



UC San Diego

Policy & Procedure Manual

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CONTRACTS AND GRANTS (RESEARCH)

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DIRECT CHARGE EQUIVALENT CALCULATIONS AT UCSD

I. Basic Theory

The Direct Charge Equivalent (DCE) formula-driven methodology allows an institution to calculate the Departmental Administration (DA) portion of the indirect cost rate without relying on time-consuming effort reports.

In its 1986 revisions, OMB Circular A-21 recognized that effort reports were not the most efficient means for calculating DA. As a result, the 3.6 percent faculty administrative allowance (FAA) was instituted. The 1986 revisions to A-21 stated that "Salaries and fringe benefits attributable to the administrative work of faculty (including department heads), and other personnel conducting research and/or instruction shall be allowed at a rate of 3.6 percent of modified total direct costs" (section F.6.a.(2)(a)).

This section of A-21 goes on to say that "This allowance does not include professional business or administrative officers". In effect, A-21 states that DA expenses associated with faculty and professional salaries and wages (F&P S&W) is allowed at 3.6 percent of MTDC, and that professional administrators (ADM S&W) is 100 percent allowable as DA. Subsequently, effort reports are not required to support these two components.

The next paragraph of this A-21 section is where the potential for confusion emerges: "Other administrative and supporting expenses incurred within academic departments are allowable provided they are treated consistently in like circumstances. This would include expenses such as the salaries of secretarial and clerical staffs, the salaries of administrative officers and assistants, travel, office supplies, stockrooms, and the like" (section F.6.a.(2)(b)).

The 1993 revisions to A-21 provided further guidance by stating "The salaries of administrative and clerical staff should normally be treated as indirect costs", but went on to say "Direct charging of these costs may be appropriate where a major activity explicitly budgets for administrative or clerical services and individuals involved can be specifically identified with the project or activity" (section F.6.b).

As long as it is possible to charge certain types of administrative support costs as a direct item, the federal government argues that it is inequitable to treat all university paid-for administrative costs as indirect. The DCE methodology is one method to adjust for the amount of administrative support costs that are treated as indirect.

The DCE ratio is defined as General Support salaries and wages (GNS S&W) charged to sponsored accounts divided by Faculty and Professional salaries and wages (F&P S&W) charged to sponsored accounts. Furthermore, a unique DCE ratio is applicable to each academic department.

The DCE ratio is then compared against the actual GNS S&W and the actual F&P S&W (less the salary and wage portion of the 3.6 percent faculty administrative allowance) that has been charged to each department's general operating (i.e. non-sponsored) accounts.

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When the DCE ratio is less than the ratio calculated for the non-sponsored accounts, an excess or residual of GNS S&W exists within the non-sponsored accounts. More specifically, the residual GNS S&W from the non-sponsored accounts represents GNS S&W that is reclassified as DA and is allocable to research. When the DCE ratio is greater than the ratio calculated for the non-sponsored accounts, no residual exists and therefore no GNS S&W is reclassified as DA expense. An example is shown below:

Chemistry Department:

	S&W Charged to Sponsored Accounts	S&W Charged to Non-sponsored Accounts	
GNS	\$50,000	\$300,000	
F&P	\$200,000	\$1,000,000	(after 3.6 FAA)

The DCE ratio is equal to \$50,000/\$200,000, or 25 percent. The actual ratio of GNS S&W compared to F&P S&W from the non-sponsored accounts is equal to \$300,000/\$1,000,000, or 30 percent.

If the DCE ratio is applied to the F&P S&W from non-sponsored accounts (\$1,000,000 * 25 percent), the product is equal to \$250,000. The premise behind the DCE methodology is that when the actual GNS S&W charged to the non-sponsored accounts (\$300,000) is greater than the amount calculated according to the DCE ratio (\$250,000), the residual GNS S&W (\$50,000) is reclassified as DA expense.

The important assumption underlying this methodology is that the GNS S&W which supports the F&P S&W from the non-sponsored accounts should be in the same proportion to the GNS S&W which supports the F&P S&W for sponsored accounts. If there is residual GNS S&W which supports the F&P S&W from the non-sponsored accounts, this residual is reclassified as DA expense.

If in the above example the DCE ratio was still equal to 25 percent, and the GNS S&W charged to the non-sponsored accounts was \$200,000, then the residual GNS S&W support for the F&P S&W would be equal to zero. Therefore, there would be no GNS S&W to be reclassified as DA expense.

Maybe the most intuitive example is when the GNS S&W charged to sponsored accounts is equal to zero. In this example, the DCE ratio would also be equal to zero. When a DCE ratio of zero is applied to the F&P S&W from the non-sponsored accounts (\$1,000,000 * 0 percent), the product is equal to 0. In other words, because sponsored accounts have not paid for any GNS S&W, the GNS S&W charged to the non-sponsored accounts is entirely residual support and is 100% reclassified as DA expense.

After the three salary and wage components (F&P S&W, ADM S&W, and GNS S&W) are calculated, A-21 does allow for a prorated share of benefits and other expenses to also be treated as DA expense: "Other fringe benefit costs applicable to the salaries and wages are allowable, as well as an appropriate share of general expenses" (section F.6.a.(3)).

The formula-driven DCE calculation allows the user to incorporate the treatments prescribed in A-21, and at the same time, develop a fair treatment (via the DCE) for General Support staff. The actual implementation in The Comprehensive Rate Information System (CRIS), the software used to calculate F&A cost rates, is described in the next section.

II. DCE in CRIS

In order for CRIS to use the DCE methodology, a variety of parameters are defined throughout the system. Below is a listing of the CRIS Table (and menu path) that are completed in order to use the DCE methodology:

A. Department Header Table, 1.1.5

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The "Calculate DCE/DA?" is set to "Y" for all academic departments for which the DCE calculation is performed. In addition, for those departments where this field is set to "Y", the Cost Pool Number field is updated to correspond with the DA Cost Pool Number defined in the Cost Pool Master Table (see 1.1.7). If the Effective Benefit Rate box is not checked in the DA Calculation Set-up Table (see 1.4.3 below), then Benefit Rates must be entered for each department.

B. Cost Pool Master Table, 1.1.7

There is a DA Cost Pool established for each department for which a DCE calculation is performed. The DA Cost Pool Numbers correspond to the DA Cost Pool Numbers defined in the Department Header Table (see 1.1.5 above).

Four buttons in the Cost Pool Master Table should also be updated:

Use DA Allocation - This button is set to "Y" for all academic department DA Cost Pools (this does not include the Dean's office cost pools). This tells CRIS to use the automated stepdown allocation rule (see 1.8.1, Allocation Table, A002) when allocating DA expenses.

FAA/Receive DA - This button is set to "Y" for any direct cost pool where the 3.6 percent Faculty Administrative Allowance (FAA) is applicable. The 3.6 percent FAA is applied to the direct cost pools (e.g. Instruction, Research, and Other Sponsored Activities) that have academic activity associated with them. All academic department DA Cost Pools also have this button set to "Y". Cost pools that have this button set to "Y" automatically receive an allocation of DA.

DA Source - This button is set to "Y" so that the DA expenses are transferred from the cost pool into a corresponding DA cost pool. CRIS allows DA expenses to be transferred from non-sponsored accounts only (as defined in the Chart of Accounts, 1.2.2). In most situations, the DA expenses are transferred from non-sponsored accounts in the Instruction cost pool. Therefore, the Instruction cost pool has a "Y" checked. Any other cost pools from which DA expenses should be transferred also have a "Y" checked.

DCE Ratio - This button is set to "Y" for any direct cost pools which are used for creating the DCE ratio. When this button is set to "Y", any sponsored accounts (as defined in the Chart of Accounts, 1.2.2) from that cost pool will be used to create the DCE ratio. The Research cost pool has a "Y" checked. Any other cost pools (e.g. Instruction, Other Sponsored Activities) where sponsored accounts should be used to create the DCE ratio also have a "Y" checked.

(Note: Though the FAA, DA Source, and DCE Ratio buttons are analyzed on a cost pool by cost pool basis, the actual application takes place on a department by department basis).

C. Chart of Accounts, 1.2.2

One of the following Sponsor codes is identified to each account: 1- University sponsored, 2 - Private sponsored, 3 - State sponsored, 4 - Federal sponsored, 5 - Other External, 6 - Other Internal, 7 - Non-sponsored.

Accounts coded as 6 or 7 are used as sources of DA expenses for the applicable department. However, in order for DA expenses to be transferred from these accounts, they are mapped to a direct cost pool where the DA Source button has been set to "Y" and are identified to a department where the Calculate DCE/DA? button is set to "Y".

Accounts coded as 1, 2, 3, or 4 are used to create the DCE Ratio for the applicable department. However, in order for these accounts to be used to create the DCE Ratio, they are mapped to a direct cost pool where the DCE Ratio button has been set to "Y" and identified to a department where the Calculate DCE/DA? button is set to "Y".

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Accounts coded as 5 (Other External) are treated as sponsored accounts and used to create the DCE Ratio only if the Include Sponsor Code 5 box is checked in the DA Calculation Set-up Table (see 1.4.3 below). In no case will accounts coded as 5 ever be treated as non-sponsored accounts. Even if the Include Sponsor Code 5 box is not checked, these accounts are still included in determining the 3.6 percent FAA if mapped to a cost pool where the FAA/Receive DA button is set to "Y".

D. DA Calculation Set-up Table, 1.4.3

To use the DCE methodology, the Use DCE for GNS S&W button must be checked.

The three Other options available under this screen include: Effective Benefit Rate (where CRIS calculates unique benefit rates for each department), Include Sponsor Code 5 (where other externally funded accounts per the Chart of Accounts can be included in the DCE ratios), and Create DA Adjustment (where CRIS creates the 3.6% Faculty Administrative Allowance if the funds do not exist).

E. DCE Category Mapping Table, 1.4.4

All unique Title Codes are summarized in the Perform DCE calculation program (see 2.1.4 below), and each Title Code is coded as either Faculty and Professional (F&P), Administrative (ADM), General Support (GNS), or Technicians (TECH). After each Title Code is assigned a DCE code, results are identified back to the department and account level.

After Title Codes are identified back to the department and account level, CRIS is able to perform the DCE analysis. The DCE ratio for a specified department is equal to sponsored GNS S&W divided by sponsored F&P S&W. Only expenses from cost pools where the DCE Ratio button is set to "Y" are used.

(Note: Technicians (TECH) Title Codes are treated as if they were Faculty and Professional (F&P) Title Codes. The remainder of this Appendix refers to F&P positions only).

F. Perform DCE/DA Calculation, 2.1.4

This program extracts records from the Payroll file (DCE_PYEX.DBF) for all departments where the Calculate DCE/DA? field from the Department Header Table is set to "Y". These records are copied to the Payroll Subset file (DCE_PAY.DBF) where they are further summarized by Title Code for additional processing.

All of the parameters defined in the previous sections are then summarized, and the results are incorporated into two CRIS data files: the DA Calculation Detail File (DA_CALC.DBF) and the DA Calculation Summary File (DA_DEPT.DBF). Based on the results copied into these two files, the actual DCE/DA calculation is performed.

G. Summary of DCE/DA Calculation in CRIS

The DCE methodology in CRIS is accomplished by the following steps:

1. Payroll file is downloaded into the DCE_PYEX.DBF file.
2. Payroll Subset file (DCE_PAY.DBF) is created for those departments for which the Calculate DCE/DA? field from the Department Header Table is set to "Y".
3. CRIS summarizes Title Codes from DCE_PAY.DBF into DCE_TMAP.DBF file.
4. User assigns a DCE Category (F&P, ADM, GNS, or TECH) to each Title Code.

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5. Based on DCE Categories, CRIS performs the calculation and copies results into the DA_CALC.DBF and DA_DEPT.DBF files.

After assigning a DCE Category to a Title Code, the final treatment in the DCE/DA calculation is determined by whether the salary amount is paid for by a sponsored account or a non-sponsored account. Each DCE Category is treated as follows to arrive at General Support DA salaries:

F&P (sponsored)	- Denominator in DCE ratio.
TECH (sponsored)	- Treated as F&P sponsored.
ADM (sponsored)	- Treated as F&P sponsored.
GNS (sponsored)	- Numerator in DCE ratio.
F&P (non-sponsored)	- Number to which DCE is applied to arrive at Calculated GNS.
TECH (non-sponsored)	- Treated as F&P non-sponsored.
ADM (non-sponsored)	- 100% reclassified to DA.
GNS (non-sponsored)	- Actual GNS that is compared with Calculated GNS. If Actual is greater than Calculated, the difference is reclassified to DA.

Through simultaneous equations, a 3.6 percent Faculty Administrative Allowance (FAA) is also calculated. The FAA is defined as modified total direct costs for the department multiplied by 3.6%.

The final two components of the DCE/DA calculation, Benefits and Other Supplies and Expense, are also calculated. Benefits are determined by applying the department benefit rate to the salaries that were reclassified to DA. Other Supplies and Expense are calculated by applying the ratio of DA salaries divided by total non-sponsored salaries to the total non-sponsored other expense for each department.

The methodologies described above represent the standard DCE calculation in CRIS. A Sample Calculation of the DCE is shown below.

III. Sample Calculation

The DA Calculation Detail File (DA_CALC.DBF) and the DA Calculation Summary File (DA_DEPT.DBF) are the source files for the DCE calculation. The department by department calculations are driven from the DA Calculation Summary File, whereas the final transfer of DA expenses from the direct cost pools to the DA cost pools is based on the DA Calculation Detail File.

The first part of this section focuses on the actual DCE calculation, therefore the DA Calculation Summary (DA_DEPT.DBF) file is the basis for the results. The following information is maintained on DA_DEPT.DBF, and is used for performing the DCE/DA calculation:

X	Total Allowable Costs
X	Non-sponsored Total Allowable Costs
X	Non-sponsored ADM Salaries and Wages*
X	Non-sponsored GNS Salaries and Wages*
X	Non-sponsored F&P Salaries and Wages*
X	Non-sponsored Other Supplies and Expense.
X	Non-sponsored Benefits
X	F&P Benefit Rate
X	Sponsored GNS Salaries and Wages*
X	Sponsored F&P Salaries and Wages*

(*Note: Salary and wage components are based on the campus source Payroll file (DCE_PYEX.DBF), and all other components are based on the campus source Account Detail file (ACCTDET.DBF). These two files are reconciled to ensure defensible results).

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Using the information from DA_DEPT.DBF listed in (1) through (10) above, the following DA components are calculated and copied into DA_DEPT.DBF:

- X F&P DA Salaries and Wages
- X ADM DA Salaries and Wages
- X GNS DA Salaries and Wages
- X Total DA Salaries and Wages
- X Total DA Benefits
- X Total DA Other Supplies and Expense

Based on the data maintained in the DA_DEPT.DBF, CRIS uses simultaneous linear equations to complete the DCE calculation. The following four equations are used (this set of equations assumes that a separate DCE is used to calculate DA supplies and expense):

$$\begin{aligned} \text{FAA} &= \{\text{MTDC} - \text{FAA} - ([1+\text{fbe}] * \text{ADM_NS}) - ([1+\text{fbe}] * \text{GNS_DA}) - \text{OTH_DA}\} * .036 \\ \text{GNS_DA} &= \text{GNS_NS} - \{(\text{F\&P_NS} - \text{FAA}/[1+\text{fbe}]) * \text{GNS_SP} / (\text{F\&P_SP} + \text{ADM_SP})\} \\ \text{fbe} &= (\text{FB_NS} - \text{fbe} * \text{F\&P_NS}) / (\text{ADM_NS} + \text{GNS_NS}) \end{aligned}$$

where,	FAA	=	Faculty Administrative Allowance.
	MTDC	=	Modified Total Direct Costs.
	fbe	=	effective benefit rate.
	ADM_NS	=	Non-sponsored (i.e. DA) Administrative salaries.
	GNS_DA	=	General Support DA salaries.
	GNS_NS	=	Non-sponsored General Support salaries.
	F&P_NS	=	Non-sponsored Faculty and Professional salaries.
	GNS_SP	=	Sponsored General Support salaries.
	F&P_SP	=	Sponsored Faculty and Professional salaries.
	ADM_SP	=	Sponsored Administrative salaries.
	OTH_NS	=	Non-sponsored Other Supplies and Expense
	OTH_SP	=	Sponsored Other Supplies and Expense

The following equation is used to calculate other supplies and expense:

$$\text{OTH_DA} = \text{OTH_NS} * \{\text{FAA}/[1+\text{fbe}] + \text{ADM_NS} + \text{GNS_DA}\} / (\text{F\&P_NS} + \text{ADM_NS} + \text{GNS_NS})$$

Using the first set of equations, the following four components of DA are calculated:

A. DCE - GENERAL SUPPORT SALARIES

Sponsored GNS Salaries	\$578,922
Sponsored F&P Salaries	\$1,510,817
DCE Ratio	38.32%
Non-sponsored F&P Salaries	\$1,363,235
Less: Calculated FAA Salaries (SEE BELOW)	\$159,063
Adjusted Salaries	\$1,204,172
Multiply: DCE Ratio	38.32%
Calculated Non-sponsored GNS Salaries	\$461,439
Actual Non-sponsored GNS Salaries	\$480,386
Residual Non-sponsored GNS Salaries to DA	<u>\$18,947</u>

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B. 3.6% FAA CALCULATION

Total Costs, all functions		\$5,561,493
Less: DA ADM Salaries		\$0
Less: DA GNS Salaries (SEE ABOVE)		\$18,947
Less: FAA F&P Salaries		\$159,063
Less: DA ADM/GNS Benefits		\$3,757
Less: FAA F&P Benefits		\$31,542
Less: DA Other Expense (SEE BELOW)		\$53,600
Adjusted Total Costs		\$5,294,584
Multiply: 3.6%		3.6%
Calculated FAA		<u>\$190,605</u>
Multiply: Benefit Rate		19.83%
DA F&P Benefits		\$31,542
DA F&P Salaries		\$159,063

C. DCE - OTHER SUPPLIES AND EXPENSE

Ratio of DA/Non-sponsored Salaries:		
DA Salaries:		
DA Admin Salaries		\$0
DA GNS Salaries		\$18,947
DA F&P Salaries		\$159,063
Total DA Salaries		\$178,010
Non-sponsored Salaries:		
Non-sponsored Admin Salaries		\$0
Non-sponsored GNS Salaries		\$480,386
Non-sponsored F&P Salaries		\$1,363,235
Total Non-sponsored Salaries		\$1,843,621
Ratio of DA/Non-sponsored Salaries		9.66%
Multiply: Non-sponsored Other Expenditures		\$554,868
DA Other Expenditures		<u>\$53,600</u>

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D. FRINGE BENEFITS

DA Admin/GNS DA Salaries		\$18,947
Effective Benefit Rate Calculation:		
Non-sponsored Fringe Benefits		\$365,614
F&P Non-sponsored F&P Salaries	\$1,363,235	
Multiply: Benefit Rate	19.83%	
Less: Non-sponsored F&P Benefits		\$270,330
Non-sponsored Admin/GNS Benefits		\$95,284
Divide: Non-sponsored Admin/GNS Salaries		\$480,386
Multiply: Benefit Rate		19.83%
DA Admin/GNS Benefits		\$3,757
DA F&P Benefits		\$31,542
DA Fringe Benefits		<u>\$35,299</u>

E. SUMMARY OF DA CALCULATION

DA Admin Salaries	\$0	
DA GNS Salaries	\$18,947	
DA F&P Salaries	<u>\$159,063</u>	
Total DA Salaries		\$178,010
DA Admin/GNS DA Benefits	\$3,757	
DA F&P Benefits	<u>\$31,542</u>	
Total DA Benefits		\$35,299
Total DA Other Expense		<u>\$53,600</u>
Total DA Expenses		<u>\$266,909</u>

After Total DA expenses have been calculated, the final computation made by CRIS is to determine from where the DA expenses should be transferred. DA expenses can only be transferred from cost pools where the DA Source button (see 1.1.7, Cost Pool Master Table) has been set to "Y".

Below is a list of each DA component and the statistical basis used to transfer the expenses applicable to each component for a specified department. The statistical basis for the transfer is calculated based on information maintained in the DA Calculation Detail file (DA_CALC.DBF):

ADM DA S&W - transferred entirely from the cost pool to which the amount was originally identified. The ADM DA S&W is transferred from Non-sponsored ADM S&W for the specified department.

GNS DA S&W - a statistic is created for total Non-sponsored GNS S&W by cost pool. The GNS DA S&W is transferred from Non-sponsored GNS S&W according to this statistic for the specified department.

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F&P DA S&W - a statistic is created for total Non-sponsored TAC (total allowable costs) by cost pool. The F&P DA S&W is transferred from Non-sponsored F&P S&W according to this statistic for the specified department.*

ADM/GNS DA Benefits - a statistic is created for total Non-sponsored Benefits, after the F&P Non-sponsored Benefits have been backed out. This statistic is also summarized by cost pool. The ADM/GNS DA Benefits are transferred from Non-sponsored Benefits according to this statistic for the specified department.

F&P DA Benefits - same statistic as ADM/GNS DA Benefits. However, if there is not an adequate amount of Non-sponsored Benefits to make the F&P DA Benefits transfer, CRIS will create an adjusting entry for the shortfall of F&P DA Benefits.*

DA Other Supplies and Expense - a statistic is created for total Non-sponsored Other Supplies and Expense by cost pool. The DA Other Supplies and Expense are transferred from Non-sponsored Other Supplies and Expense according to this statistic for the specified department.

(*Note: In some situations, there will not be an adequate amount of Non-sponsored F&P S&W expenses to make the F&P DA S&W transfer. In these situations, CRIS can create an adjusting entry for the shortfall of F&P DA S&W. In addition, there may be situations where there is not an adequate amount of Non-sponsored F&P Benefits to make the F&P DA Benefits transfer. As with the F&P DA S&W, CRIS can create an adjusting entry for the shortfall of F&P DA Benefits).