1 Statement of Purpose

As a subcommittee of Graduate Council, we have been charged with reviewing UCSD’s Block Grant allocation process, assessing its fairness and viability, and, if necessary, to propose modifications to the process consistent with a clear set of principles so as to maintain and improve the excellence of graduate education at UCSD.

1.1 Organization of this Report

This report consists of several sections. Section 2 describes the status quo by which departmental Block Grants are allocated. Section 3 discussed the history of the UCSD Block Grant system. Section 4 describes a proposed new model for Block Grant allocation. Section 5 contains several appendices. Finally, in an accompanying document, we provide the reports from the previous Mullin (1983) and Hellman (1997) committees, as well as data on student academic title rates and graduate student tuition/fees since 2002.

2 Status Quo for Block Grant Allocation

The final Block Grant allocation (BGA) received by a given department for academic year \((n, n+1)\) is given by

\[ B_n = N_{n-1} \cdot K_n \cdot M_n, \]

where \(N_{n-1}\) is the average departmental graduate enrollment during calendar year \((n-1, n)\), \(K_n\) is a dollar value per student, for year \(n\), and \(M_n\) is a merit factor, which ranges from 0.86 to 1.14, according to \(M = 1 + 0.07 \cdot (r - 3)\), where \(r\) is the current merit rating of the department, with \(r \in [1, 5]\). The AY 2000-10 has Block Grant allocation \(K_n\) was a blank, i.e. fixed.
where $c_n$ is the COLA rate for year $(n, n + 1)^2$. Differences among current departmental BGAs can then be traced almost entirely to the initial distribution of $K$ values, which has subsequently drifted upward due to COLA.

3 Historical Context

3.1 Ancient history: pre-1983 conditions

Prior to 1983, graduate fellowships on campus were administered on an individual basis. In 1983 GSR Dean Attireh appointed a committee, chaired by Professor Michael Mullin, to make recommendations on how GSR fellowships should be administered effectively to undergraduate students...
3.2 1983: The Mullin report

The Mullin committee proposed that a Fellowship Committee be established which would review and assess the success of departments vis-a-vis the following criteria:

(i) a critical assessment of the stipend needed for a given department to compete with other top-ranked graduate programs and/or industry,

(ii) other resources available to the department for graduate student support (e.g. extramural funds),

(iii) each department’s unmet need.

OGSR’s response to any unmet need, in turn, was to be assessed based on

(a) quality of graduate students (as determined by various relevant criteria, such as average GRE scores, job placement, etc.),

(b) quality of the graduate program (as determined by e.g. national ranking, number of degrees awarded, “societal need” for graduates, etc.),

(c) each department’s success in securing extramural funds. This last criterion was to be measured by the ratio of support earned by the department to some reliable measure of support available.

The report of the committee made clear that the authors understood well how some criteria are “administratively rather simple” to apply, while others “require a considerable degree of judgment.”

3.2.1 Changes resulting from the Mullin report

The Mullin Committee’s recommendations resulted in the creation of a new structure in which a Block Grant Allocation Subcommittee (BGAS), a subcommittee of Graduate Council, would meet annually and decide, together with OGSR Dean R. Attieh, on the Block Grant allocations for the
3.2.2 Computation of unmet need rate

Based on a telephone discussion between DPA and former OGSR staff member Jean Fort on Jan. 15, 2010, our understanding is as follows. Total need for Ph.D. students was obtained as follows:

\[ C_{\text{PhD}} = N_{\text{PhD}} \cdot s_{\text{PhD}} + T_{\text{PhD}} \]

where \( N_{\text{PhD}} \) is the projected number of enrolled PhD students eligible for support, \( s_{\text{PhD}} \) is average stipend per student, and \( T \) the total tuition/fee need. The stipend value \( s_{\text{PhD}} \) was determined by the BGAS based on requests by departments and analysis by OGSR, which gathered data on stipends at comparably ranked departments at other campuses. For Master’s degree students, the need formula was

\[ C_M = N_M \cdot s_M + T_M \cdot f, \]

where \( N_M \) is the number of Master’s students, \( s_M \) the stipend per student, \( T_M \) the tuition and fee total for Master’s students, and \( f \) was the ‘fraction considered’, which was \( f = 0.4 \) for MPIA students, \( f = 1.0 \) for MFA students, and \( f = 0 \) for all other Master’s students. The stipend value \( s_M \) was determined in a manner similar to that for PhD students, based on departmental requests and OGSR analysis of comparably ranked departments.

A department’s unmet need was then defined as

\[ U = C_{\text{PhD}} + C_M - X, \]

where \( X \) is the total graduate student support from non-BG sources. The departments were also classified according to division (Natural Sciences, Engineering, Social Sciences, Humanities, Arts, and IRPS) and an unmet need per division was computed.

The total unmet need among all divisions often exceeded the total BG funds available, and individual unmet need figures were scaled by the ratio of available funds to total unmet need to compute a quantity called the reduced unmet need (RUN). Dividing the reduced unmet need by the total number of eligible students, \( N_e \), yielded a figure of merit which would approximate the BG support per student awarded by OGSR. The number of eligible students, \( N_e \), was defined to be the sum of all PhDs, MFAs, and 40% of MPIA students. Note that Master’s students in the Natural Sciences, Engineering, Social Sciences, and Humanities did not figure into the calculation of \( N_e \). Figures from 1995-96 are shown in table 1.

The RUN was not exactly the same among departments of the same division. Black box allocations...
<table>
<thead>
<tr>
<th>DIVISION</th>
<th>RUN PER CAPITA</th>
<th>BG PER CAPITA</th>
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<tr>
<td>Natural Sciences</td>
<td>$1,094</td>
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<td>Engineering</td>
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<tr>
<td>IRPS</td>
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<td>$1,400</td>
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</table>

Table 1: Reduced unmet need per capita and Block Grant rates (1995-96).

### 3.3 1997: The Hellman report

In 1997, an ad hoc committee chaired by Professor Frances Hellman was charged with reviewing the BG allocation process. While the Hellman committee praised the nuanced analysis and endorsed the recommendations of the Mullin committee, it nevertheless observed that, “over time, the principles of the 1983 report have not been followed as intended.” A number of changes to the BG allocation process were suggested:

- The most significant change suggested was the renaming and retasking of the Block Grant Allocation Subcommittee, subsequently called the Graduate Fellowship Subcommittee (GFS). The complex and contentious business of determining the base Block Grant allocations $B'$ would be automated, and given by the formula $B' = N \cdot K$, where $N$ is the average graduate student population and $K$ is a dollar amount per student, subject to yearly COLA increases, which reflects disciplinary criteria, “such as the availability of external funding and the comparison of dollars needed for a competitive stipend”. As we shall emphasize below, the crux of the matter lies in determining a tenable algorithm for fairly determining the departmental $K$ values.

- The *status quo ante* involved an annual mini-review of all departments. The Hellmann Committee suggested that this process be replaced by rolling reviews by the Graduate Fellowship Subcommittee, and that those reviews “be linked to the current 7 year graduate program review”. It was suggested that GFS reviews take place one year after each external review, and then again four years later. The GFS would determine the merit rating $r$ of each department, and the final Block Grant allocation $B$ would be $B = M \cdot B' = N \cdot K \cdot M$. where $M = 1 + r$
explicitly identified several items which it felt should be required to be addressed in the department applications.

- It was agreed that “departments with little or no recourse to other sources of funding should be given proportionally more fellowships relative to the number of students in the department, as is currently done, with merit being then considered as an adjustment to a base amount.” Despite exploring several model funding schemes, “it proved impossible for the committee to reach an agreement on the actual $ per student which should be made available to each department” (i.e. the K values). The committee recognized that the then-current BGA profiles were the result of an evolutionary process, and suggested that this process continue, with input from the quadrennial GFS reviews.

- The committee struggled with the tricky criterion of unmet need, remarking that the concept itself is “flawed by the fact that it is directly influenced by the number of students admitted to each department”. A majority of the committee (6-2) felt that unmet need should be measured by availability of external funding sources, rather than in the external funding secured, although it was recognized that the ‘availability’ is difficult to analyze. There was also internal disagreement among the committee members regarding the role of the TA allocation.

3.3.1 GSRTF corrections

Previously, graduate student researcher tuition and fee (GSRTF) payments were handled in the following manner. The tuition and fees for all campus GSRs were averaged, and Principal Investigators would pay a monthly amount into a GSRTF pool reflecting the campus average monthly GSRTF costs. In this way, PIs would pay the same TF costs for foreign students as for California residents. Each department would then incur a GSRTF correction to its Block Grant, to compensate for the difference between that department’s fraction of nonresident GSRs and the overall fraction in the campus pool, which determined the monthly GSRTF payments. Departments with a larger than average percentage of foreign students would then be penalized with a reduction in their Block Grants. The GSRTF correction proved particularly onerous for some of the engineering departments, and the result was that they were assigned higher K values. (This was confirmed in a March 2009 telephone conversation between DFA and Professor Frances Hellman, now at UC Berkeley.) Since that time, however, the campus GSRTF pool has been divided into four separate pools: Engineering, Physics, SIO, and Other (i.e. all remaining departments). The result is that PIs in Engineering pay a monthly GSRTF charge which appropriately reflects the total GSRTF costs of Engineering students. There is no longer a GSRTF correction to the Engineering, Physics, or SIO Block Grants.
for determination of the merit factor $M$. One such issue was the inexperience and lack of institutional memory among the members of the GFS. Inasmuch as the core function of the fellowship subcommittee – to evaluate and score the graduate programs – was seen to be an appropriate charge to the Graduate Council, it was proposed that the GFS be permanently dissolved, and its role subsumed by the Graduate Council. So as not to be an imposition its members, it was also proposed that the size of the Graduate Council be expanded so that the workload of the individual members not change significantly. This proposal was approved by the Graduate Council, effective AY08-09. The Scull report also recommended an overhaul of the entire Block Grant allocation process, which directly led to the formation of the present subcommittee.

3.5 Deficiencies in the existing process

The existing Block Grant allocation process suffers from a number of deficiencies:

1. The level of detailed analysis necessary to assess graduate student quality, graduate program quality, and availability of extramural funds (see §3.2) was onerous for OGSR staff. From what we can tell, these considerations have been dropped and now the $K$ value for each department varies from year to year based only on COLA. Other than the ICFG bump (see §5.2 below), the current spectrum of departmental $K$ values derives from 1997 figures, which have since accrued COLA. The relative BG funding for any two departments is then, even today, based on an old ‘unmet need’ computations more than a decade out of date.

2. The initial spectrum of departmental $K$ values from which our current figures are derived was subjected to significant modifications based on now obsolete considerations. For example, there is no longer any GSRTF correction to departmental Block Grants in Engineering, Physics, and SIO, and the historical increases in Block Grant allocations in order to compensate for what was a large negative GSRTF correction are no longer justified.

3. Institutional memory of the rationale behind the current scheme has waned considerably since the retirement of OGSR Dean Attieh and staff such as Jean Fort. We find ourselves today in the untenable position of implementing a scheme we have inherited but whose rationale is not well-understood.

4. OGS’s response to the termination of the ICFG program in 2006 was to assign an increase $\Delta K$ to each department’s $K$ value (i.e. pre-merit Block Grant per student) based on the average ICFG payments during the last three years of that program (AY03-04, 04-05, and 05-06).
4 A New Model for Block Grant Allocation

4.1 Criteria for the Block Grant allocation process

In view of the deficiencies of the existing Block Grant allocation model, we are proposing a new scheme. We endorse the assumptions from the 1983 and 1997 committees that departmental Block Grant allocations should be proportional to the number of students in the department and should be adjusted by a merit factor; hence we retain the basic formula $B = N \cdot K \cdot M$. Proposed modifications to the merit adjustment procedure are discussed in §4.9 below. The central remaining issue is how to determine a value for $K$ for each department\(^3\). In facing this issue, we are motivated by the following desiderata:

1. There is a significant disparity of resources for graduate students across departments. Because we believe that the less wealthy disciplines contribute significantly to the excellence and well-roundedness of the University, we consider it appropriate to effectively redistribute some resources from disciplines with more access to outside resources to those with less access to outside resources. That is, departments with less access to outside resources should receive higher Block Grant allocations per student.

2. However, we also believe that redistribution should not be so great as to disincentivize departments from diligently seeking outside resources. Therefore, the implicit subsidy should be low. Furthermore, the presence of a merit factor in the formula to incentivize excellence in a department should partly counteract the disincentivizing effect of a subsidy.

3. Even relatively wealthy departments must draw upon their Block Grant allocation to pay for certain expenses, such as first year graduate students, who often cannot be supported by extramural grants. Therefore, some base level of Block Grant support should be guaranteed. Additional support in the form of subsidies to less wealthy departments would then be added to the base allocation.

4. The new allocation scheme should be *dynamic*, based on data updated on a yearly basis.

5. While there is nothing *a priori* sacred regarding the current distribution of campus Block Grant resources, any new scheme should not result in a jarring change of the *status quo* in terms of resources per department.

6. The new allocation scheme should encode a degree of inertia, so the allocations do not fluctuate.
Figure 2: Average yearly expenditures per graduate student, 2006-2009.

We considered whether any external data on the general availability of research, instructional, and fellowship funds by discipline could be found which would help establish a ‘market value’ for different disciplines. Unfortunately, obtaining such information is quite difficult (see §5.1 below), and we abandoned this effort to focus solely on data available from UCSD’s Office of Graduate Studies.

4.2 Data and variables

All of the data were provided by Kathryn Murphy, the Director of Graduate Student Financial Support.
Figure 3: Non-BG funding per student, 2006-09 average.

2. Block Grant
3. diversity
4. OGS other
5. department GSRs
6. department fellowships
7. student initiated grants

Note that the sources are categorized by each student’s department. Therefore, if a student serves as a TA in another program, those resources are counted as part of the students home department resources.
Figure 4: Non-BG funding per student, 2006-09 averages, by division.

discontinued In-Candidacy Fee Grant (ICFG) program were included with Block Grant (see §5.2). To be consistent, we take only the average for Block Grant data starting in 2007-08.

4.3 Overview of per capita funding from various sources

4.3.1 Block Grant versus other sources
Figure 5: Total Funding by Division; 2006-09 averages.

4.3.2 Non-Block Grant funding by department

Fig. 3 shows the primary sources of non-Block Grant funding. CSR was particularly important for...
4.3.3 Non-Block Grant funding by division

Engineering, Health Sciences, and Natural Sciences have the highest average non-Block Grant funding and the Arts have the lowest. See fig. 4.

4.3.4 Total funding by division

Adding in the Block Grant funding (top slice, in violet), we arrive at fig. 5.

4.4 Statistical analysis of Block Grant allocation
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</tr>
</thead>
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<tr>
<td>Instructional funds</td>
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<td>0.027</td>
</tr>
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<td>GSR funds</td>
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<td>0.019</td>
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<td>Fellowship funds</td>
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<td>0.170</td>
</tr>
<tr>
<td>Student-initiated funds</td>
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<td>0.077</td>
</tr>
</tbody>
</table>

Table 2: Determinants of the Adjusted Block Grant Allocation per Student. (Weighted regression; weight is enrollment in calendar year 2008). An asterisk (*) indicates statistical significance from zero at the five percent level.

4.5 Regression analysis

To get a handle on which subcomponents of the non-BG funding were most significant, we performed a multivariate linear regression analysis, weighted by the number of graduate students in each department. The results are shown in Table 2. The linear model explains 86% of the variation among the 32 data points. The estimate of −0.14 for GSR funds means that for every dollar increase in GSR funds per student, the Block Grant allocation decreases by 14 cents. Similarly, for every dollar increase in instructional funds per student, the Block Grant allocation decreases by six cents.

We also investigated the effect of adding the following variables: (i) enrollment; (ii) the fraction of students who are foreign; (iii) the fraction of all graduate students who are PhDs; (iv) merit rating. None of these variables was significant.

4.6 The “weighted resources” concept

The effects of diversity funds and student-initiated funds were not statistically different from zero. ‘Other OGS funds’ seemed to have a positive effect on Block Grant allocations. These other funds are a small part of total resources, however, so we limited the analysis to instructional funds, GSRs, and fellowship funds. We tested and could not reject the simpler specification where we defined.
the fact that certain of their undergraduate courses are curricular requirements in degree programs offered by other departments. Examples include Mathematics vis-a-vis the Natural Sciences and Engineering, Physics vis-a-vis Engineering, etc. This results in an increased TA allocation, which has a direct and significant positive impact on a department’s graduate program. On the other hand, these requirements presumably exist for solid academic reasons, and graduate student TAs provide an essential role in the campus’ educational mission. For these reasons, we feel that instructional funds should be included in the formula for weighted resources, but at an appropriately reduced rate. What that rate should be is difficult to assess, but in our deliberations and in discussions with the full Graduate Council, 50% was regarded as fair.

4.6.1 Linear model

When we regress the Block Grant allocation on this variable $W$, we obtain the two-parameter model

$$K = X - \alpha \cdot W$$

where the best fit is given by

$$X = 7,107.10, \quad \alpha = -0.142.$$ 

We refer to this as Model I. The standard error of the estimate is $299.10$ on the constant term $A$ and $0.012$ for the coefficient $\alpha$ of the weighted resources. This combined measure still explains \( r^2 = 82\% \) of the variation. The results are shown in fig. 7. One feature of the linear model is that $K$ continues to decrease with increasing $W$ and becomes negative for $W > X/\alpha \approx 50,000$. However, even those departments well-positioned to take advantage of external funding sources have expenses which require Block Grant funds. For example, the support of first year graduate students, who are commonly occupied with coursework and unable to devote significant time to research, is generally drawn from Block Grant, TA allocation, and whatever fellowship sources are available. Thus, it would seem appropriate that some base level of Block Grant support be provided even for departments for which $W$ is very large.

4.6.2 Nonlinear model

We also explored two nonlinear fits. The first was a three-parameter exponential fit of the form

$$K = X + Y \exp \left( -\frac{W}{W_0} \right)$$
smoothly interpolates between these limits. This model has a better value of $r^2 = 0.88$ when compared with the simple linear fit, and smoothly asymptotes to a minimum support level per student in the large $W$ limit. Results are shown in fig. 8.

### 4.6.3 Piecewise linear model

The second nonlinear fit we considered was a three-parameter piecewise linear model of the form

$$K = \frac{X + \alpha \cdot Y - W}{X} \quad \text{if} \quad W < Y$$

$$K = \frac{X}{X} \quad \text{if} \quad W \geq Y.$$

This is Model III. We had also investigated a piecewise linear model with two independent slopes, but we found that the slope of the high $W$ end was not different from zero with any statistical significance. We find a good fit (with $r^2$ comparable to that for the exponential) with
Figure 8: Block Grant Allocation versus Weighted Resources with exponential fit.

2. Departments whose weighted resources per student $W$ are below $Y$ receive a subsidy in the amount of $\Delta K = \alpha \cdot (Y - W)$.

4.7 Proposed Block Grant allocation scheme

Of the three models considered, we recommend adoption of the piecewise linear model of §4.6.3. While each of the three models respect the criteria in §4.1 reasonably well, the piecewise linear model avoids the defects of the pure linear model of §4.6.1 in the treatment of very rich departments (those with large $W$), and is more easily explained and understood than the exponential model of §4.6.2.

To implement such a scheme, we first propose that the weighted resources $W$ be computed as a three year rolling average, and updated yearly. By basing the allocation formula on a rolling average, we build in the desired inertia which should prevent excessive year-to-year fluctuations in resources. Then, departments below the threshold $Y$ would be subsidized according to the formula above.
scheme would fix the ratio $X/Y \equiv \beta$. Then

$$K = \begin{cases} 
\beta \cdot Y + \alpha \cdot Y - W & \text{if } W < Y \\
\beta \cdot Y & \text{if } W \geq Y ,
\end{cases}$$

where $\alpha = 0.20$ and $\beta = 0.12$. Call this Model IIIa. In this scheme, only $Y$ accrues COLA adjustments. The relative virtues of models III and IIIa will be assessed in discussions of the final implementation with OGS Dean Barrett and OGS staff.

4.8 Tapered introduction of the new system

We propose that over the next three or four years the new system be introduced smoothly, with

$$P_{\text{ACTUAL}} = P_{\text{NEW}} + (1 - n) \cdot P_{\text{OLD}}$$
4.9 Merit adjustment to the Block Grant allocation

During AY 2009-10, Graduate Council discussed the issue of merit adjustment to Block Grant allocations. The proposed modification to the existing scheme which emerged from these deliberations is as follows:

1. At the time of each department or programs Block Grant Review (every four years), Graduate Council (GC) has only five options:
   a. Award a bonus of 10% \((M = 1.10)\)
   b. Award a bonus of 5% \((M = 1.05)\)
   c. No change \((M = 1.00)\)
   d. Impose a penalty of 5% \((M = 0.95)\)
   e. Impose a penalty of 10% \((M = 0.90)\)

   All bonuses automatically taper by 5% over the course of the four year review period.

   Rationale: A bonus is a reward for recent achievement; there should be no assumption that a bonus will be maintained. Faculty should have no difficulty understanding the tapering bonus.

2. The criteria, in order of decreasing priority, to be used in determining the merit adjustment to a given department’s block grant are:
   a. Placement of recent graduates
   b. Time to degree
   c. Quality of students admitted
   d. Diversity of student body
   e. Response to issues identified in reviews of the graduate program

In addition, large, persistent carryovers in a department’s block grant may be taken into account, with a significance commensurate with the magnitude and duration of the carryovers.

Rationale: The decision to award a bonus or impose a penalty should be based on objective data to the extent possible. Large, persistent carryovers are taken as an indication that a department is not efficiently utilizing its Block Grant funds.
4. Departments and programs may, at the time of the quadrennial Block Grant Review, request a recalibration of their current Block Grant base allocation.

**Rationale:** A recalibration request permits departments and programs to inform OGS and GC about any changes in their field that affect the "unmet need" component of their base allocations.

5. **Appendices**

5.1 **Effort to externally determine ‘market value’ of different disciplines**

Responding to the sentiments of the Graduate Council to a preliminary presentation of these data, we attempted to identify external data which might provide an indication of the ‘market value’ of different academic disciplines. The most extensive data set we found was that from the National Survey of First Year Graduate Student Stipends, a multiyear study run under the supervision of Binghamton University (SUNY Binghamton). This extensive study assembled stipend data across 133 disciplines in 10 program areas, with some 324 participating institutions. However, after consideration of this study, we determined that it was inadequate for our purposes. While the total number of disciplines and institutions is considerable, the number and quality of institutions which provided responses for a given discipline was generally inadequate. For example, the 2008 data on Economics included responses from only 10 public and 2 private institutions, the public ones being SUNY Binghamton, University of Arizona, University of Central Florida, University of North Carolina at Greensboro, University of North Dakota, Washington State University at Pullman, Wayne State University, University of Missouri at St. Louis, Colorado State University, and Illinois State University; the private universities for this data set were Fordham University and Marquette University. The situation in other disciplines was quite similar. We also felt that some of the survey questions were ambiguous, and we suspect that respondents to questions such as "What is the modal amount for stipend paid for first-year full-time academic year graduate assistant positions held by doctoral students?" would likely reply by quoting a convenient relevant figure, such as the local TA salary, rather than computing the average of all such payments to first year students. Overwhelmingly, the survey results were limited to only a few forms of student compensation, typically average TA stipend for MAs and PhDs, with zeros entered for other categories such as internally and externally funded (non-TA) student stipends, and, importantly, fellowship stipends. (Example: average 2008 fellowship stipends are reported as zero for Chemistry, Physics, Economics, Mathematics, Biological Sciences, History, Philosophy, etc.). So in the end we found ourselves considering a 9-item scale anchored with the typical range of market compensation.
or grants) were eligible for the In-Candidacy Fee Grant (ICFG), which paid for the educational portion of the student’s fees. Students eligible for ICFG were not charged the educational fees. This program ended throughout the UC system and UCSD was the last campus to maintain the ICFG. In 2006, the UCSD ICFG program was terminated. The annual supplement that UCSD OGS was receiving for ICFG continued, but it was no longer designated as ICFG and was converted to discretionary funds. OGS however maintained a ghost of the ICFG program in the form of increased Block Grant allocations to departments. Each department at UCSD received a boost to its BG by an amount equal to the corresponding three year average ICFG payments for 2003-04 through 2005-06. For each department, this value was divided by the number of eligible students, and the resulting value was added to permanently shift the various departmental $K$ values. The effect is visible in fig. 10. The changes $\Delta K$ for each department’s $K$ values were frozen in based on 2003-06 data, and ICFG eligibility data are no longer maintained by OGS.
Figure 11: Top: monthly salaries for (100%) TA and GSR step I academic titles and campus-wide total Block Grant allocation per student, since 2002. Bottom: quarterly resident fees (total) and nonresident tuition, since 2002.
5.3 Should the allocation formula be tied to student academic title rates?

In order to introduce a minimal number of new parameters into the OGS accounting system, we considered tying certain constants in the Block Grant allocation formula to student academic title rates. For example, the threshold $Y$ in the piecewise linear model is best fit by $Y \approx 25,000$, which is very close to 75% of the current TAFTE value of $33,274$. If the TAFTE accrues COLA adjustments at the same rate as the campus Block Grant pool, then we could peg the threshold $Y$ to the TAFTE in this manner and avoid introducing a new parameter. However, an investigation of the TAFTE and GSR step I salary data since 2002, when compared with the total campus Block Grant allocation per student over the same time period, shows the latter increasing at a significantly higher rate (see fig. 11, top panel). Therefore, the Block Grant allocation formula should not be tied to student academic title rates. For purposes of comparison, data on graduate student tuition and fees are shown in the bottom panel of fig. 11.