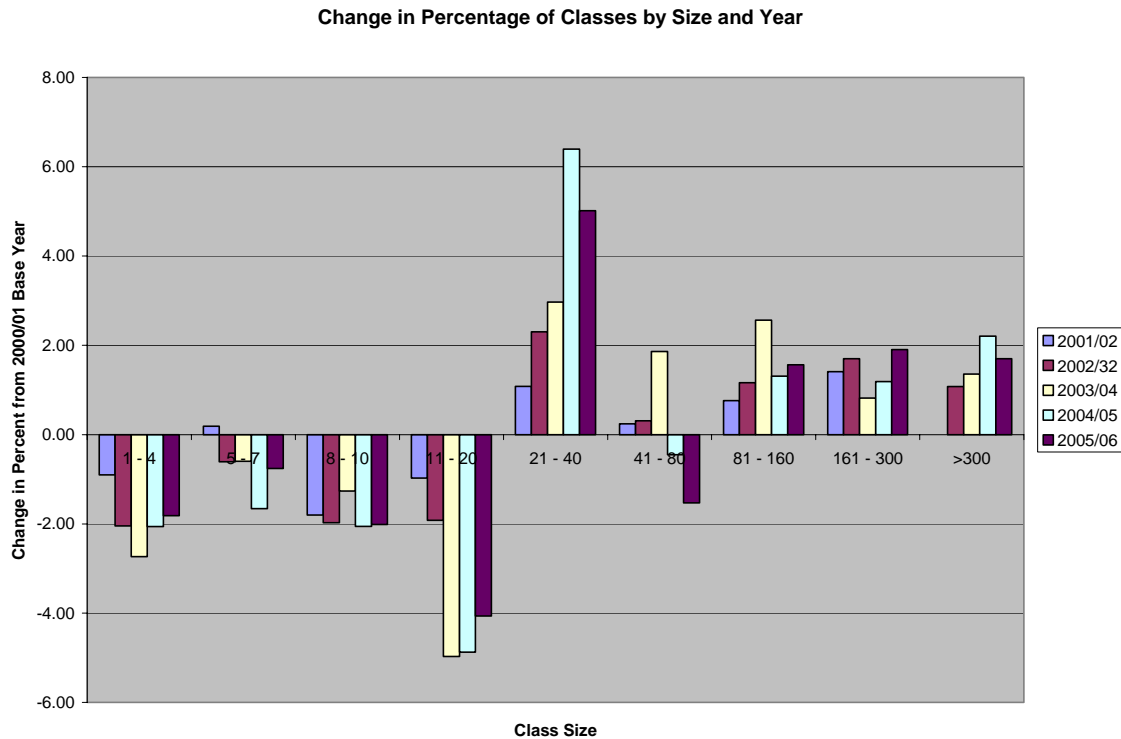


Figure 5: Class size distribution by academic year at McMaster University.

The university segment for which it is most difficult to gather good data, particularly for comparison with other institutions, is the nonacademic staff. Our data manuals show that the numbers of technical and professional/clerical staff (outside of Health Sciences) have risen monotonically throughout the period of 2000-2001 to 2006-2007 and that the ratio of faculty to support staff has slowly declined during this period. However, this does not reflect the increasing pressures on staff that come with growth and with a greater focus on accountability at the Provincial level. Further, there are clearly areas which have born the brunt of the growth but have not seen staff levels rise at a commensurate level. This has created pockets of strain that must be addressed.

Research Trends

McMaster University prides itself on its status as one of the most research intensive institutions in Canada. Our focus on research infuses our courses and defines us as an institution. Figure 6 shows the research funding at McMaster University as a function of year from 2000-2001 to 2006-2007. Over these four years, overall research funding has increased roughly 40%, with Health Sciences showing a 35% increase and the other areas of McMaster showing a 48% increase in funding. The funding per tenured and tenure-track faculty member has increased in this time from about \$150,000 per year to \$173,000 per year, an increase of 15%.

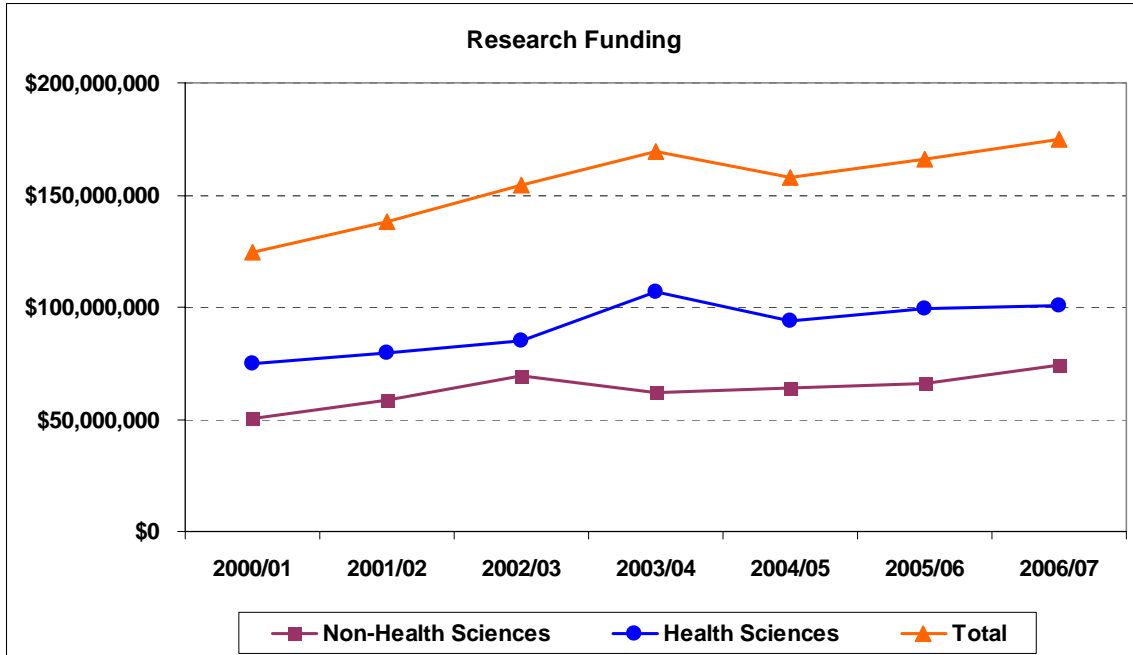


Figure 6: Research funding at McMaster as a function of academic year.

Figure 7 shows the change in Tri-Council research funding at Ontario universities that are members of the G13 (the Ontario G-6) from the base year of 2000-2001 to 2005-2006. While all of the Ontario peers have shown an increase in Tri-Council research funding, McMaster University's growth is below the average of this group. Figure 7 indicates that there is a serious problem we must address. It behooves us to study research funding trends carefully and work to retain our reputation as the most research intensive institution in Ontario and among the very few most intensive universities in Canada.

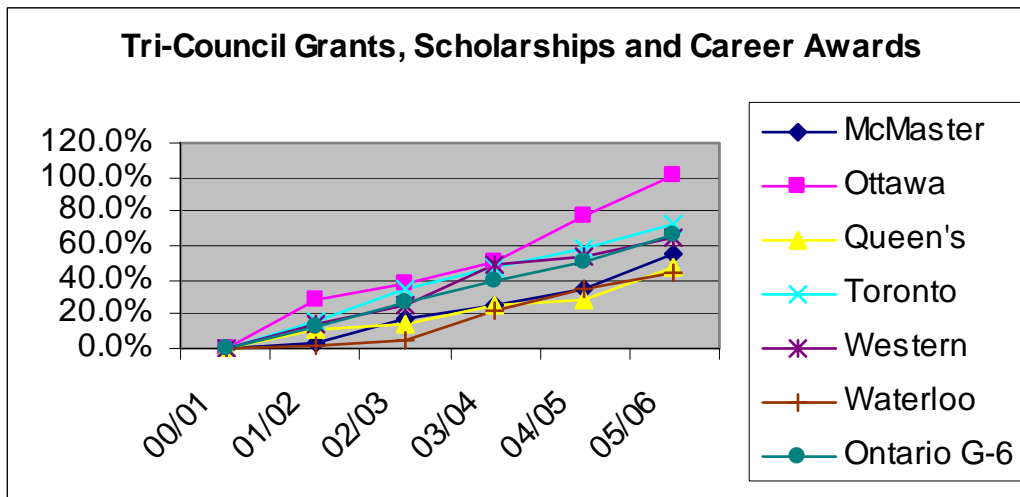


Figure 7: Change in research funding from Tri-Council grants, scholarships, and career awards at the Ontario universities that are members of G13.

There is no doubt that the growth in faculty and student numbers and the increase in research activity have crowded McMaster University's space. This is a situation matched throughout Ontario. In the last space audit in 2004/05, McMaster was slightly better than the COU average in net assignable square meters per FTE student as well as in space for classrooms, campus study and library facilities, and student services. In the Research space per FTE faculty, McMaster was higher than the COU average by over 50%, but this is misleading, as many of the COU members are not research intensive. In this audit, McMaster University was slightly higher in space per FTE faculty than the University of Toronto and the University of Waterloo, but a bit lower than Queen's University. These four institutions are close (within 15% of each other) in the research metric of space per FTE faculty member.

McMaster University is in the midst of significantly growing facilities. A new engineering building of 125,000 square feet is under construction. Also under discussion are a new building for liberal arts and a science tower. The current budget constraints limit the rapidity with which space can be expanded, but space expansion to accommodate McMaster's growth is a top priority and a focus of fund-raising efforts. This enthusiasm for additional space is tempered by the impact space has on the budget by adding to maintenance costs.

It must also be noted that McMaster University has a number of facilities that are at least thirty years old. Our aging infrastructure causes a rise in the deferred maintenance needs and gives us a space inventory that is less than optimal for modern research and classroom needs. While a number of facilities have been renovated, still others are in need of refurbishment.

Budget

It is not possible to have been at McMaster University for the past few years and to have avoided notice of the constriction in the operating budget. The main sources of this problem have been the stagnated level of the basic grant to McMaster with no correction for inflation and discounted funding of the "double cohort" of students that the Ontario universities were asked to absorb. The net result has been predictably negative consequences in terms of personnel and infrastructure expansion to accommodate the growth. In 2000-2001 the operating budget for McMaster University was \$181,453,000 and in 2006-2007 it had grown to \$325,921,000.

Figures 8 and 9 show how the operating budget has been spent in academic years (fiscal years) 2000-2001 and in 2006-2007. These figures show that there has been little change in terms of how funds are proportioned. The majority of operating funds have been allocated to the various faculties directly, with additional funds available through the Provost's Academic Priorities funds, academic support funds and student support funds. These latter two categories include support of units such as the Registrar and Library, and student financial aid. Together, these academically-focused funds account for 78% of the operating budget in 2000-2001 and 74% in 2006-2007. The remaining part of the operating budget includes utilities, interest on debt, pension (costs outside of the pension plan), administration costs, and other institutional support (including

university advancement funds and deferred maintenance, for example). The three categories which have most significantly risen in proportion of the budget are utilities, interest, and pension. Indeed, if these areas are removed from the operating budget, the remainder of the operating budget allocated to academic matters is unchanged at 81% in 2000-2001 and 2006-2007. However, it is important to note that the direct funding to the Faculties has declined and this drop is felt keenly by all.

2000-2001

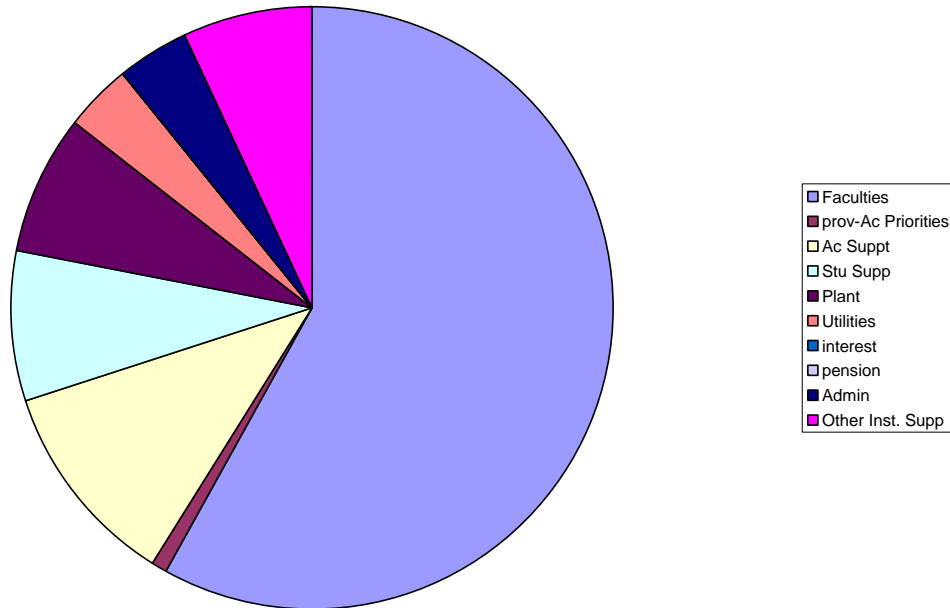


Figure 8: Operating budget allocations in academic year 2000-2001.

The process of allocating operating funds to Faculties has been a mixture of historically-based and enrolment-based with the Provost intervening to make necessary adjustments. Given the tremendous change in institutional demographics, the fiscal pressures at McMaster, and the varying needs of the different Faculties, it is time to review alternative budget models that might provide more rational funding and permit better planning. To that end, we are convening a committee to make recommendations regarding new budget models for operating cost allocations. Should this committee recommend a significantly new budgeting model, care will be taken to transition to the new model gradually.

We also will be convening a committee on academic program priorities. While the processes for establishing new programs are well established at McMaster, it is much less clear how one goes about eliminating a program, center, or institute. Such actions should only be taken when the unit has outlived its value, but to avoid setting priorities is irresponsible, particularly in times of financial constraint. Through the academic program priorities committee, we will engage all of McMaster University in conversation about the process of setting priorities and in determining those priorities.

2006-2007

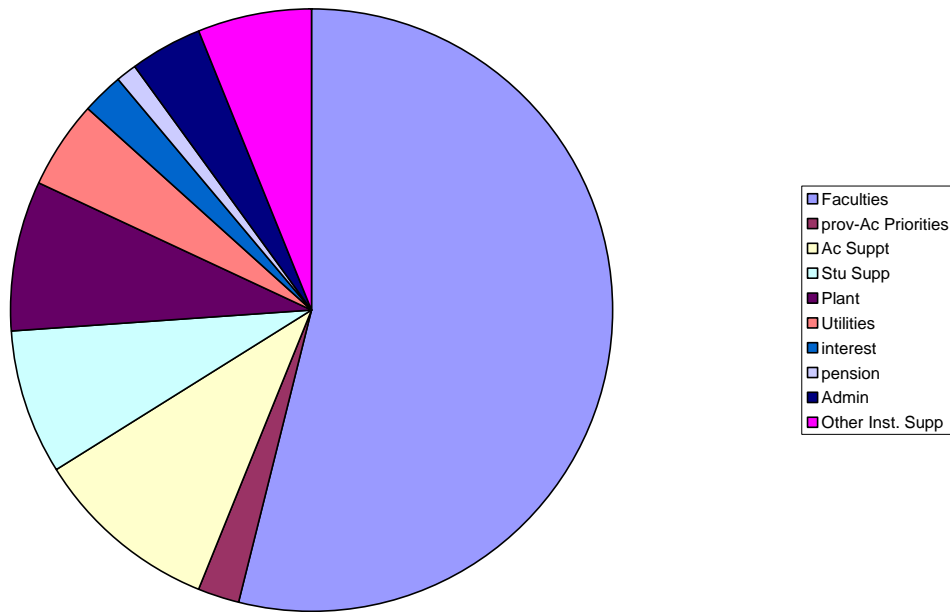


Figure 9: Operating budget allocations in academic year 2006-2007.

The budget issues troubling McMaster University are real. Projections of the last several years have had the operating budget running in deficit and the university administration has worked hard to close the gap between funding revenue and expenditures. We have, on occasion, been the beneficiaries of end of year funding from the Provincial government, but such funds often arrive for specific purposes and can not be relied upon long term. Indeed, Figure 10 shows the revenue to McMaster University from grants and tuition income. Also shown in this figure is the full time undergraduate enrolment versus year. Over the period under discussion, the basic grant to the institution from the Provincial Government is essentially unchanged. Tuition revenue has risen over 70% and targeted grants have more than quadrupled. We must continue to focus on deficit reduction and living within our means while seeking every legitimate approach to increasing our revenue stream.

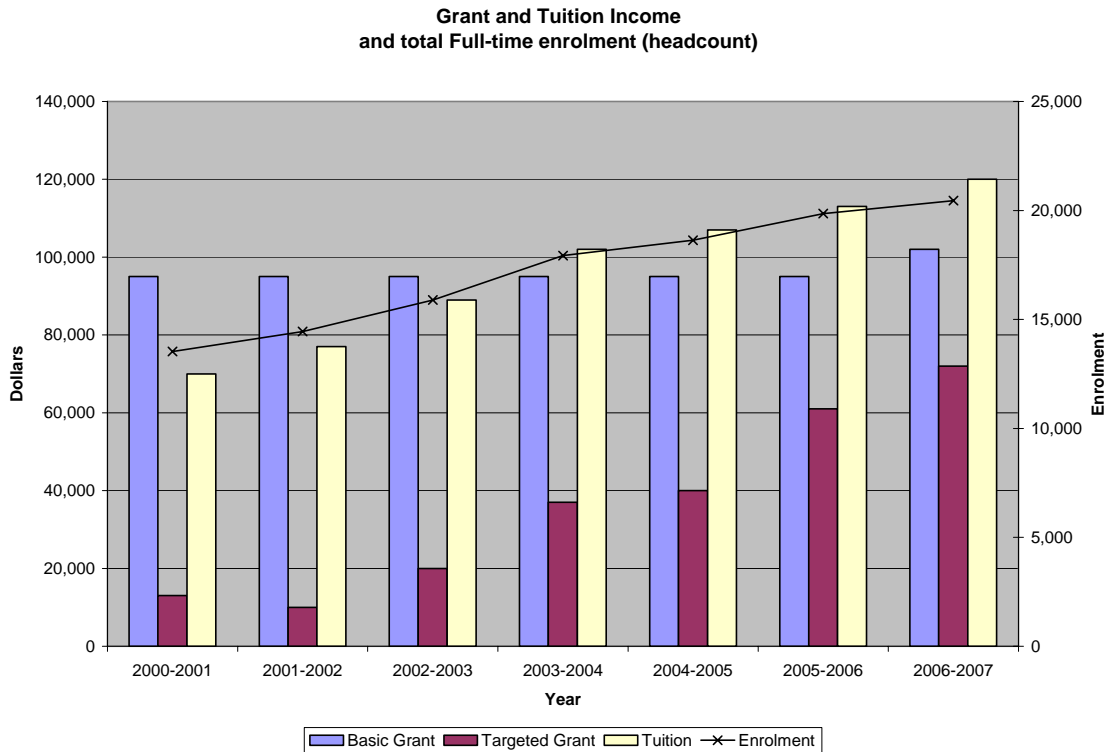


Figure 10: University income from grants and tuition and full time undergraduate enrolment..

Summary

Overall, McMaster University is in good health. Student demand is high and growth has fueled new programs and expansion of faculty. There is rising pressure on Ontario universities and colleges to prepare for further undergraduate demand in the next decade and this reality suggests that the time is right for a university-wide conversation about the right size for McMaster University. Research grant support continues to rise in Health Sciences and in our other disciplines.

There are some emerging issues which require attention. Growth in student numbers has strained our facilities and our median class size has shifted higher, a troubling trend for an institution known for having originated problem-based learning. Further, although our research funding continues to rise, it is doing so at a slower rate than seen at our peer institutions in Ontario. Finally, budget constraint suggests it is time to consider alternatives which will permit more rational planning and priority setting.