Funding Models for Doctoral Education Based Upon Quality

Executive Summary

Charge:

Present several possible models for distributing funding to high quality doctoral programs, which take into consideration the opportunities to 'seed' doctoral programs that with increased stature will contribute to enhancing the reputation of this university.

Principles:

- Both the Graduate School and the Colleges have a responsibility to foster and support high quality doctoral programs.

Graduate School Perspectives:

Doctoral subsidy should be redirected over time and in amounts that upon allocation and use have the greatest potential for impact.

The strategic distribution of doctoral subsidy should be determined by the Dean of the Graduate School in consultation with appropriate institutional leaders and using appropriate assessments to make such decisions. This strategy should include consideration of the relation between individual programs and the overall academic reputation of the university.

College Perspective:

Colleges should direct appropriate resources to high quality doctoral programs that will enhance the reputation of the College.

- The Graduate School and the Colleges will interact to inform their perspectives regarding program quality and centrality.

- Assessing the efficacy of the investment of Graduate School and College resources in doctoral program quality should be aligned with the biennial dialogue process, program reviews, and annual interactions of the Provost with the Deans.

- The Graduate School and the Colleges, working in concert, should de-fund over time doctoral programs that aren’t deemed essential to the mission of the university or are not of high quality and do not improve in designated ways over a designated period of time.

Methodology for Distribution of Funding:

Two models for distribution of funding to quality doctoral programs are proposed: a university-wide funding model and a college-centric funding model. Both models allow for consistent and continued involvement of the Provost, the Dean of the Graduate School, and College Deans, in investments to improve doctoral program quality. The models allow for different mechanisms for redirection of doctoral subsidy to match funds available from the Ohio Board of Regents Innovation and Incentive (OBR/II) program to improve doctoral programs in the Science, Technology, Engineering, Mathematics, and Medicine (STEMM) fields over the period FY 08 – FY 15. The university-wide funding model provides, in addition, a mechanism for redirection of doctoral subsidy to fund quality doctoral programs in the non-STEMM fields. Until other central resources for this purpose are identified, the college-centric model would need to rely exclusively upon college resources for fund quality doctoral programs in the non-STEMM fields. In the event other central resources become available for this initiative, the two models provide different mechanisms for distribution of the funds to doctoral programs. A process for disinvestment in weak doctoral programs is outlined, which is common to both models and offers incentives for colleges to take the initiative in identifying such programs and determining appropriate intervention.
Funding Models for Doctoral Education Based Upon Quality
Report submitted to the Senate Fiscal Committee

by

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Introduction

The charge received by the Ad Hoc Committee of the Senate Fiscal Committee is as follows: “Present several possible models for distributing funding to high quality programs, that takes into consideration the opportunities to ‘seed’ doctoral programs that with increased stature, will contribute to enhancing the reputation of this university.” As explained to us and articulated by the Provost as part of the charge, “inevitably, this focusing of our resources will mean disinvestment in weak, non-core, graduate programs that do not enhance the reputation of the university.”

Our charge is specific to doctoral programs, and is a direct response to the Freeman Committee’s primary recommendation, namely, that doctoral program funding should be based upon quality. The restriction of the charge to doctoral programs should not be taken as suggesting that other graduate programs, including terminal degree programs, are unimportant or not in need of attention, only that they are not included within the purview of our committee.

In pursuing our charge, we understand that the recommendations of this subcommittee may affect the distribution of university funds other than graduate fee authorizations, graduate school resources such as fellowships and fee waivers, and the FY 07 Ohio Board of Regents (OBR) Innovation Incentive funds. Our assumption is that available resources for improving doctoral program quality would nominally be doctoral subsidies and future allocations of OBR Innovation Incentive funds, in addition to internal funds that colleges may choose to invest for this purpose. It is anticipated, as well, that the implementation of this committee’s recommendations will likely take a number of years. The committee was asked to complete its work by the end of February 2007, so that it could impact aspects of the budget process for FY 2008.

In the paragraphs that follow, we first list principles and assumptions that guided our discussions. Next, we summarize our thoughts on possible funding sources at the center and in the colleges, and propose one approach to securing funds for initial implementation of a university-wide investment in doctoral program quality. A methodology for assessing doctoral program quality is an essential component of the initiative and, in the section titled “Methodology for Assessing Doctoral Program Quality”, we propose procedures for identifying programs at both ends of the quality spectrum that are feasible to implement in terms of the time and resources required. In the section titled “Methodology for Distribution of Funding Based Upon Quality” we present two models for program quality assessment and distribution of funding that emerged from our deliberations. The first model assumes the availability of university-wide funding and relies principally on a university-wide process, repeated with some regularity, in which doctoral programs selected by college deans submit proposals for increased central funding based on the existent quality of their programs and the quality of their proposals for improvement. The second model reaches college-specific investment decisions for improving doctoral program quality, through a college-centric process involving focused discussions among the Provost, the Dean of the Graduate School, and the Deans of the colleges. Through either mechanism the goal is to identify strong programs and programs with high potential, provide meaningful incremental resources, and track progress toward targeted objectives, with that progress determining future investment decisions. Both methodologies include provisions for identifying doctoral programs that are weak and warrant intervention. Such intervention may consist of phasing out the doctoral program or, where justified, investing of additional resources to improve program quality. The final section summarizes our recommendations.
Principles and Assumptions

In pursuing our committee’s charge, we have operated under the umbrella of a number of principles and assumptions as follows:

- The Graduate School and the Colleges have a mutual and dual responsibility to assure that scarce resources are strategically and conscientiously distributed to doctoral programs that enhance the reputation of The Ohio State University. Within this shared responsibility, the Graduate School should be the primary advocate for quality doctoral education across the University, while college deans carry responsibility for promoting and rewarding quality within their particular units.
  - In consultation with the Provost, the Council of Deans, and appropriate representative bodies, the Dean of the Graduate School will distribute central resources to support high quality doctoral programs that benefit the reputation of The Ohio State University.
  - In consultation with the Provost and in accordance with the Pattern of Administration for the respective college, the college dean allocates college resources to support high quality graduate programs that benefit the reputation of the college. College-level implementations should always be considered in the context of enhancing the overall reputation of the university. This connection between college and university goals should be an important component of the annual performance reviews of deans by the Provost and the biennial dialogues involving the Provost, the Dean of the Graduate School, and college deans.
- The University will continue its commitment to the OBR Innovation Incentive (OBR/II) program directed towards enhancing the quality of the doctoral programs in the science, technology, engineering, mathematics and medicine fields (STEMM).
- Allocation of OBR/II funds available in future years will be done in a manner that funds the very best doctoral programs.
- Funds to support high quality non-STEMM doctoral programs will be secured by internal redistribution of resources at either the university or college levels.
- Procedures to identify weak doctoral programs are needed to complement the procedures to identify and invest in quality doctoral programs.
- The redistribution of resources to support high quality doctoral programs should be phased in, beginning in FY 08.
- The methodology for securing funds will be sensitive to short-term effects on the respective colleges, and to the fact that there may be a need for central resources to temporarily buffer phased reductions in college resources.
- Terminal master’s programs¹ that receive state subsidy in part through the doctoral category because they require more than 50 credit hours to complete (the maximum allowed in the master’s subsidy category) should not be de-funded as a result of this initiative.
- The implementation of the recommendations of this committee will be consistent with aligning financial incentives for colleges with the academic goals of the university.

¹ Terminal and Tagged Master's programs which require more than 50 credit hours for completion receive doctoral subsidy for student credit hours in excess of 50.
Funding Levels and Sources

The charge given us did not identify “new” sources for doctoral program funding, and we were not charged with identifying “new” sources. Nevertheless, given the charge for implementation in time for the FY 08 budget process, the committee felt obligated to identify sources for initial implementation. The committee proposes that funds for this purpose be secured by internal redistribution at either the university or college levels, with these funds then being reallocated to support high quality doctoral programs. Subsequent identification of “new” sources would allow additional resources to be available for this initiative. In fact, the committee recommends strongly that such “new” sources be identified for sustaining this initiative.

At the university level, doctoral subsidy is currently distributed to colleges based on student credit hours generated and the effective subsidy rate per quarter hour of enrollment. The Board of Regents uses two subsidy rates, Doc I and Doc II. Table 1 indicates FY 07 subsidy levels for the colleges as well as FY 07 PBA (Present Budget Allocation) levels. The total subsidy level of $ 68.3 M is about an eighth of the total PBA level of $ 519.2 M. Colleges with primarily STEMM programs received $ 294.5 M, while those with primarily non-STEMM programs received $ 224.7 M. Distribution of doctoral subsidy varies within colleges. In some cases, college deans simply pass these allocations on to individual programs on the same basis. In other cases, such funds enter the college budget and the individual programs are financially supported through the overall college budget.

The OBR/II program will provide, over FY 06 – 15, $ 10.4 M for selected STEMM doctoral programs, to be matched by OSU. Clearly, the availability of this resource has implications for the level of internal reallocation of funds if OSU is to compete for these funds. Further, the need to enhance quality non-STEMM doctoral programs, perhaps by a similar mechanism, is highlighted.

Within this institutional context, one approach to securing funds for initial implementation of a university-wide reallocation/investment process would be through reductions in the effective rate per credit hour of enrollment used for internal distribution of doctoral subsidy funds. The size of the reduction in the effective rate, the methodology for its determination, and whether the reduction should be exercised on all or some subset of programs would then be the critical issues in delineating the funding available for redistribution in a university-wide process.

Other sources of funds for subsequent phases of this initiative potentially exist. The desirability of identifying weak doctoral programs and dealing with them aggressively, where appropriate, has been noted by the Freeman Committee’s report. While the need for doing so is recognized by the committee, and in fact is part of our recommendations, the committee felt that the number and size of demonstrably weak programs would not free up sufficient resources for the purposes of this initiative. Furthermore, we recognize that elimination of programs would take at least a few years, and we were sensitive to our charge that differential funding of quality doctoral programs impact the FY 08 budget process.

The committee also considered issues involved in identifying alternative sources of funds for this initiative, such as doctoral subsidies that were presently being earned by Master’s students on some terminal Master’s programs requiring more than 50 credit hours for completion. Currently used OSU student data systems make it very difficult to implement schemes that could access corresponding subsidies. It was also clear that, following changes that had already been made in
subsidy distribution processes in recent years, the size of the resources that would become available by doing so now were small compared to the needs of the quality initiative. Nevertheless, this issue could be re-visited following implementation of the new student information system in 2009.

An alternative approach to securing funds for quality doctoral programs is by relying upon internal reallocation of funds within colleges. We will refer to this funding model as college-centric. Such reallocations of internal funds to STEMM programs could be used as OSU cost share for the OBR/II program. If a similar program is to be instituted within OSU for non-STEMM doctoral programs, a central pool of funds to match internal college reallocations would be needed for initial implementation. Funds freed up by phasing out demonstrably weak doctoral programs, though expected to be minimal, could conceivably be available for subsequent phases of implementation under such a framework, as could doctoral subsidies re-directed in part from terminal Master’s programs requiring more than 50 credit hours for completion.

Finally, any methodology for funding distribution, if it is to be effective, should produce a funding allocation that has the potential to significantly impact the quality of doctoral education. In the recently concluded Targeted Investments in Excellence process, annual rate awards ranged from a low of about $20 K per year to awards at the high end of $350 K per year and $1.3 M per year. We may conclude therefore that awards in the range of $50 K per year to $500 K per year would have the potential to impact doctoral program quality across a wide range of program sizes. An examination of the range of doctoral subsidies received by programs in FY 06 supports such a conclusion: Biochemistry ($217 K), History of Art ($446 K), Business Administration ($906 K), Mechanical Engineering ($2.176 M) and Chemistry ($3.003 M). While it is expected that programs will be creative in their proposals for investment to improve doctoral program quality, it is instructive to look at a few possibilities. Small doctoral programs could use an award of $100 K per year, for example, to supplement doctoral fellowships of twenty students by $5 K per year. An award of $500 K per year could allow a large program, depending on the discipline, to hire a junior faculty member, a senior faculty member, and supplemental fellowship support for high-caliber graduate students to strengthen faculty expertise in an area as well as overall graduate student quality. In determining the awards to be made using either of the funding models described above, it is important to ensure that award sizes cover a wide enough range to ensure impact on small as well as large quality doctoral programs.

**Example of University-Wide Funding Model and Impact**

In order to examine the university-wide reallocation/investment process for funding quality doctoral program in greater detail, we present a specific implementation in which, over the 10 years FY 06 – FY 15, the University redirects 20% of its total doctoral subsidy (Doc I and Doc II) toward strengthening the strongest doctoral programs and/or in expanding the number of strong doctoral programs. While we propose this level of subsidy redirection as one that will provide significant resources for this initiative and will allow OSU to generate more than the cost share needed to compete in the OBR/II program, we recognize that the specific amount could be a topic of significant discussion. A redirection of about 17% of the total doctoral subsidy would, for example, allow OSU to generate just the amount needed to participate in the OBR/II program but reduces somewhat the flexibility in making awards as all the STEMM awards would need to conform to OBR/II requirements. With this caveat in mind and the redirection of 20%, this approach would redistribute $13,650,980 of OSU doctoral subsidy over this period, based upon

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2 In FY 2006, the number of credit hours that would have been affected by the change was just over 3% of the total number credit hours receiving doctoral subsidy.
the FY 07 doctoral subsidy level. Since $1,715,685 has already been redistributed from the FY 07 doctoral subsidy to match the OBR/II program for FY 06 – FY 07, the amount to be redistributed in FY 08 – FY 15 is $11,935,295, representing about a 17.5% reduction in the effective FY 07 subsidy rates cumulatively over the eight out-years, FY 08 – FY 15. Assuming a 1% annual inflationary growth in doctoral subsidy rates over this period and the redirection of this resource to support this initiative changes the cumulative reduction in doctoral subsidy rates over FY 08 – FY 15 to 11.7%. Since the total doctoral subsidy is about an eighth of the total PBA for the colleges, the corresponding cumulative reduction in the total PBA for colleges is about 1.3% over the eight-year period of this initiative. The impact of the proposed reduction and its relation to college PBA for different colleges may be seen in Table 1. The cumulative reduction in PBA for individual colleges over the eight-year period is, at most, a little over 3%. In the case of most colleges, it is considerably less.

Of the amount of $11,935,295, 70% ($8,354,706) would be distributed among STEMM doctoral programs in FY 08 – FY 15. This amount, together with the $1,715,685 already redistributed, would be matched by $8,578,423 from the Board of Regents Innovation Incentive program over the period FY 08 – FY 15. In addition, this approach would redistribute OSU subsidy equal to $3,580,589 (30% of $11,935,295) among non-STEMM doctoral programs, based upon quality. Amounts used to cost share OBR/II awards are constrained to be in the form of annual rate funds, whereas others may be in the form of annual rate funds or multi-year cash awards.

Members of the committee are sensitive to the need to ensure continuing balance between STEMM and non-STEMM programs and recommend that this perspective be maintained in the context of different scenarios for reallocation of resources envisioned here. The rationale for using 70% of the central resource to support STEMM programs and 30% for non-STEMM programs is described in the Appendix, and is based upon historical levels of doctoral subsidy for these program categories. This approach is intended to ensure that there is no net transfer of subsidy from one category to another. Prior to implementation of this initiative, this ratio would need to be re-examined and adjusted to ensure this result. Thus, while OSU doctoral subsidy to the STEMM and non-STEMM programs would be reduced across-the-board to secure funds for the proposed initiative, these funds would be redistributed back to doctoral programs in the same broad category based upon quality.

The $8,354,706 in OSU funds that would be available for STEMM program funding would be supplemented by $8.6 M in OBR/II funds. If these amounts are distributed over four biennial competitions coinciding with the OBR/II competitions (FY 08, FY 10, FY 12, and FY 14), $4.2 million (a four-way split of $8.35 M plus $8.6 M) would be available for each STEMM competition. The number of programs receiving awards would obviously depend upon the sizes of the awards. Assuming, for purposes of illustration, that big, medium, and small programs receive award sizes of $500 K, $250 K, and $100 K respectively, and that each program category receives about a third of the amount available, three large programs, six medium programs, and twelve small programs can receive awards in each of the four competitions. Considering that there are 51 STEMM doctoral programs, it is clear that the funding model and funding levels available do allow for funding of quality STEMM doctoral programs, including good-to-very good programs and programs on the rise, which can make a convincing case for investment.
The $3,580,589 in OSU funds that would be available for non-STEMM program funding, if distributed over four biennial competitions, would make nearly $900 K available for each competition. Assuming, for purposes of illustration, that big, medium, and small programs receive award sizes of $200 K, $100 K, and $50 K respectively, and that each program category receives a third of the amount available, one to two large programs, two to four medium programs, and six small programs can receive awards in each of the four competitions. Considering that there are 35 non-STEMM doctoral programs, it is clear that the funding model and funding levels available do allow for funding of quality non-STEMM doctoral programs, including good-to-very good programs and programs on the rise, that can make a convincing case for investment.

While these numbers illustrate that the funding available allows all quality doctoral programs to make a convincing case to receive investment, the committee emphasizes that it should not be the intent of the initiative to distribute the funding evenly across all participating programs. For the implementation of the initiative to be effective, there must be winners and losers among the doctoral programs. The process should be flexible enough to allow large doctoral programs to compete for annual award amounts larger than $500 K, and programs should be able to compete for multiple rounds of investment at different times and, in both cases, should be expected to make a convincing case for such investments. It should be clear from this analysis, however, that the size of the resource being redirected is substantial enough to make a significant impact on doctoral program quality campus-wide.

**Example of College-Centric Funding Model and Impact**

In this model for funding quality STEMM doctoral programs and for participating in the OBR/II program, participating programs and colleges would put at risk amounts from their doctoral subsidies to match what they seek from the OBR/II program. Though these amounts are technically at risk, it is expected that all programs selected by OSU will receive OBR/II funding in addition to the amounts they placed at risk. Since the OSU funds would match OBR/II funds in this approach, $4.2 M will be available for each biennial round as noted in the example above. The impact in terms of numbers and sizes of awards is therefore similar.

In the absence of a university pool of funds for quality non-STEMM doctoral programs, funding of such programs would rely entirely upon funds made available by colleges for internal distribution. Given the reliance upon college actions for funding, the potential impact on quality non-STEMM doctoral programs is dependent on individual college actions and difficult to estimate with this funding model.

**Methodology for Assessing Doctoral Program Quality**

Assessment of program quality, and of the centrality of the program’s importance to the goal of strengthening graduate education at OSU and moving the institution from “good to great”, is essential in making funding distributions using either of the models above. While the committee concluded that a metric-informed process for ranking all doctoral programs at OSU, even if it meant placing them in three broad categories, is a challenging task and not feasible within the time frame and resource constraints of the current initiative, success of the proposed initiative does depend on identifying programs at both ends of the spectrum.

Competition among programs and colleges, implicit in the selection of programs for additional university funding or for OBR/II funding, is expected to be effective in identifying a small set of candidate strong programs for further assessment of their strengths. Similarly, college deans may
be expected to be effective in identifying the strong programs in their colleges and promoting them for further investment. Committee members felt that it was equally important for the quality initiative that effective mechanisms be devised for identifying weak doctoral programs for further evaluation and follow-up action. Early feedback from the Senate Fiscal Committee was supportive of such provisions as well. In devising such mechanisms, committee members recognized that it was essential that the Graduate School have an important role in the process and that incentives must be created for colleges to identify weak programs.

Identification of strong and weak programs must be a multi-faceted process, and is best done when informed by metrics and external comparisons, with the Graduate School playing a central role and supported by input from the Deans of the various colleges. This said, it was well recognized in our deliberations that identification of relative program strength, even when metrics-informed, will not be easy and that strong political will must be absolute in taking appropriate follow-on action.

In informing this assessment process, the Graduate School would be the appropriate entity to review data that address:

- characteristics of the admitted and enrolled doctoral students
- characteristics of the curriculum and
- student success as measured by completion rates, time to degree, and career placement.

Where possible, these data should be compared with data for programs in the same discipline at peer universities. While results of the upcoming NRC survey could provide useful information, and the future availability of doctoral program metrics for AAU universities could also facilitate program evaluation with respect to programs in peer institutions, the review can and must proceed in advance of this information being available if the goal of this initiative is to be attained in a timely fashion.

The menu of quality indicators that could be used to identify the strength of doctoral programs includes:

- Graduate record examination scores with emphasis on distribution by discipline-specific percentiles
- Undergraduate school and GPA
- Selectivity and yield of admissions
- Successful degree completion
- External recognition of student quality
- Student placement
- National/international recognition of faculty quality
- National program rankings
- Success in other OSU/OBR funding initiatives
- Curricular innovation
- Innovation in programs for student success
- Strength/quality of advising
- Student diversity

The committee devoted considerable time and energy to discussion of whether implementation of an objective, metrics-driven process to assess doctoral program quality is possible and worthwhile. Given the wide variety of doctoral programs, the variability in quality measures deemed suitable for programs in different disciplines, the limited availability of candidate
metrics for peer institutions even in cases where acceptable quality measures could be identified, and the resources needed for implementing such a process on a university-wide basis, sole reliance on such an approach was deemed currently impractical. This does not imply that such metrics are irrelevant. The committee advocates extensive use of these metrics as indicators, with interpretation of the metrics done in the context of a review process that allows an integrated evaluation of program quality rather than a strictly algorithmic approach.

The process for assessing the quality of weak programs and determining follow-on action is different. Thinking through a possible representative process, the Graduate School could generate a list of programs for which it finds potential cause for concern with respect to program quality. The Dean of the Graduate School could initiate conversations with the deans of the associated colleges and the relevant program administrators, which would include the graduate studies chairpersons and, where appropriate, the affiliated department chairs or center directors. These conversations are intended to provide the Dean of the Graduate School with greater context for understanding the degree to which program quality is appropriately represented by the metrics, as well as additional information about the scholarly profile of the faculty in the programs concerned. Further discussion to address the centrality of specific programs to a great land-grant research university could engage additional individuals within and outside the university community. In the end, any assessments of program strength must be accepted by the Provost and committed to as a foundation upon which investment and dis-investment decisions will be made. Following this type of process, programs could be determined to be in one of the following categories:

- to be retained on the basis of quality and thereby eligible for possible enhanced investment
- to be retained on the basis of centrality, and perhaps to be considered for further investment; or
- not to be retained.

As an incentive for colleges to take the initiative in this process, we propose the following as an adjunct to the process. A college may identify a weak doctoral program and specify actions to be taken in the form of investment of college funds or, where appropriate, deactivation or reduction in size, the proposed actions to be reviewed by the Graduate School. If the Graduate School concurs with the proposed action following an assessment of the program quality and analysis, the resources freed by deactivation of the program remain within the college. All programs would be very much a part of the biennial dialogues between the Provost, the Dean of the Graduate School, and Deans of colleges to ensure that appropriate actions are taken at the college level and in terms of the investment decisions of the university process.

**Methodology for Distribution of Funding Based Upon Quality**

Investing in high quality doctoral programs through reallocation of the current doctoral program subsidy funding requires reliable mechanisms for identifying the strongest doctoral programs based upon quality, as well as dis-investment in low quality, weak, non-core doctoral programs. While specific criteria would need to be developed by the Graduate School based upon the comments above on assessing program strength, the following would seem to be a reasonable starting point:

a. The quality and centrality of the program to OSU’s mission and national reputation and prospects for its further strengthening.
b. The extent to which the program calls out new or emerging opportunities in a subject where OSU’s effort can make a significant difference relative to competing institutions. In this context, we emphasize that interdisciplinary collaborations are specifically encouraged.

c. The extent to which the program identifies ways in which OSU can do something distinctive in the subject, relative to the competing institutions.

d. The extent to which the program identifies new ways to enhance the diversity of its student body.

e. The extent to which the proposal identifies new ways to attract high quality students, to diversify the current student body, to help students enhance their professional profiles, and increase national/international awareness of student accomplishments.

f. The demonstrated commitment of the department, interdisciplinary program, and/or college to the proposal.

g. The extent to which the proposal contains a convincing plan for achieving its goals.

h. Whether the proposed budget and effort are reasonable for achieving the goals.

After extensive discussions within the committee as well as feedback from other members of the Senate Fiscal Committee, we present two models for distribution of funding to doctoral programs based upon quality, in the context of a competitive process. The committee’s initial proposal for periodic university-wide competitions among a large number of programs, and provision for faculty review and decisions on funding, was seen by the Senate Fiscal Committee as being too cumbersome to implement, susceptible to inconsistency in results from one review cycle to the next, and causing a disconnect between the Deans who would be held responsible for program improvement and the investment decisions.

A university-wide funding model and a college-centric funding model are presented below, both the models allowing for the consistent and continued involvement of the Provost, the Dean of the Graduate School and College Deans, the significant differences being in the way funds for the initiative are obtained. The two models build upon structured biennial interactions between the Provost, the Dean of the Graduate School, and the Deans of the colleges, individually and collectively. It will also be important for the Provost, the Dean of the Graduate School, and the College Deans to periodically review the outcome of the investments made to enhance doctoral program quality, for their effectiveness, balance and relation to the University’s goals. The Provost has overall responsibility for the process and authority for the allocation of funds.

**Model #1 (University-Wide Funding Model)** OSU college Deans would identify, on a biennial basis, strong doctoral programs within their colleges for additional investment, and these programs would be invited by the Graduate School to submit proposals for a competition for enhanced support from university and/or OBR/II funds. The funds available for investment would be those obtained through reductions in the effective rate per credit hour of enrollment used for internal distribution of doctoral subsidy funds. Using the example figure, cited earlier, of 20% redirection of doctoral subsidy over the years FY 06 – FY 15, funds available for investment in each biennial competition would be $ 4.2 M for STEMM programs (including OBR/II funds) and $ 900 K for non-STEMM programs. Care will be taken to ensure that interdisciplinary proposals involving programs from different colleges would be encouraged by the process. The Graduate School would use its available data and analysis of program strength, as well as a standing advisory committee of distinguished OSU and external faculty members, to review the proposals for additional investment and rank them. This assessment and ranking would be followed by a series of structured dialogues involving the Provost, the Dean of the
Graduate School, and the Deans of the Colleges, to reach agreement on which proposals and programs should be targeted for increased investment. The committee believes that these dialogues will lead to significant progress through the identification of strong programs as well as internal reallocations of college funds. Given that university funding is derived from a reduction in the effective subsidy rate per credit hour, the competitive process would result in some colleges gaining subsidy and some colleges losing subsidy. The funding decisions would be made by the Provost, following these structured interactions. Other features of the proposed competitive process are as follows:

- A biennial competition is consistent with the budget cycles of the university and of the state. Competitions for STEMM program funding would be conducted separately from competitions for non-STEMM program funding, and could be carried out in alternate years if necessary, with the STEMM competitions coinciding with the OBR/II funding competitions for FY 08, FY 10, FY 12, and FY 14.
- The request for proposals would list the required attributes of a winning proposal, including the various options a program could use to make its best case. The criteria for STEMM program competitions should be compatible with the criteria for the OBR/II, as it is intended that the funded programs should benefit from the latter resource as well.
- The review committee would be a standing committee for the duration of this initiative, in order to ensure consistency of the review process from one cycle to the next, as well as allow the monitoring of prior investments as part of the review process.

Model #2 (College-Centric Funding Model): The second model is college-centric in that colleges propose targeted investments in selected doctoral programs and support their requests for university or OBR/II funds with cost share using internal college resources. Colleges with STEMM programs would put forward proposals for OBR/II funds in biennial competitions. These proposals would be responsive to the criteria developed by the OBR/II program as well as those developed by the Dean of the Graduate School. Investment decisions would be made by the Provost following a series of structured dialogues with the Dean of the Graduate School and the Deans of the Colleges. These interactions would be candid and often difficult, and predicated on the institution articulating a vision/perspective as to what constitutes a truly great public institution in terms of graduate education. The Dean of the Graduate School would bring to these dialogues perspectives of balance across disciplines, as well as involvement of faculty perspectives in reviewing doctoral program quality for a wide range of disciplines and across colleges. Colleges which do not have any of their programs selected for additional investment would not, however, lose any part of their subsidy, all of the OSU cost share coming from colleges with winning programs. Until central funds are identified for non-STEMM programs, we do not foresee a similar process for these programs.

The process for disinvestment in weak doctoral programs is common to both models, with incentives built-in for colleges to take the initiative in identifying weak doctoral programs. If the follow-on action proposed by the college is deactivation or shrinking of the size of such a program, and if the Graduate School concurs with this proposed action following its analysis and review, the resources freed by the action remain within the college. If, on the other hand, deactivation of a program is the recommended action following a review process initiated by the Graduate School, the resources freed by the deactivation would become available to the Graduate School for investment in other quality doctoral programs. Clearly, such an outcome would need to be consistent with, and supported by, the structured biennial interactions between the Provost, the Dean of the Graduate School, and the Dean of the college. Members of the committee are sensitive to the need to ensure continuing balance between STEMM and non-STEMM programs.
and recommend that this perspective be maintained in the context of different scenarios for reallocation of resources envisioned here, whether this is within a college or across colleges. In terms of a tentative timeline for the process of disinvestment in weak doctoral programs, committee members feel that the process may commence in FY 08 and, if integrated appropriately with the cycle of program reviews, be amenable to full implementation within one cycle of program reviews.

Both the university-wide and college-centric funding models found support in the committee. Members of the committee, cognizant of the charge to the committee to present several models for distributing funding to high quality doctoral programs, unanimously support the decision to present both models, along with a description of their relative advantages and disadvantages.

The two models share some common advantages:

- They are consistent with the existing responsibilities and authority of the Provost, Dean of the Graduate School and College Deans who are held accountable for all program quality and resource distribution.
- They potentially allow for greater efficiency in decision making. Although both of these models will require time and effort on the part of graduate directors and faculty who will be helping to create proposals, they do not require as extensive an additional commitment of faculty time as that involved in approaches involving open, unrestricted competition among doctoral programs.
- They allow decisions to be made in the context of overall institutional priorities and by those having access to relevant broader institutional information.
- They encourage colleges to consider college-wide priorities and opportunities for shared resource use in efforts to strengthen programs demonstrated to be weaker than desired.
- They could be coordinated with evolving program reviews now being actively undertaken on a periodic basis in a fashion similar to accreditation reviews. The periods involved for such reviews (e.g., five to six years) allow ample time to both downsize weak programs and assess the effectiveness of increased central funding for strong programs.
- With their clear administrative accountability, this approach would provide both timely decision making and assurance of continuity in commitment that is necessary for doctoral program success.

Other advantages and disadvantages of the two funding models are noted below:

University-wide funding model – Advantages

- Faculty role in assessing program quality across colleges is more clearly specified and embodied in the reliance upon a standing faculty advisory committee
- University-wide funding allows for funds to be transferred across colleges, resulting in a university-wide approach to supporting strong doctoral programs

University-wide funding model – Disadvantages

- Since doctoral subsidies are allowed to flow across colleges, their ability to support good-but-not-great doctoral programs may be impaired

College-centric funding model – Advantages

- Colleges do not place internal resources at risk in seeking additional resources for quality doctoral programs
- Investments to support doctoral program quality may be more strongly driven by a top-down vision and better integrated with college priorities
College-centric funding model – Disadvantages

- In the absence of university-wide funds, the opportunity for colleges to invest in enhancing doctoral program quality is weakened, as in the case of non-STEMM programs
- Faculty role in assessing program quality is severely limited, and limits prospects for a university-wide approach to enhancing doctoral program quality
- In the event that there is less variability in the quality of doctoral programs within colleges than across colleges, funds would need to flow across colleges to best support doctoral program quality.

Common disadvantages shared by the proposed models are as follows:

- Faculty involvement in determining investments is weak, with potential implications for loss of transparency of the decision-making process.
- Small colleges with only one or two Ph.D. programs will be in the position not of deciding among many programs but rather whether to emphasize their Ph.D. programs or other initiatives in the colleges.

Since some important differences between the two methods arise from the fact that the university-wide model allows for some reallocation of funds between colleges and that this transfer may jeopardize some good-but-not-great doctoral programs as well as terminal Master’s programs requiring more than 50 credit hours, it is appropriate to examine the level of such reallocation in a broader financial context. Table 1 indicates that the cumulative reduction in PBA over the eight-year period of this initiative is a little over 3 % and that too for primarily STEMM colleges that would experience similar reductions in order to meet OSU cost share requirements for the OBR/II program. It should be noted that these colleges would be able to compete for funds from the OBR/II program and, depending on the extent to which they are successful in the competition, would see smaller reductions or overall increases in funding over this period. Table 1 indicates also that primarily non-STEMM colleges would see smaller reductions. Further, to put the impact on college budgets in perspective, college PBA increments over the five-year period (FY 03 – FY 07) have varied from a low of 9.9 % to a high of 63.8 %. The level of redirection of doctoral subsidy is therefore arguably modest, in the context of the acknowledged importance of enhancing doctoral program quality for the reputation of the University.

Nevertheless, the possibility of undesirable unintended consequences suggests that the process be re-evaluated after a few years to see if mid-course corrections are warranted or if doctoral subsidy levels or support for the OBR/II program vary significantly from the levels assumed here. Further, the current recommendations for generating funds for reallocation should be modified in the out-years if phasing out of truly weak programs does free up significant resources or if other additional resources for doctoral program funding become available. We suggest also that impact on funding of terminal Master’s programs requiring more than 50 credit hours be looked at more closely in the context of a specific implementation of the proposed initiative. Finally, while the recommendations in this report offer models for selective funding of doctoral programs based upon quality, these recommendations should be seen as being complementary to, rather than compensating for, other existing mechanisms for improving quality, such as the use of fellowships by the Graduate School to attract more high caliber doctoral students to OSU.
Summary of Recommendations

- We propose two models for funding of doctoral programs based upon program quality – one is a university-wide funding model that relies upon creating a central pool of funds for investing in doctoral program quality by reducing the net effective rate used for internal distribution of doctoral subsidy, and the other is college-centric funding model that relies upon use of college resources either for matching any external resources or for internal redirection in order to enhance doctoral program quality within colleges.

- As part of the university-wide model for funding distribution, we propose a competitive process wherein Deans of the Colleges identify candidate programs in their colleges for enhanced subsidy support. The Dean of the Graduate School, aided by an advisory committee of distinguished OSU and external faculty members, would assess and rank proposals for additional investment from the selected programs. Investment decisions are made by the Provost following a series of structured dialogues with the Dean of the Graduate School and the Deans of the Colleges.

- As part of the college-centric model for funding distribution, Deans of the Colleges identify candidate programs in their colleges which submit proposals for university or external funds to match internal college resources. Investment decisions are made by the Provost following a series of structured dialogues with the Dean of the Graduate School and the Deans of the Colleges.

- The two models have complementary advantages and disadvantages, with the university-wide funding model allowing for fund transfer across colleges and a clearer role for faculty in assessment and ranking of proposals for investment, and the college-centric funding model allowing for closer integration of investments with college priorities and protecting college assets for internal investments.

- Either of the funding models is amenable to initial implementation as part of the FY 08 budget process, with the FY 08 implementation limited to STEMM programs and the OBR/II program. We propose further that this competitive process be done biennially, a frequency that is aligned with OSU budget processes as well as the OBR/II program. The internal subsidy reallocation among STEMM programs in the university-wide funding model, or internal college resources of participating colleges in the college-centric funding model, would serve as the mandated OSU cost share for participating in the program. Innovation Incentive funds will therefore further leverage OSU investment in quality STEMM programs.

- In the event other central resources become available for this initiative, the two models provide different mechanisms for distribution of the funds to doctoral programs based upon quality.

- The process for disinvestment in weak doctoral programs is common to both models, with incentives built-in for colleges to take the initiative in identifying weak doctoral programs. We propose initiation of this process in FY 08 and, while we recognize that the extent of the resources freed up as a consequence is uncertain, feel that this process is an important and integral part of the proposed quality initiative.
APPENDIX
Detailed Analysis of Doctoral Subsidy Distribution Among STEMM and Non-STEMM Programs

1. The Board of Regents is supporting investment in the STEMM-associated doctoral programs by matching funds “placed at risk” by a respective university, the anticipated total amount being $8,578,423. The OSU investment required over the 10 years FY 06 – FY 15 is at least $8.578 million, approximately 12.6% of the total FY 07 OSU doctoral subsidy of $68.254 million. In FY 07, the required OSU match for the OBR Innovation and Incentive funds covered two years of OBR innovation incentive funds and totaled $1,715,685, the amount being derived by a reduction in the effective rate per credit hour. The total 10-year investment in STEMM doctoral programs through OSU investment and OBR matching would then be at least $17.16 million.

2. Based on a preliminary classification of the colleges into ‘primarily’ STEMM and non-STEMM categories, there are eleven ‘primarily’ STEMM colleges and the five STEMM-associated interdisciplinary graduate programs. There are eight ‘primarily’ non-STEMM colleges. The proportion of doctoral students in the ‘primarily’ STEMM and non-STEMM colleges is roughly a 60% to 40% split (2731 to 1941). A similar 60/40 split characterizes the proportion of doctoral specializations (51 to 35) and the proportion of general funds spending authority for FY 07 ($294,545,254 to $216,650,070).

3. The total subsidy derived from delivery of doctoral programs in FY 06 was $66,994,263. The STEMM associated proportion of doctoral subsidy is 70% or $47,000,837. The non-STEMM associated proportion of doctoral subsidy is 30% or $19,993,426. This differential links to the higher costs associated with delivery of doctoral programs in the STEMM colleges.

4. The fact that the ‘primarily’ STEMM colleges stand to benefit from the match by the OBR innovation incentive funds suggests that these colleges entirely support the OSU subsidy match to the OBR innovation incentive funds in future years.

5. Since doctoral program subsidy rates apply to specific courses rather than to doctoral programs or colleges, any reduction in the subsidy rate must be applied equally across all courses at the doctoral level rather than differentially by program characterization as STEMM or non-STEMM.

6. The recommended 70:30 split of the doctoral subsidy funds to be redistributed among STEMM and non-STEMM programs based upon doctoral program quality is therefore in line with the current split between the two program categories.
### Table 1- 
College Doctoral Subsidies, PBA Levels, and Projected Effects of University-Wide Funding Model on College Doctoral Subsidies

This table is for illustration purposes only. Actual allocations will vary depending upon state funding and colleges’ instructional activity.

<table>
<thead>
<tr>
<th>FY 07</th>
<th>FY 07 Total</th>
<th>FY 07 Total Dollar Change</th>
<th>FY 07 Total Dollar as % of Beginning Total PBA</th>
<th>FY 07 Total Dollar Change as % of 07 Beginning Total PBA</th>
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<td>Doc I Base</td>
<td>Doc II Base</td>
<td>Total Base</td>
<td>Doc I Base</td>
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<td>07-Social &amp; Behavioral Sciences</td>
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<td>$3,359</td>
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<td>11-Food, Agr, &amp; Envi Sciences</td>
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<td>12-Education</td>
<td>$3,298,760</td>
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<td>14-Engineering</td>
<td>$456,975</td>
<td>$12,998,394</td>
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<td>15-Human Ecology</td>
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<td>17-Nursing</td>
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<td>21-Dentistry</td>
<td>$10,837</td>
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<td>26-School of Public Health</td>
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<td>27-Odontology</td>
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<td>43-Exec Dean for Arts &amp; Sciences</td>
<td>$1,400</td>
<td>$1,050</td>
<td>$2,449</td>
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</table>

| Subtotal Academic Units | $18,330,774 | $45,277,090 | $64,216,863 | $803,842 | $6,694,289 | $2,431,540 | $19,432,546 | $2,431,540 |
| 42-Academic Affairs | $503,163 | $21,834                   | $524,997                                  | $61,500                                                 | $483,497                                              |
| 44-Interdisciplinary Programs | $57,844     | $3,429,765              | $3,462,792                                 | $45,383                                                 | $3,078,600                                            |

| Subtotal Other | $587,420 | $3,450,619 | $4,030,039 | $52,559 | $3,565,049 | $2,857,049 |

| Total | $19,527,194 | $48,727,708 | $68,254,902 | $888,406 | $7,955,604 | $60,259,298 | $19,432,546 |

Changes to Doc Allocation

| STEM & EM setaside | $8,578,423 |
| Non-STEM & EM setaside | $5,072,558 |
| Subtotal | $13,650,980 |
| Growth in Doc Earnings at 1% | $8,665,376 |
| Changes to Doc allocations | $7,955,604 |
| Beginning Doc Balance | $68,254,902 |
| Ending Doc Balance | $60,259,298 |

State match for innovation incentive | $10,359,886

Total PBA not calculated for other units because of possible distortions.

Based on 05-06 Averaged Doc I and Doc II Credit hours

Non-STEM Innovation Incentive not implemented until FY 08

Assumes 1% annual growth in doctoral earnings.