I. Introduction
There are different interpretations of the average cost of education. The perspectives of the state and other policy makers might be substantively different from the perspectives of the institutions responsible for the delivery of the educational mission and those of students and families who pay for the education.

This paper provides general information related to the cost of instruction and specifically examines a number of mainstream average cost methodologies to inform a reasonable calculation for UCSD. The primary purpose is to help inform campus decisions in resourcing instruction. Therefore, the average cost study is conducted in parallel with the budget review of the enrollment workload funding components. Clearly, it is not our intent to provide an answer to the question: What should be the per-student average cost of instruction at UCSD?

II. Revenues Versus Costs
There are two primary revenue sources that make up the instructional budget: State educational appropriations and income from UC mandatory tuition and fees consisting of:

- Student Tuition income (Educational Fee)
- Student Services Fee income (Registration Fee)
- Nonresident Supplemental Tuition income (NR Tuition)
- Professional Degree Supplemental Tuition income (Prof Fee)

The University’s educational spending occurs across a variety of fund sources, thus the typical calculation of the average cost of education looks across education and related spending (E&R) from all fund sources \(^1\), compared to the “limited” revenue sources that make up the educational budget.

III. Price, Cost, and Subsidies
- The typical average price \(^2\) of an education is less than the average cost for public institutions. The gap is made up with state subsidies based on the premise that students are “not” required to cover the full cost of education.
- There is large variation around the average because some disciplines and programs cost much more than others. Therefore, cross subsidization is common. Lower-division courses help subsidize upper-division courses and undergraduate education helps subsidize graduate education, etc.
- Each institution’s average cost depends largely on the make-up of its academic programs, mix of disciplines and curriculums and enrollment level distributions.

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\(^1\) With the exception of CPEC and UCOP, other organizations such as NACUBO, Delta Cost Project, Delaware Cost Study, etc. have used expenditures from all fund sources.

\(^2\) Average Price: Tuition and fees charges (price tag)
IV. **Calculations of the Average Cost of Education**

Historically, different organizations have attempted to develop methodologies to calculate the average cost. The following cost components are typically included in the calculation of a full-cost model:

- Direct instructional and student services expenditures.
- Indirect expenditures related to the educational mission: academic and institutional support, and operation and maintenance of facilities.
- Indirect expenditures may also include the cost for replacement of land, buildings and equipment but measuring the cost for this component is less uniform and precise.

A. **The CPEC Method (1993 Study)** – All Students

- The CPEC calculation of the average cost includes specific fund sources: State GF, UCGF, Lottery funds and Student Tuition and Fee income.
- The CPEC separates direct budgets in the health sciences instruction, research and public service and teaching hospitals from general campus instruction and research (GC I&R).
- Prorates indirect costs for libraries and other support functions such as institutional support, O&MP and student financial aid, by the % of GC I&R expenditures.
- The direct and indirect expenditure estimates are divided by the general campus FTE enrollment to estimate a per-student educational expenditure.
- CPEC’s 1991/92 average cost for UC was $12.2k per student. This figure is consistent with UCOP’s record of $12k for that year, when institutional aid is included.

B. **The UCOP Method (Current)** – All Students

- UCOP adopted CPEC calculation methodology to calculate UC’s average cost. However, UCOP excludes student financial aid expenditures. The UCOP views the cost of institutional aid as related to student access not student education.
- UCOP’s average costs were $14.2k per student in 2009/10, $17.8k in 2010/11 and $17.2k in 2011/12. In the prior decade, it fluctuated between $13k and $16k.

C. **The Delta Cost Project** – All Students

- This national project studied and analyzed the cost of college spending. Using the all funds approach, it includes all cost components used by the CPEC/UCOP methods, excluding financial aid.
- The Delta Cost Project calculated the average cost based on 149 public research universities using Carnegie classifications and data from IPEDS.
- The Delta average costs were $13.9k and $15.6k in 1997/98 and 2007/08 respectively, compared to UCOP’s average costs of $13.7k and $16k in those years.
- Replicating the Delta method and using 2009/10 campus reported expenditures, we calculate UCSD’s average cost at $15.6k.

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4. CPEC: California Post-Secondary Education Commission
5. IPEDS: Integrated Postsecondary Education Data System
D. **The NACUBO Method (2002)** – Undergraduate Education

- The NACUBO’s average cost represents the *most fully-loaded* calculation. Using the all-funds approach, it includes all expenditure components used in the CPEC/UCOP methods, including financial aid. Furthermore, it also includes the following:
  - Capital and equipment depreciations.
  - Extracurricular cultural activities and facilities such as museums, theaters, performing art centers, religious programs, etc.
  - Institutional subsidies related to self-supporting auxiliary enterprises such as housing and dining services, parking, intercollegiate athletics, etc.

- Due to differences in cost structure, funding, enrollment and program mix, the calculated 2000/01 average cost for undergraduate education varied between $7k and $15k for 4-year public institutions. This compares to UC’s 2000/01 average cost (all students) of $16.3k including institutional aid.

- Replicating the NACUBO method using 2009/10 campus financial expenditures, we calculated UCSD’s average cost at $17k.

E. **The Schwartz Method 2006** - Undergraduate Education

In 2006, UC Berkeley Professor Emeritus Charles Schwartz took a very different and rather extreme approach to the average cost calculation that attempted to unbundle faculty time spent on undergraduate instruction versus research and other duties using the survey data via the UC Faculty Time Use Study report. However, except for the unbundling of the instructional component, Prof. Schwartz took similar approach as the other agencies used to calculate the remaining cost components. He included student services costs and the E&R portion of overhead costs: academic and institutional support, O&MP, as well as capital asset depreciations.

Following are some of his findings:

- Faculty typically spent about a quarter of their efforts on instruction which is classified as direct instructional costs. The balance of effort was allocated to research, university service, professional activities and public service.

- The 2006/07 UC average cost based on this model ranged between $6,700-$7,300 per student compared to the total mandatory fees of approximately $7,400. Therefore, the undergraduate students potentially pay 96%-100% of the cost of their education.

- In December 2009, the Campus Budget Office replicated this methodology using the 2008/09 data reported in the financial schedules for UCSD. The calculated average cost was $7,650 compared to total undergraduate mandatory fees of $8,900.

V. **Things to Consider: Cost of Education and Availability of Revenues**

Reassess our educational spending and how it relates to the academic programs, the mix of disciplines, the majors and related curriculum, general education requirements and student services programs.

- Review credit hours requirement for degree completion.

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6 NACUBO: National Association of College and University Business Officers
7 Average mandatory fees represent an average of both systemwide and campus-based mandatory student fees, including health insurance
• Review policies to control excess credits not required for degree completion.
• Monitor level of student support services and facilities.
• Create incentives that support courses and degree programs that are in high-demand and economic need and disincentive for growing low-demand, low enrollment courses.

VI. UCSD’s Average Cost Calculations (2009/10)
In order to answer the question: “how much does it cost to educate a UCSD student?” We used the all funds approach and followed the Delta Cost method as it includes all major cost components used by both UCOP and CPEC. We made some minor adjustments in the detailed calculations to better represent the enrollment structure and spending practice of UCSD.

Direct Costs:
• Component 1: GC I&R direct instructional expenditures – 100%
• Component 2: Student Services expenditures– 94%, representing GC enrollment.
• Total Direct Cost per student: Sum of Component 1 & 2 divided by GC Enrollment Total.

Indirect Costs:
• UCSD’s expenditures associated with the instructional mission was 41%\(^8\). We used this % to prorate the indirect costs related to instruction for each of the following support functions: academic support, institutional support and O&MP.
• Total Indirect Cost per student: Sum of the prorated indirect costs divided by total student enrollment (GC and HS).

Based on Delta Cost method, UCSD’s estimated average cost of education based on 2009/10 reported expenditures was $15.6k. When applying the NACUBO method by including cost related to capital and equipment depreciations, the UCSD’s average cost increased from $15.6k to $17k.

\(^8\) Instruction mission includes both General Campus and Health Sciences. The remaining 59% represents spending on the non-instruction missions: research (57%) and public service (2%).
December 11, 2011

Budget Review Work Group – Discussion Item
Resourcing Instruction – Enrollment Workload Allocations and Average Educational Spending

I. Current Enrollment Allocation Models
   • Resident Enrollment – review allocation flow chart
   • Non-resident Enrollment – review allocation flow chart

II. Average Cost of Instruction
   • A summary of various average cost of instruction calculation methodologies used by various higher education organizations is reflected in Attachment A
   • The Delta Cost Project and National Association of Colleges and Universities Business Officers (NACUBO) use an all-funds approach in their calculations compared to the UC and the California Postsecondary Education Committee (CPEC)’s approach that focuses on specific sources: General Funds and Tuition income.
   • All average cost calculations include the following cost components:
     o Direct instructional and student services expenditures.
     o Indirect expenditures related to the educational mission: academic and institutional support, and operation and maintenance of facilities.
     o Indirect expenditures may also include the costs to for replacement of land, building and equipment. The inclusion of this cost component is not as uniform.
   • UCSD’s Average Cost based on Delta Cost Model: $14.7k Per FTE

III. Campus Allocations Model Compared to Average Cost Attachment B

Resident Students:
   • Total revenues earned/generated per student FTE was $16.5k, compared to the estimated average cost per FTE of $14.7k.
   • Allocation for instruction was 2.3% or $270 lower than the average.
   • Allocation for institutional support was 7.7%, or $900 lower than the average.
   • Allocation for O&MP was 91%, or $800 higher than the average cost.

Non-resident Students:
   • Total revenues generated per student FTE was $26.3k, compared to the estimated average cost per FTE of $14.7k.
   • Allocation for instruction was 76% or $8.4k higher than the average cost.
   • Allocation for institutional support was 5% or $600 lower than average.
   • Allocation for Student Services was 6% higher or $700
   • Allocation for O&MP was slightly higher, 2.3% or $270
Comments on the use of incremental funding available for instruction, student services and O&MP, above average spending:

- **Instruction:**
  - Support overall academic program.
  - Bridging the overall funding gap due to budget reductions and unfunded resident enrollments.

- **Student Services**
  - Extra efforts in the NR domestic out of state and international students’ marketing, recruitment and retention.

- **O&MP:**
  - There may be an overall need for additional O&MP support due to high cost related to the research programs, etc.

Other comments:

- **Institutional Support**
  - Significant underfunding for institutional support
  - Potential realignment

- **Campus Resources**
  - Potential use of funds for identified campus priorities

IV. Planning for Enrollment Growth

- In 2010/11, the campus began the 5-year planned growth of 1,500 undergraduate nonresident student FTE.
- At the end of the 5th year, the campus expects to see an increase of nonresident undergraduate students from about 6% to 10% of total undergraduate student population.
- The Enrollment Planning Committee (EPC) is currently reviewing options to increase nonresident enrollment beyond the original plan.
- The EPC is also reviewing options concerning resident student enrollment.
- The Committee’s recommendations and campus decisions are expected to complete early next year.

V. Considerations of Other Cost Components:

- Graduate Student Support
- Faculty Recruitment and Retention
- Capital renewal, facilities deferred maintenance
- Annual mandatory cost increases, in particularly compensation related increases
- Other campus priorities and investment
### Average Cost of Instruction Calculation Methodologies

<table>
<thead>
<tr>
<th>Organizations</th>
<th>Document Referenced</th>
<th>What it measures?</th>
<th>Cost Components Included</th>
</tr>
</thead>
</table>
| UCOP          | Average Cost Calculation Method  
State GF and Tuition/Fee - Excludes SFA  
2010/11 UCOP: $17.8k  
2011/12 UCOP: $17.2k | Average cost per student associated with fulfilling the institution’s instructional mission.  
Average Cost figure for UC | State GF and Tuition/Fee only:  
All direct instructional expenditures, student services, and pro-rata share of other institutional costs related to and in support of instructional mission such as academic support, institutional support and O&M. |
| CPEC          | Expenditures for University Instruction 1993  
State GF and Tuition/Fee - Includes SFA  
1991/92 CPEC: $12.2k (UC Average)  
Compares to UCOP: $12k | Average cost per student associated with fulfilling the institution’s instructional mission  
Average cost figures for UC | State GF and Tuition/Fee only:  
Cost components: Same as UCOP  
-Add: institutional financial aid. |
| Delta Cost Project | Trends in College Spending Report 1999-2009  
All Funds - Excludes SFA  
1997/98 Delta Cost Ave.: $13.9k  
Compares to UCOP: $13.7k  
2007/08 Delta Cost Ave.: $15.6k  
Compares to UCOP: $16.1k  
2009/10 UCSD Ave: $15.6k (Delta Cost Model)  
Compares to UCOP: $14.2k | Educational and Related Costs (E&R) which captures only the spending related to the educational mission.  
Average Cost figures for public research universities according to Carnegie classifications | All Funds:  
Cost components: Same as UCOP |
| NACUBO        | The Cost of College Project – 2001  
Explaining College Cost – 2002  
All Funds - Includes SFA  
2000/01 NACUBO Ave. Range: $7k-$15k  
2009/10 UCSD Ave: $17.1k (NACUBO Model) | Fully-Loaded Average cost of delivering undergraduate education  
Average Cost figures for 4-year public research universities | All Funds:  
Cost components: Same as CPEC  
-Add: capital and equipment depreciations  
- Add: subsidies related to auxiliary enterprises (none for UCSD)  
-Add: activities related to cultural and religious programs. |
| Prof Schwartz - UCB | Cost of UG Education at UC - December 2007  
All Funds - Excludes SFA  
Prof Schwartz used a more radical approach by unbundling the direct instructional expenditures.  
2006/07 Schwartz UC Ave Cost: $6700-$7300  
2008/09 UCSD Ave: $7.6k (Schwartz Model) | Average cost of educating an undergraduate student at UC strictly rel to instructional mission. Unbundled direct instructional expenditures based on faculty time  
Average Cost figures for UC | All Funds:  
Same as UCOP except  
-Adjust direct instructional expenditures based on the % of faculty time spent for teaching (23%),  
-Add capital depreciations. |

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1 GF and Tuition includes: State GF, UCGF, Lottery funds, Income from UC mandatory Tuition and Fees (Ed and Reg) and Professional Degree fees.
# Resourcing Instruction - General Campus Enrollment

## Allocations Compared to Per-Student Average Cost of Instruction by Major Function

<table>
<thead>
<tr>
<th>Major Programs (1)</th>
<th>RESIDENTS</th>
<th>Campus Enroll.</th>
<th>Delta Cost Model</th>
<th>Alloc. Over/ Under</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Allocations (2)</td>
<td>Est. Average</td>
<td>Variance</td>
</tr>
<tr>
<td></td>
<td></td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>Instruction</td>
<td>$10,786</td>
<td>41.0%</td>
<td>$11,052</td>
<td>75.0%</td>
</tr>
<tr>
<td>Institutional Support</td>
<td>539</td>
<td>2.0%</td>
<td>1,429</td>
<td>9.7%</td>
</tr>
<tr>
<td>Student Services</td>
<td>1,263</td>
<td>4.8%</td>
<td>1,361</td>
<td>9.2%</td>
</tr>
<tr>
<td>Campus Resources</td>
<td>2,222</td>
<td>8.4%</td>
<td>-</td>
<td>0.0%</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td><strong>$14,810</strong></td>
<td><strong>56.2%</strong></td>
<td><strong>$13,842</strong></td>
<td><strong>94.0%</strong></td>
</tr>
<tr>
<td>O &amp; MP</td>
<td>1,690</td>
<td>6.4%</td>
<td>885</td>
<td>6.0%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>$16,500</strong></td>
<td><strong>62.6%</strong></td>
<td><strong>$14,727</strong></td>
<td><strong>100.0%</strong></td>
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</table>

<table>
<thead>
<tr>
<th>Major Programs (1)</th>
<th>NON-RESIDENT</th>
<th>Campus Enroll.</th>
<th>Delta Cost Model</th>
<th>Alloc. Over/ Under</th>
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</thead>
<tbody>
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<td></td>
<td>Allocations (4)</td>
<td>Est. Average</td>
<td>Variance</td>
</tr>
<tr>
<td></td>
<td></td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>Instruction</td>
<td>$19,460</td>
<td>73.9%</td>
<td>$11,052</td>
<td>75.0%</td>
</tr>
<tr>
<td>Institutional Support</td>
<td>864</td>
<td>3.3%</td>
<td>1,429</td>
<td>9.7%</td>
</tr>
<tr>
<td>Student Services</td>
<td>2,068</td>
<td>7.9%</td>
<td>1,361</td>
<td>9.2%</td>
</tr>
<tr>
<td>Campus Resources</td>
<td>2,796</td>
<td>10.6%</td>
<td>-</td>
<td>0.0%</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td><strong>$25,188</strong></td>
<td><strong>95.6%</strong></td>
<td><strong>$13,842</strong></td>
<td><strong>94.0%</strong></td>
</tr>
<tr>
<td>O &amp; MP</td>
<td>1,152</td>
<td>4.4%</td>
<td>885</td>
<td>6.0%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>$26,340</strong></td>
<td><strong>100.0%</strong></td>
<td><strong>$14,727</strong></td>
<td><strong>100.0%</strong></td>
</tr>
</tbody>
</table>

**Notes:**
1. Major Programs: Campus Allocations include the following Units:
   - **Instruction:** General Campus and Libraries
   - **Institutional Support:** RMP, EBA, Chancellor's Office, Academic Senate
   - **Student Services:** Student Affairs
   - **Campus Resources:** Chancellor's Campuswide
   - **O&M:** Campus designated allocations for O&M.
2. Resident enrollment allocation figures represents the last fully-funded year: 2010/11 - 510 student FTE (state GF+net Tuition and Student Services Fee including additional income from campus-based fees.
3. Estimated Average Cost based on the Delta Project Model using 2009/10 UCSD expenditure data as reported in the campus financial schedules.
   - Estimated Average Cost for Student Services is to exclude Student Services spending funded with income from campus-based fees, which is not included in the enrollment allocations.
4. Nonresident enrollment allocations represents 2011/12 enrollment funding for 250 NR student FTE (NRT income+NetTuition and Student Services Fee in...
### MARGINAL COST OF INSTRUCTION FOR ENROLLMENT GROWTH

**Description**
Used to determine the funding per student when the State chooses to increase its appropriation for the University of California (university) to cover the cost of educating additional students.

**Purpose of calculation**
Serves as the basis for calculating the amount of state funding when the State covers the cost of educating additional students. It also is the basis for the University of California Office of the President’s distribution of state funding to campuses for additional students.

**Types of students funded**
Applies only to students normally funded by the State—excludes nonresidents. Also excludes health sciences students because the State often chooses to fund health sciences separately.

**Types of costs included**
Includes costs funded through the State’s appropriation to the university.

### AVERAGE COST OF EDUCATION

**Description**
Used to calculate the average amount expended to educate the equivalent of a full-time student, including costs for instruction, student services, libraries, and other components.

**Purpose of calculation**
Creates greater transparency and accountability. Used for discussions about the relationship between student fees and state funding, it also allows for comparison among the university system, the California State University system, and the California Community Colleges system.

**Types of students funded**
Excludes students in health sciences from portions of the calculation, but includes nonresidents.

**Types of costs included**
Includes costs funded from a variety of revenue sources, including state appropriations, tuition, student fees, American Recovery and Reinvestment Act of 2009 funding, and lottery funding.

**Sources:** California State Auditor Report 2010-15 for the University of California
Documents provided by, and statements confirmed by, the Office of the President.