



UCI

**Bright Past.
Brilliant Future.**

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Office of Institutional Research

**Practical Considerations for Sustaining
Pay Equity Analyses**
November 16th, 2018

Faculty Equity Analyses

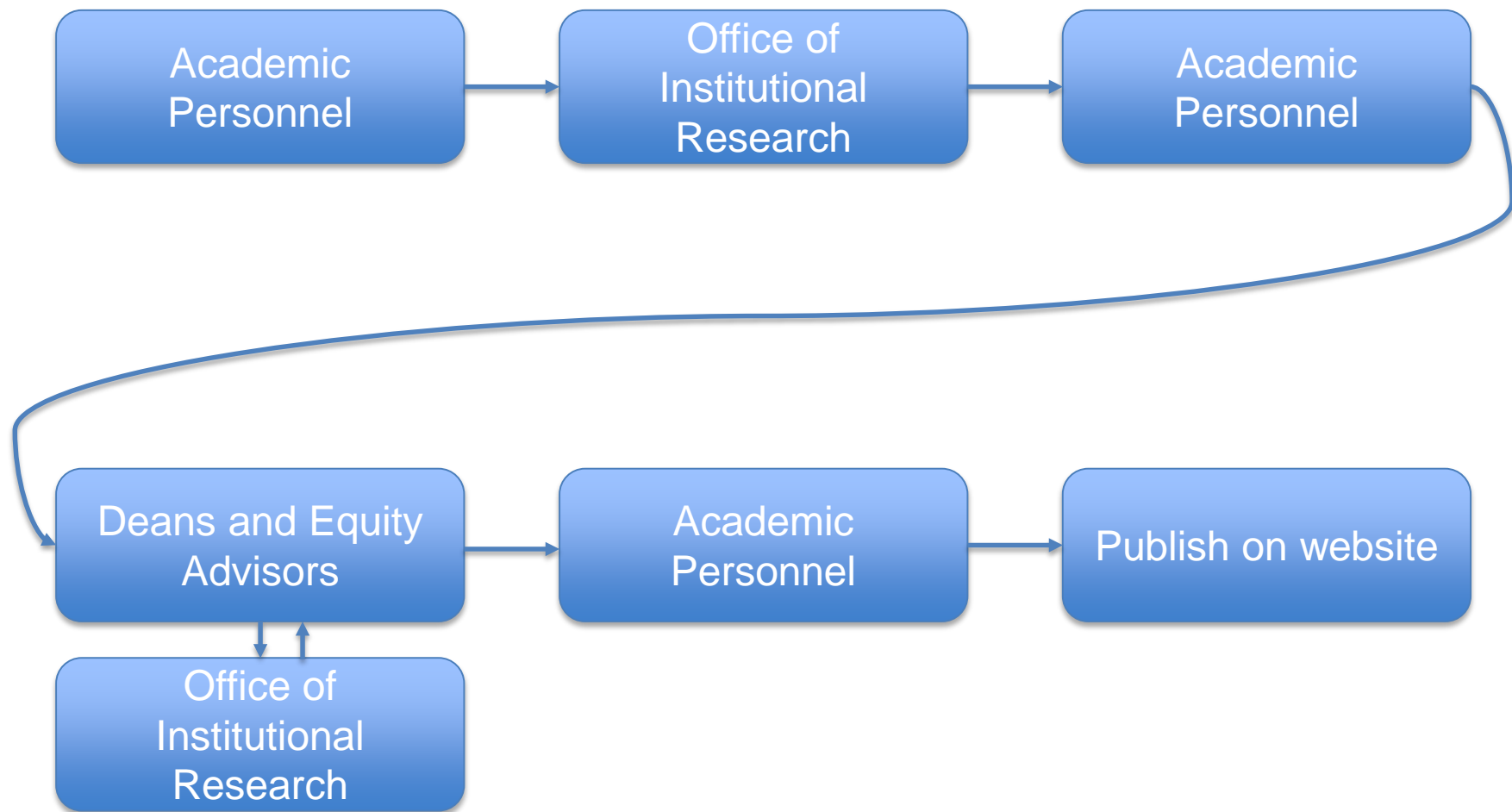
- Previously done regression annual residual analyses (1997 – 2014)
 - Residual salary prediction model based on coefficients created with white male population
 - Predictor variables included
 - Degree Year
 - UCI Ladder Ranks hire year
 - Degree indicator (for units where not all faculty had a PhD)
- Limitations of past analyses
 - Small set of covariates
 - Residual analyses have drawbacks
 - Small n of White Males in some schools
 - Coverage

CALL TO ACTION

The New Path Forward

- 2015
 - Senate-Admin committee
 - Ensure approach worked conceptually and mathematically
 - Revised study with two major components
 - Multivariate linear regression analysis of salary
 - Adjusting for: Experience, field, rank, and rate of progression
 - Study level
 - Campus as a whole
 - School/Unit level analysis

Process



Two main sources of data

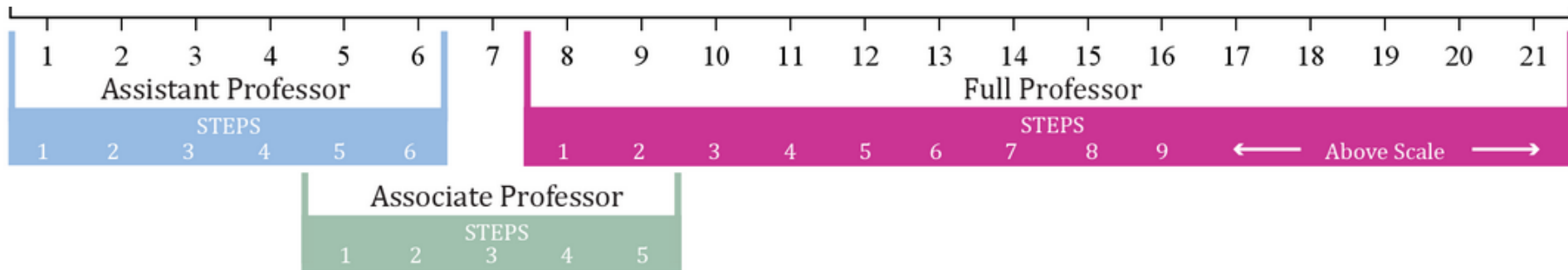
- Academic Personnel
 - Current Pay, Rank, and Step as of October
 - Pay is captured at the end of calendar year for SOM basic and clinical science faculty to capture Y and Z components of pay
 - Historical information:
 - Year of hire into regular ranks faculty title
 - Year of degree
 - Year of Above Scale (if applicable)
 - School and Department
 - Gender and Ethnicity
- Association of American Universities Data Exchange (AAUDE)
 - Faculty Salary database sorted by rank and field (CIP code)
 - Create market salary ratios (as done in UC Berkeley's facsal study)
 - Looks at average paid for someone in that CIP at that rank relative to all others at the same rank.

Variables

- DV
 - Log_{10} (current annual salary)
- IV's
 - Demographics
 - Gender, Ethnicity (Grouped into White / Asian / URM)
 - Experience
 - Years of service, years since degree, decade of hire
 - Field
 - Department and market ratio of salaries tied to the faculty members department
 - Rank
 - Starting rank/step at UCI, Current rank/step at UCI, and where they stand in relation to normal progress

Rank/step

- Transform rank and step into interval/ratio variable



- Again: important to work with stakeholders

Split Appointments

- How to handle faculty with two appointments?
 - Again, consult with stakeholders
- For analyses split by school:
 - If in school of medicine, remove from other appointment
 - If in two different schools, leave in both schools
 - If in two departments within the same school, use primary appointment
- For general campus:
 - If in school of medicine, exclude
 - Choose primary appointment

Inference or Population Descriptives?

- How and whether to use p -values?
 - Good discussion to have and likely there is no right answer? We give both effect sizes and p -values. The best way I think about it is that you are trying to estimate the counterfactual: What if Professor “X” was ____ (white, female, URM, etc.)? What would their salary likely be? Would their salary be the same? They can’t be placed into those conditions and they aren’t currently that status. So it is counterfactual. So in that case, your “population” is theoretical and p -values are warranted.

OUTCOMES

Findings

Submodel ¹	R-sq	Significant Variables	Salary Difference		
			Women vs Men	Asian vs White	URM vs White
1 Demography	0.04	Women***, URM*	-11.4%	-3.7%	-7.6%
2 Demography, Experience	0.40	Women**, Experience***	-5.0%	2.4%	-2.2%
3 Demog, Exper, Field	0.72	Women*, Experience***, Field***	-2.7%	-2.6%	-2.0%
4 Demog, Exper, Field, Rank	0.92	Experience**, Field***, Rank***	0.3%	0.1%	1.3%
5 Demog, Exper, Field, Rank ²	0.91	Experience*, Field***, Rank***	0.3%	0.1%	1.2%

*p<0.05, **p<0.01, ***p<0.001

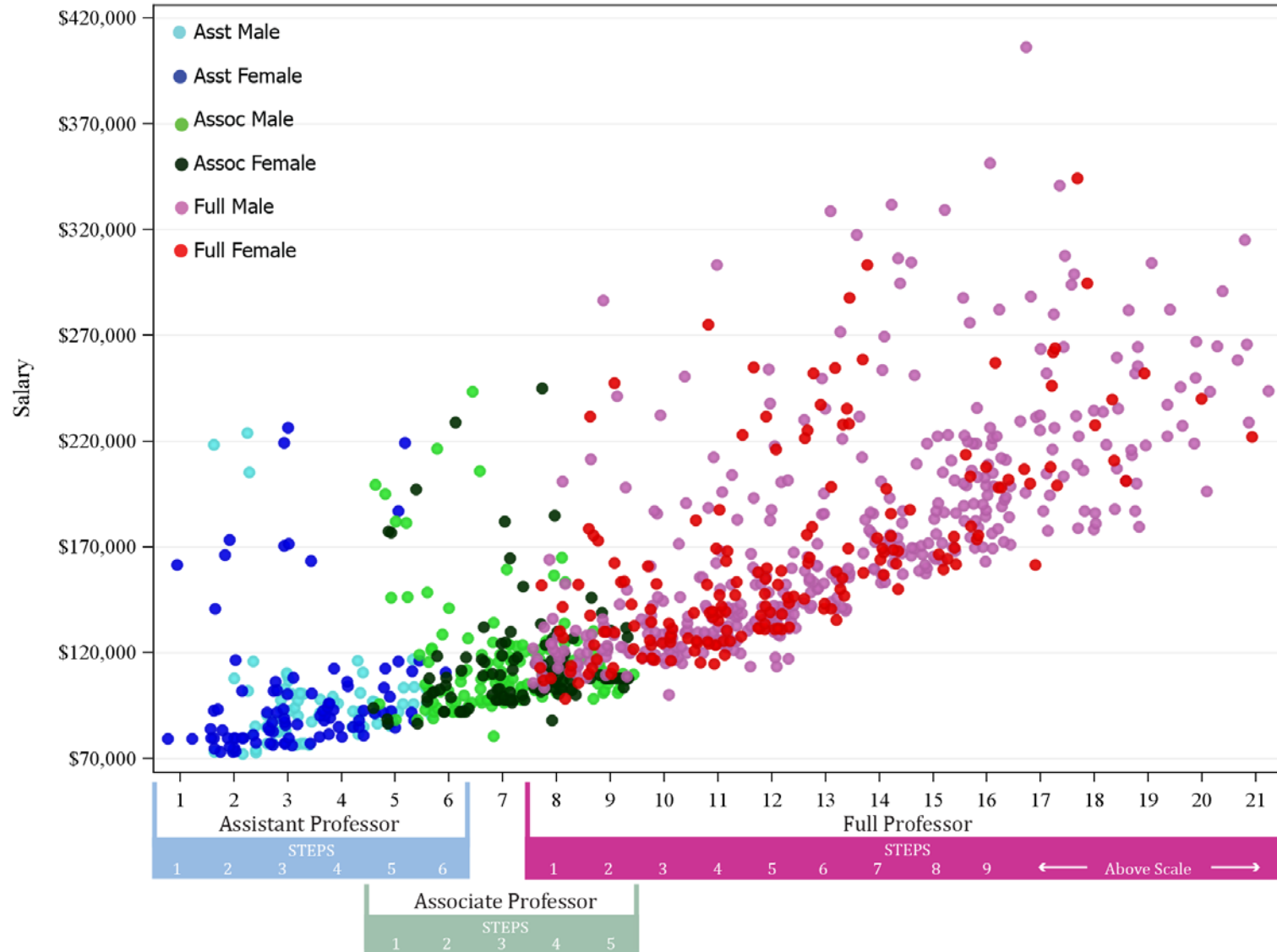
¹Experience includes years of services, years since degree, and decade of hire. Field includes school and the market ratio of salaries tied to the faculty member's department. Rank includes their starting rank at UCI, their current rank at UCI, and where they stand in relation to normal progress.

²Final model corrected for collinearity and included demographics, decade of hire*, years since degree, school***, market salary ratio***, progress***, current rank***, and initial rank***.

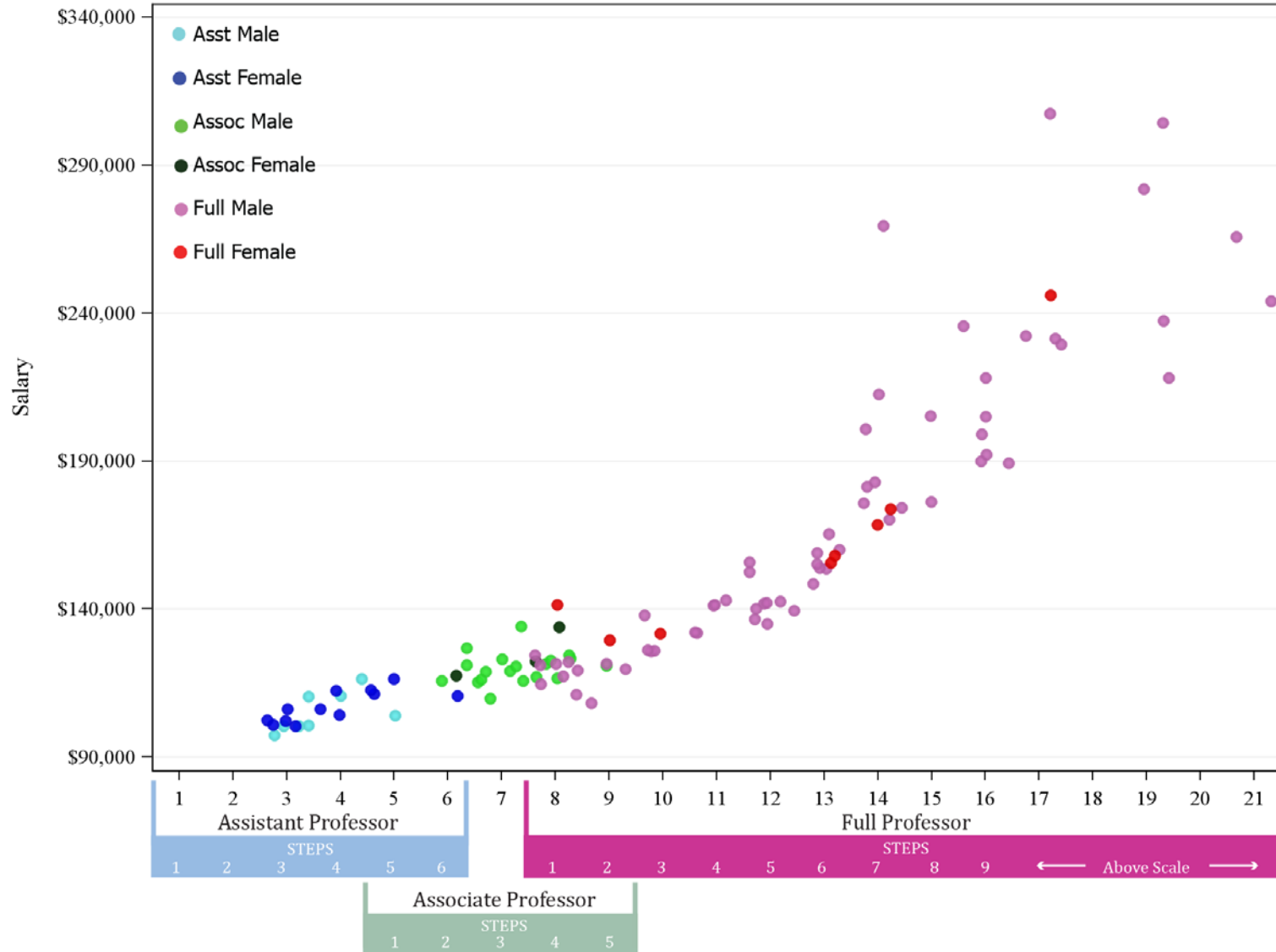
Findings

- No statistically significant systemic inequities in salary or rate of progression associated with gender or ethnicity at campus level
- Only a small number of statistically significant inequities identified at school level
- Salary issue needing continued attention
 - large within rank/step variance, seen in almost all schools, particularly at the high associate and full professor rank

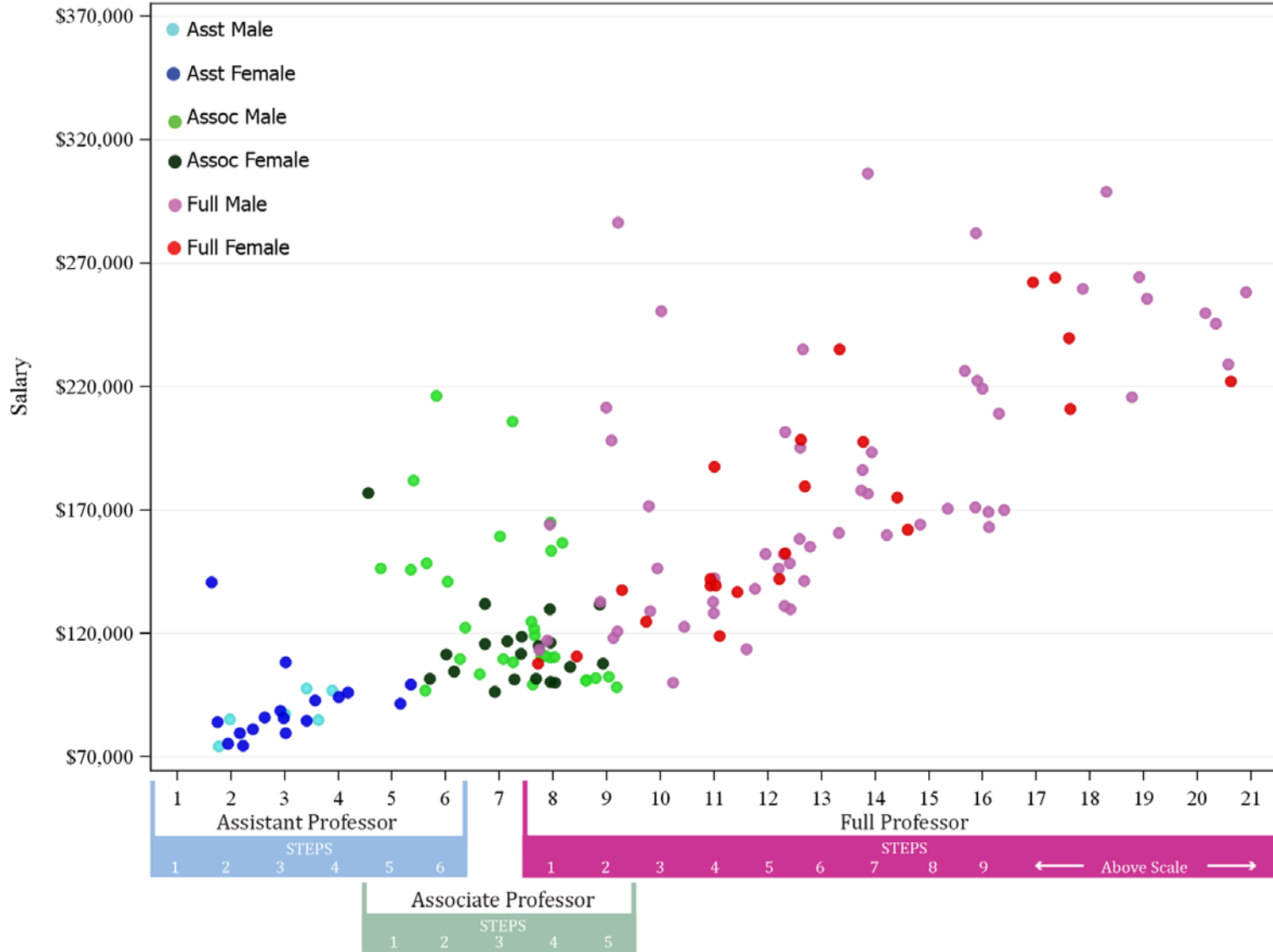
Graph 1: General Campus, Salary by Rank/Step and Gender



Graph 1: Engineering, Salary by Rank/Step and Gender

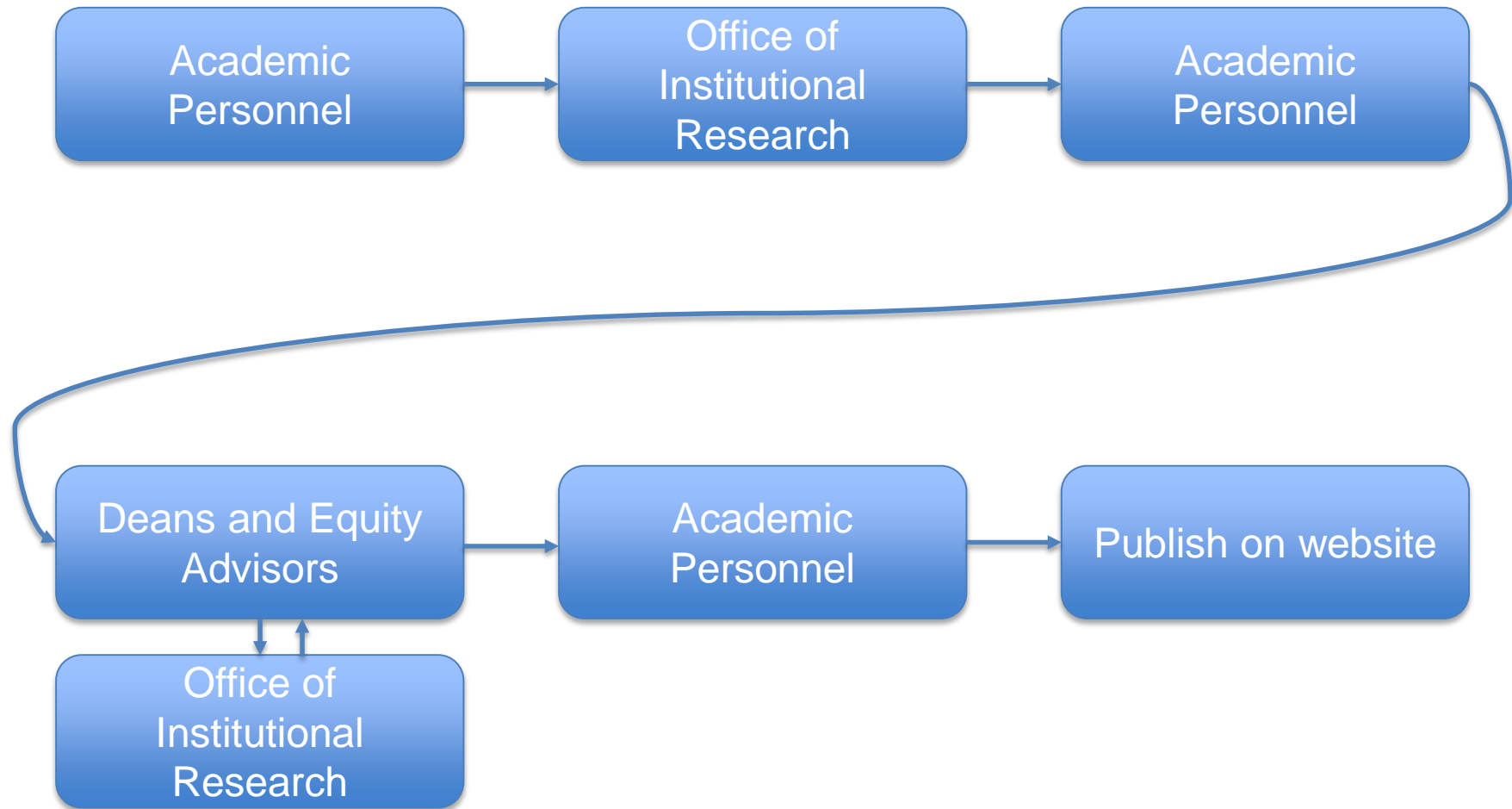


Graph 1: Social Sciences, Salary by Rank/Step and Gender



NOW WHAT?

Process

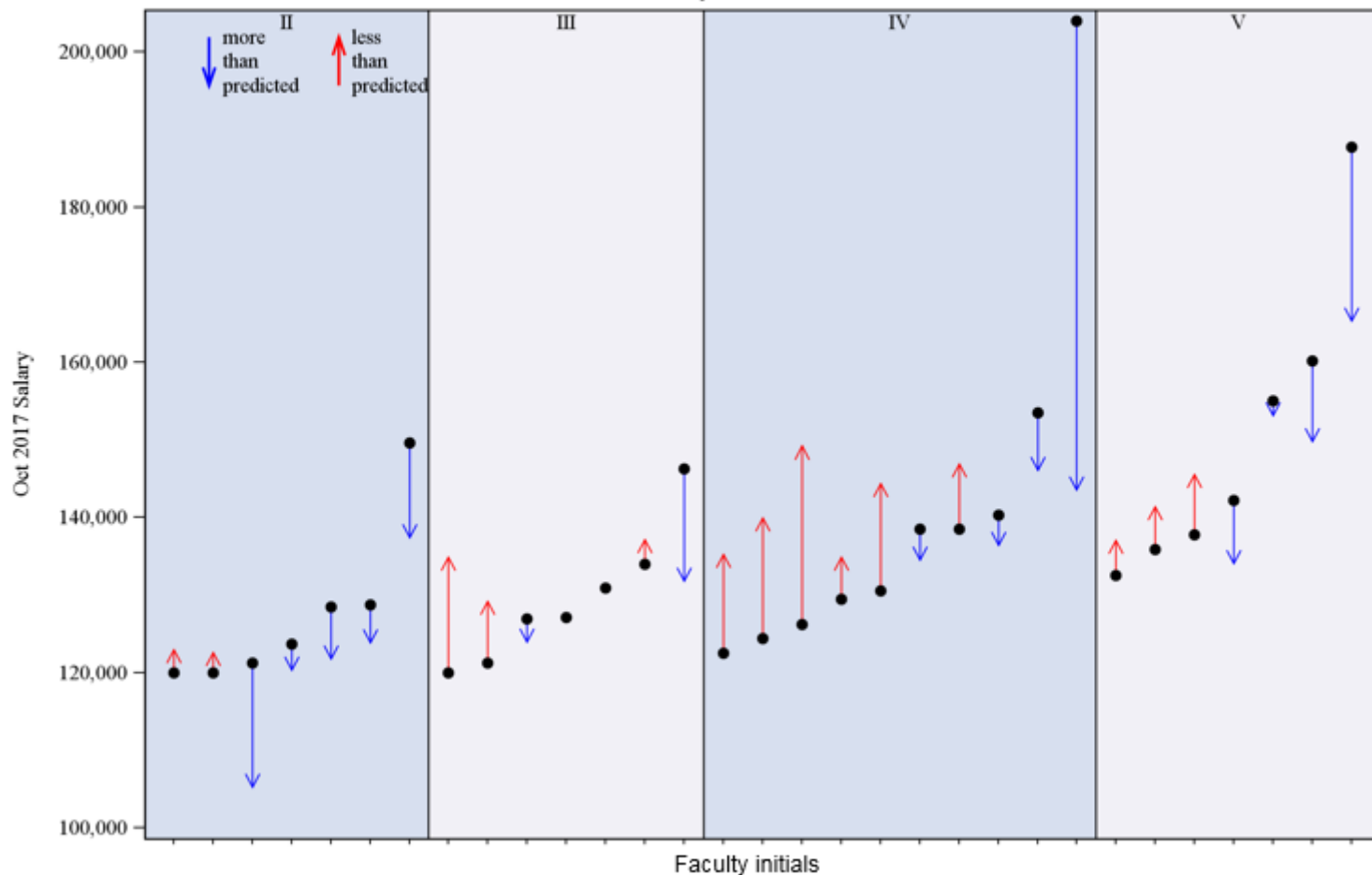


Deans and Equity Advisors

- Several sets of output sent to Deans and Equity Advisors
- Show residuals both including and excluding demographic variables based on final model adjusted for collinearity
- Provide both graphical and tabular results to meet differing needs
- Includes important information including employee name/ID, Department, joint-appointment, and if applicable, joint appointment department name
- In past, received funds equivalent to 1.5% salary to address inequities
- Deans and Equity Advisors make recommendation of adjustments
 - Include rationale and consultation process as part of approval request

Deans and Equity Advisors

School X : Actual/Predicted Salaries, Demographics Incl
for Faculty with rank of Prof I-V



Employee ID	Name	Initials	Department Name	Joint Appt	Joint Appt Dept
			Department A	N	
			Department B	Y	Department Z
			Department C	N	
			Department C	N	
			Department A	N	


Degree Year	Initial Rank Step	Regular Rank Year	Rank	Step	Rank Step	Progress	Salary	Predicted Demographics incl	Acual-Pred Demographics incl
1979	6	1986	Prof		17	5	\$181,100.00	\$212,331.96	\$-31,231.96
1973	13	1992	Prof		17	0	\$227,200.00	\$263,241.01	\$-36,041.01
1984	3	1984	Prof		17	13	\$222,500.00	\$226,436.12	\$-3,936.12
1973	17	2014	Prof		17	0	\$264,400.00	\$242,149.68	\$22,250.32
1987	3	1988	Prof		17	13	\$222,500.00	\$215,287.88	\$7,212.12

Predicted Demographics excl	Acual-Pred Demographics excl
\$212,157.57	\$-31,057.57
\$264,642.16	\$-37,442.16
\$225,418.02	\$-2,918.02
\$241,532.07	\$22,867.93
\$215,400.56	\$7,099.44

Public Results

- Campus and school levels reports and salary vs rank step graphs and progression rates are posted on AP website
<http://ap.uci.edu/programs/payequity/>

Public Results



Office of
Academic Personnel

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Pay Equity Study

Revised 2015-2016

Overview

In 2015, a joint Administration-Academic Senate Committee redesigned our annual campus pay equity study of ladder rank faculty salaries.

The analyses presented in this report focus on regression models that go beyond the annual residual analysis conducted in the past (1997-2014) and include evaluation of rate of progression through the ranks. Data were examined at the whole campus level, and for 14 Schools/Units. School of Medicine faculty were examined separately in this study due to the differences in compensation associated with participation in the Health Science Compensation plan.

Analysis of salary data from July 1, 2015 (after all salary adjustments had been applied) indicate no evidence of systemic disparity in pay associated with gender and/or ethnicity at the campus level when experience, discipline, and rank are included in the model. However, there is further work to do to understand the issues around the 1) low percentage of women and minority faculty at the higher ranks and steps across campus, and 2) differences in the rate of progression through the ranks and salary disparities by gender/ethnicity in some units.

Methodology: Multiple Linear Regression Model

2018 Pay Equity

- [General Campus](#)
- [Arts](#)
- [Biological Sciences](#)
- [Business](#)
- [Education](#)
- [Engineering](#)
- [Humanities](#)
- [Information and Co](#)
- [Law](#)
- [Medicine: Basic Scie](#)
- [Medicine: Clinical Sc](#)
- [Nursing](#)
- [Pharmaceutical Scie](#)
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- [Public Health](#)
- [Social Ecology](#)
- [Social Sciences](#)

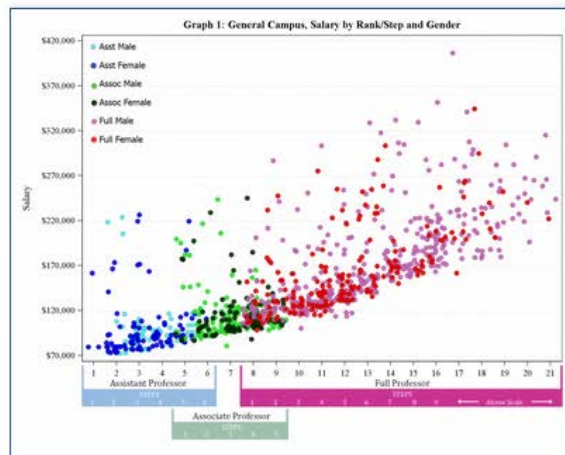
2018 Pay Equity Study Results: General Campus

Ladder Rank Salary Data

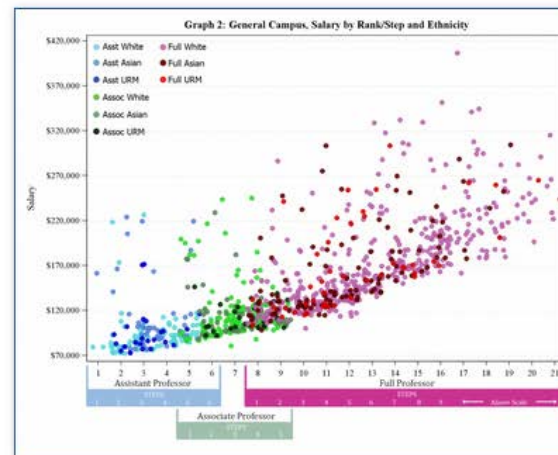
The salary data for all Ladder Rank Faculty on the General Campus are plotted below.

[Download Report](#)

As a function of rank, step, and gender:



As a function of rank, step, and ethnicity:



2018 Pay Equity Results

- General Campus
- Arts
- Biological Sciences
- Business
- Education
- Engineering
- Humanities
- Information and Computer Sci
- Law
- Medicine: Basic Sciences
- Medicine: Clinical Sciences
- Nursing
- Pharmaceutical Sciences
- Physical Sciences
- Public Health
- Social Ecology
- Social Sciences

Pay Equity Study Archive

Pay Equity Study 1997-201:

- ▶ 2016 Pay Equity Study

TAKEAWAYS

Campus Support

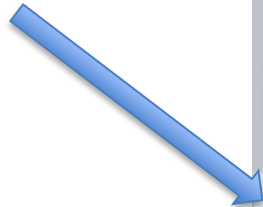
- We have received several compliments both with the analyses, engagement of key stakeholders throughout the analyses, as well as our continued involvement with respect to additional questions.
 - Attended a meeting at UCOP at the end of October where these discussions were planned and other campuses were impressed at the working relationship between AP and OIR on this and other projects
- Vice Provost of AP uses the Equity Analyses even when there aren't funds to address equity
 - Factors into decisions of retention, new hires, etc.
- Some schools use our study as a benchmark for equity
 - Originally intended to be snapshot assessments of inequity, but some schools track progress over time for overall differences as well as individual faculty residuals

Lessons Learned

- Important to present yourself as a collaborative resource to your campus and administration
- If called upon to help with an equity analysis, what is the campus' goal?
 - Satisfy required reporting?
 - Taking action?
 - Do you have adequate resources to address inequities?
 - Benchmarking?
- Be flexible to additional requests
- Engage relevant stakeholders to ensure needs are met as well as to ensure optimal use of the data
- Important to continuously monitor for new changes moving forward.
 - Initial study may provide benchmark to assess improvement or drift

Please fill out an evaluation for this session

Click on the
Evaluation link in your
CAIR app



Practical Considerations for Sustaining Pay Equity Analyses
November 16, 10:15 AM - 11:00 AM
Catalina C2

★ ★ ★ ★ ★ No Ratings

DESCRIPTION

[Evaluate this session](#)

Starting in 2015, a joint Administration-Academic Senate committee redesigned our annual campus pay equity study to compare salaries of ladder rank faculty by gender and ethnicity. Multiple linear regression was used to adjust for experience, discipline, and rank. This talk will focus on conceptual and methodological decisions for how the regression models were created, the findings of the analyses, how our campus uses these analyses, and the ways in which the methodology and reports have and have not changed in the years since these analyses were first conducted. Findings at the campus and

Thank you!

For more information

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<http://www.oir.uci.edu/>

Academic Personnel Faculty Salary Website:

<http://ap.uci.edu/programs/payequity/>