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A COMPUTERISED MODEL FOR ACADEMIC STAFF WORKLOAD PLANNING AND ALLOCATION IN UNIVERSITY TEACHING DEPARTMENTS

by M J PRATT

July 1988
Reprinted January 1989

Discussion Paper No.69

MASSEY UNIVERSITY

DEPARTMENT OF ACCOUNTANCY

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A COMPUTERISED MODEL FOR ACADEMIC STAFF WORKLOAD PLANNING AND ALLOCATION IN UNIVERSITY TEACHING DEPARTMENTS

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ISSN 01117874

Date: July 1988
Reprinted: January 1989

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Abstract

A micro computer spreadsheet based model for supporting staff workload planning and allocation decisions by heads of academic departments is developed. Advantages of the use of such a model are discussed. Operational considerations are highlighted.

Introduction

Workload planning and allocation is frequently a contentious issue within academic departments, sometimes leading to dissension and divisiveness, which can compromise the academic mission. Workload allocation must be equitable, and, equally important, must be perceived by academic staff as being equitable. Especially in large departments, the process of allocation can be both complex and demanding on senior academic time.

This article describes the development of a micro computer spreadsheet based model for academic staff workload planning and allocation designed to:

1. identify primary planning variables in relation to the workload decision;
2. incorporate an algorithm for the equitable allocation of teaching resources to individual courses;
3. explicitly demonstrate the policy variables upon which workload allocation is based;
4. provide evidence that workloads are fairly assigned.

To be a convenient tool for use by academic department heads, the model must be:

(a) simply understood,

(b) easily accessible,

(c) flexible to cater for changes in workload needs and circumstances,

(d) simple and quick to operate.

Theoretical underpinnings of university resource model construction are established from the literature. The technical details of a prototype model are described, and its practical operation discussed. Operational advantages and problems are identified.

Model Construction in University Resource Planning

Much of the early work related to University resource modelling was based on the 'induced course load matrix' or ICLM devised by Sidney Suslow at Berkeley in the late 1950's (Suslow, 1976).

A number of large computerised modelling systems for university resource allocation and production were based thereon - RRPM, PLANTRAN, CAMPUS and SEARCH (Plourde, 1976). Hopkins (1971) and Plourde (1976) criticised these large, rigid data intensive models on grounds of expense of data collection and lack of flexibility. Specific models were used successfully at a variety of institutions during the 1970's but a common denominator appears to have been the fact that administrators themselves possessed modelling skills - for example, Kemeny (1973), Bloomfield (1977), Strauss, Porter and Zensky (1979). The best publicised modelling activities took place at Stanford in the 1970's during which time that University faced severe financial constraints. Hopkins and Massy (1981) provide rigorous analyses of these activities, and their book Planning Models for Colleges and Universities represents a seminal work in relation to the theoretical foundation for modelling in tertiary educational institutions.

Numerous examples of the successful application of models in universities have appeared in the literature. For example, Wyatt, Emery and Londis (1979), Updegrove (1981), Reepmeyer and Vogel

(1984) and Pratt (1986a). A survey by Pratt (1986a:225) revealed that 46% of USA doctorate granting institutions used computerised modelling for aspects of academic resource planning and resource allocation. The same survey revealed that 81% of institutions that used modelling used micro computer based spreadsheet models.

Almost all of the extant literature on university modelling relates to macro university wide planning and resource allocation. See Pratt (1986a:109-126) for a summary of this literature. Very little has been written by way of rigorous analysis of model construction for use at the departmental or faculty level. However, the theoretical principles apply equally at this level. Dickmeyer (1979), Hopkins and Massy (1981), Harris (1983) and Pratt (1986a) may be consulted for a thorough examination of these principles. Theoretical underpinnings are cited here, sufficient for the specific task of constructing a departmental workload planning and allocation model.

University modelling

Fundamental to university planning and workload allocation are:

The Fundamental Cost Model (Sheehan and Gulko, 1976) and

The Induced Course Load Matrix (Suslow, 1976).

The fundamental cost model

Sheehan and Gulko (1976) identify the relationship between fundamental policy variables and required faculty, necessary for the development of university simulation models. In the simplest form the number of full-time equivalent faculty (FTEF) required can be defined as:

$$\text{No. of FTEF} = \frac{\text{No. of Students}}{\text{Normative student-faculty ratio (SFR)}}$$

for a given level of aggregation.

This can be expanded:

$$\text{No. of FTEF} = \frac{\text{Number of Students x Average Student Load}}{\text{Average Class Size x Average Faculty Load}}$$

Where:

1. the average student load can be defined as the average number of course hours per level of degree (or other basis of aggregation) taken by an average student.
2. the average class size can be a normative policy variable or derived empirically.
3. the average faculty load in hours can be a normative policy variable or derived empirically.

Sheehan and Gulko (1976) develop various permutations on this theme, and their work may be studied for a fuller analysis.

The induced course load matrix or academic matrix

The basis of the ICLM is an individual student's selection of courses. In a totally prescribed programme all that is necessary for a planner to describe future enrolments is the number of students by programme. Programme course components can then be allocated to academic departments/faculties in terms of units or credits (for example, a whole course could equal one unit/credit a half course a half unit etc), and a multiplication of units by students per programme will then produce the full time equivalent student (hereafter FTE) load for each department, or course within a department.

Where programmes are less structured the ICLM can be developed by listing students' credits (in hours or as a percentage of the total programme) on one axis against departments on the other, one matrix being developed per programme. Groupings of students with relatively homogeneous unit choices can usually be identified.

These groupings can be used to identify average matrix coefficients of credit hours or credit units (by dividing the number of hours/units per group by the number of students in the group). These coefficients can then be used to multiply through by programme enrolments to develop credits by department. Suslow (1976:43) showed that these coefficients can be sufficiently stable over time to allow their use as

predictors. Sheehan and Gulko (1976) show that these student credits may be further indexed by the level of the course and by the level of the student; thus the ICLM is potentially a four dimensional matrix.

The version of the ICLM thus described is data intensive and highly disaggregated and therefore complex and expensive to run. However, it does provide useful insight as to workload by departments and can therefore provide the basis of determining equitable faculty allocations.

Modelling concepts

Ahituv and Neumann (1982:335) demonstrate that planning models consist of three subsystems:

1. Data Base
2. Model Base
3. User/software interface.

A simplified framework of model construction sufficient for the purposes of this paper is demonstrated at Figure 1.

The Data Base will include:

1. base data
2. primary planning variables (PPVs).

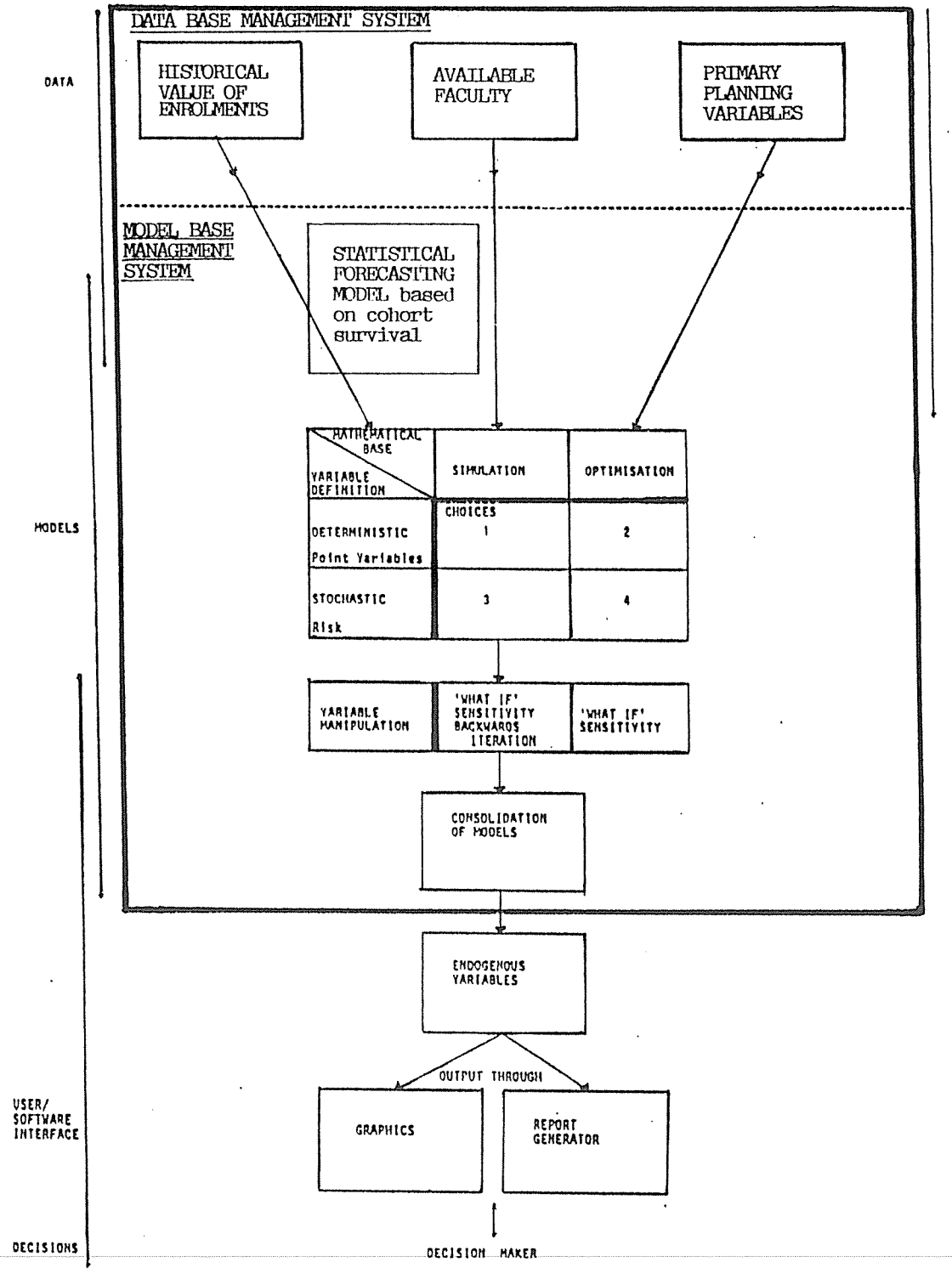
Base data are those factual data upon which planning and allocation decisions can be based. For current purposes base data will include, for example, student enrolments by course, and current faculty by name. Primary planning variables are those critical policy variables which decision makers may wish to manipulate in order to model multiple scenarios (in this case) of differing bases of workload allocation. Examples include tutorial group sizes by course level, and hours to be worked by individual faculty members.

The model base is the set of models consisting of interrelated algorithms which will provide forecast output on the basis of actual or forecast base data and appropriate assumptions as to PPVs.

Figure 1

WORKLOAD PLANNING MODELS

A CONCEPTUAL FRAMEWORK



Models can be categorised by their mathematical base and basis of variable definition as follows (Pratt, 1986b) -

MATHEMATICAL BASE / VARIABLE DEFINITION	SIMULATION	OPTIMISATION
DETERMINISTIC Point Variables	CHOICES 1	2
STOCHASTIC Risk	3	4

Simulation models simulate anticipated results based on assumed values of base data and PPVs. Optimisation models attempt to define the optimal use of scarce resources in circumstances where all variables and constraints can be defined by means of a suitable algorithm (for example the simplex algorithm in a linear programming model).

Deterministic models refer to models where variables are defined as discrete amounts and outputs are calculated as discrete values. In stochastic models some or all of the PPVs are defined by expressing likely or desired outcomes in terms of their probabilities. Outputs will similarly be described as a probabilistic distribution. Deterministic models give static results, stochastic models give dynamic results. For planning purposes stochastic models can be useful; for allocation purposes deterministic models are appropriate. Pratt (1986a:184) has demonstrated that simple deterministic models are most appropriate in a university environment.

Variables may be manipulated in three ways (Pratt, 1986b:11):

'What if' analysis

Sensitivity analysis

Goal seeking.

'What if' analysis involves the interactive change to model exogenous variables to test the outcome on critical endogenous variables. For example, class sizes could be varied to test the outcome of required faculty.

Sensitivity analysis involves the calculation of the percentage movement necessary in individual exogenous variables (while maintaining other variables constant) necessary to move a specific critical endogenous variable to a desired point. For example, the percentage increase in enrolments necessary to move required faculty to the level of available faculty could be calculated.

Goal seeking involves the specification by the user of a desired specific endogenous variable and the 'targeting' of an exogenous variable to be manipulated by backwards interation to achieve the target. For example, the required faculty could be set to the level of the actual faculty and the required level of student enrolments calculated by backwards iteration.

The speed of modern micro computers is such that spreadsheet models can be recalculated on a 'what if' basis sufficiently rapidly to test multiple scenarios. Accordingly, goal seeking and sensitivity analysis are of limited value. Furthermore, they make models complex to program and to use. Consequently they are not recommended for our current purposes.

User/software interface

An appropriately designed modelling system can produce output in a number of forms -

Screen

Graphics

Aplha/Numeric print out

Electronic for communications.

The screen and paper print out will be of most value to the academic department decision maker, though graphics can also be of some limited use. Most departmental models will be used to support the judgement of a single or small group of decision makers such that data communications will not be necessary.

A good modelling system will be sufficiently flexible to summarise a variety of outputs by different classifications. For example, summaries of workload by staff member and by course would be appropriate in the current context.

Enrolment Planning Subsidiary Model

An enrolment planning subsidiary model is a necessary prerequisite for a departmental workload allocation system. Such a model for Massey University is described below. Massey is typical in that it has both internal and extramural (distance learning) students and the needs of planning and workload allocations for these two categories are different. This complicates the model but the principles are generic to all institutions.

The basis of the model construction is explained in figure 2 below. Eight matrices form the basis of the model. Each matrix consists of base data, PPVs or models for each of a minimum of two or a maximum of (say) five years split between internal and extramural figures.

Matrix 1 is completed for the preceding year and consists of the historical numeric value of enrolments by course and level split between internal and extramural.

Matrix 2 consists of percentage growth/decline factors on historical data and assumed survival statistics in relation to cohort follow through to subsequent year studies, by individual course. Alternatively and more simply enrolments for subsequent years can be assumed subjectively.

Matrix 3 demonstrates the forecast value of enrolments by the multiplication of matrices 1 and 2.

Matrix 4 summarises course enrolments by level of study, internal and extramural, and in total.

Matrix 5 consists of constant EFTS factors by course level as defined by the University Grants Committee in their resource allocation procedures.

Matrix 6 calculates EFTS for internal, extramural and in total by multiplying matrix 4 by matrix 5.

Matrix 7 allows for the input of EFT student/EFT faculty ratios in accordance with the ratio allowed for a particular department by the university executive. The impact on allowed staff of various assumed values for this ratio can be considered, as calculated in matrix 8.

Advantages of use of the model include:

- ability to evaluate the EFTS and staffing base under multiple scenarios of forecast future enrolments;

- ability to identify the likely impact of various cohort survival rates on future follow through enrolment patterns;

- ability rapidly to update enrolments and calculate EFTS as actual enrolments are known.

An illustration of this model appears at appendix A.

Figure 2

Enrolment Planning Model

		1987 Internal	1987 Extramural	1988 Internal	1988 Extramural	1989 Internal	1989 Extramural	Columns repeated for subsequent year
1.	**Historical value of courses by number and level**	*Input*	*Input*	Blank	Blank	Blank	Blank	Blank
2.	**Percentage growth factors**	Blank	Blank	*PPV*	*PPV*	*... this is an interactive input matrix*		
3.	**Forecast value of enrolments**	*Calculated* ... matrix 1 multiplied by matrix 2						
4.	**Summary of enrolments by course level and year**	*Calculated* ... in 1987 this = plus matrix 1 in subsequent years this = matrix 3 multiplied by the previous year's matrix 1						
5.	**EFTS factors**	*Constant data* ... these data relate to the value of a course enrolment by level in terms of the effective fulltime equivalent student						
6.	**Summary of EFTS**	*Calculated* ... matrix 4 multiplied by matrix 5						
7.	**Allowed ratio of EFTS to EFT faculty members**	*PPV* ... the value of this PPV is input based on the staffing ratio allowed by university executive for a particular department						
8.	**Allowed faculty allocation**	*Calculated* ... the total of matrix 6 divided by the staffing ratio input in 7						

Primary Planning Variables for Workload Model Development

The PPVs for a particular department will vary between departments and decision makers. However, many PPVs will be generic and the principles of model construction enumerated below will apply regardless of the nature of PPVs.

As an illustration, the PPVs identified for the Department of Accountancy at Massey University are listed and explained below.

		Desired Value for Massey Accountancy
1.	Base Work units per faculty member	10
2.	Tutorial ratio graduate classes	8
3.	Tutorial ratio 3rd year classes	12
4.	Tutorial ratio 2nd year classes	15
5.	Tutorial ratio 1st year classes	18
6.	Extramural ratio classes with vacation schools	30
7.	Extramural ratio classes without vacation schools	60
8.	Administration allowance in units-large classes	2
9.	Administration allowance in units-small classes	1
10.	Large class definition (see 8 and 9)	250
11.	Units allowed for PhD student	1
12.	Units allowed for Masters Research student	0.5

Academic work consists of instruction, research, administration and externalities or public service (See Halstead (1974), for example, for a discussion of the university production function).

A staff member is presumed to devote approximately 80% of his/her time to instruction and/or administration and 20% or more to research. A higher research proportion is desired, but UGC funding does not allow. A staff member who spends all of his/her instruction/administration time on instruction

would be allotted 10 units of instruction, consisting of a combination of lectures and tutorials. Each unit of instruction would be equivalent to one hour and is presumed to require 2 hours of preparation and marking (in practice it would often be more) making a total of 30 hours per week. Two hours are required for office hours and 2 hours every week are devoted to staff development. The balance of time would be devoted to research, (out of term time work would consist of course and curriculum development, research and publications).

Instruction at Massey consists of internal and extramural components. 'Units' represent a concept developed by the author to equate the internal and extramural instruction and administration functions. Variations in research output and public service within the Department of Accountancy are considered subjectively by adjustment to the number of units required of an individual staff member. Time allocation for preparation of new courses or revision of existing courses is given by a reduction in the number of units required, consistent with staffing constraints.

The base number of 'units' per staff member is 10. All staff are additionally required to post two 'office hours' during which they are available for consultation with students. This base number is adjusted in accordance with the rank of the staff member.

Senior Lecturers and Above	110%
Lecturers	100%
Junior Lecturers	80%
Tutors	130%
Graduate Assistants	60%

These percentages are constants based on a subjective view of appropriate, relative workload expectations. Senior Lecturers and above are presumed to have completed their formal studies, and hence are assigned a higher percentage.

Tutors are not presumed to undertake research, only instruction. Hence they are allocated a load of 130% of base. This is on the basis that Accountancy staff are presumed to spend 20% of their working hours pursuing research. It follows that where Total Workload 100% = Instruction only, Instruction should = 100/80 or 125% (this is rounded to 130%). Junior Lecturers are assigned a loading of 80% on the basis that university regulations suggest 24 hours work per week on departmental activities is appropriate. If 30 hours instruction equals the norm 24/30 = 80%.

Graduate Assistants are assigned a factor of 60%. Given that the university suggests a workload of 12 hours per week is appropriate (12/30 = 40%), this may seem excessive. However, this is not so, as the workload will usually consist of some repeat tutorials but no lectures, thus reducing the work intensity.

It is a departmental policy that all staff of lecturer grade and above are controllers or assistant controllers of courses, and are involved in lecturing. It is a further policy that multiple tutorials by individual staff members are avoided wherever possible for educational and staff development reasons. Two to three tutorials per course is considered appropriate. If a staff member for unavoidable reasons is engaged in multiple tutorials his/her unit base will be increased subjectively to take cognisance of the benefit of reduced preparations.

Sessional assistance units are treated as one unit of instruction. Units of casual assistance funding equal to the dollar cost of one tutorial for 26 weeks per annum can be made available to balance required and available faculty on a course by course basis.

Given the very large average class sizes (average internal class size over all courses excluding postgraduate = 166) and the consequent heavy marking and examination load, 10 base units is considered appropriate for the Department of Accountancy. In a department with a much smaller average class size, the base unit load should be much higher to achieve equitable allocation.

A tutorial and a lecture are both regarded as a unit of instruction, as whilst the lecture may require more

preparation, the tutorial allocation includes proportional assignment and examination marking.

Each course will also be assigned administration units to take cognisance of the heavy burden of administering large courses, where, in Accountancy, the average internal and extramural course sizes are 166 and 161 respectively. The number of administration units for large and small internal and extramural courses are Primary Planning Variables.

Some Technical Details about the Model Construction

Pratt (1986a) identified that micro based spreadsheet models are the predominant basis of university modelling in senior American universities. Harris (1983:170) describes the following advantages:

1. Micro computer based spreadsheets require limited skill to operate and simple models can be built quickly and flexed easily.
2. Micro computers offer 24 hours access, with rapid response and low running costs.
3. Micro computers offer excellent security.
4. Psychologically micro computers offer a feeling of control.

Accordingly this Workload Planning and Allocation Model is constructed using Lotus 1-2-3, widely regarded as the leading spreadsheet modelling system. Macro code programming factors are employed and the model is fully menu and macro driven, necessitating only a minimum of spreadsheet skills on the part of users. To facilitate an understanding of the following discussion of the model construction, it is necessary to consider a number of modelling terms and concepts.

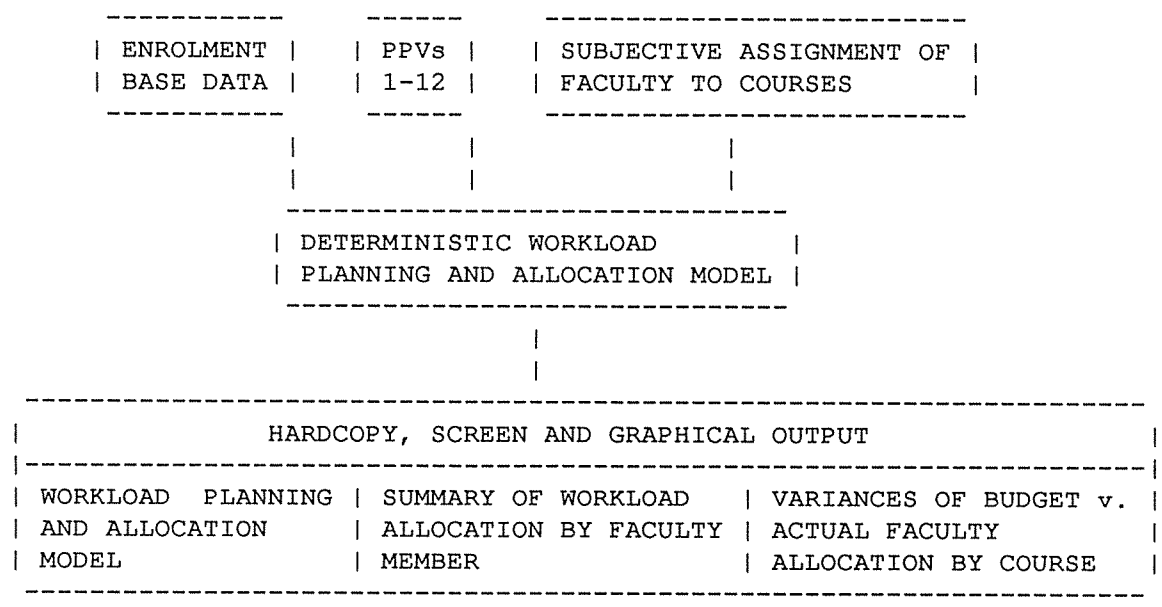
The Workload Planning and Allocation Model will be resident on a fixed drive or floppy diskette. The Lotus 1-2-3, spreadsheet system will be loaded from disk and then the model will be retrieved. On 'take on', a 'take on' screen will appear showing the model description, date and purpose, with basic operation instructions. A menu will simultaneously appear with options which can be selected using cursor keys. The menu provides step by step access to all the features of the model. In addition a series of

programmed macros perform rapid routines to change model variables such as workload allocation or new staff members. These macros are designed to make the model quick to use for an experienced modeller and 'user friendly' for an inexperienced modeller.

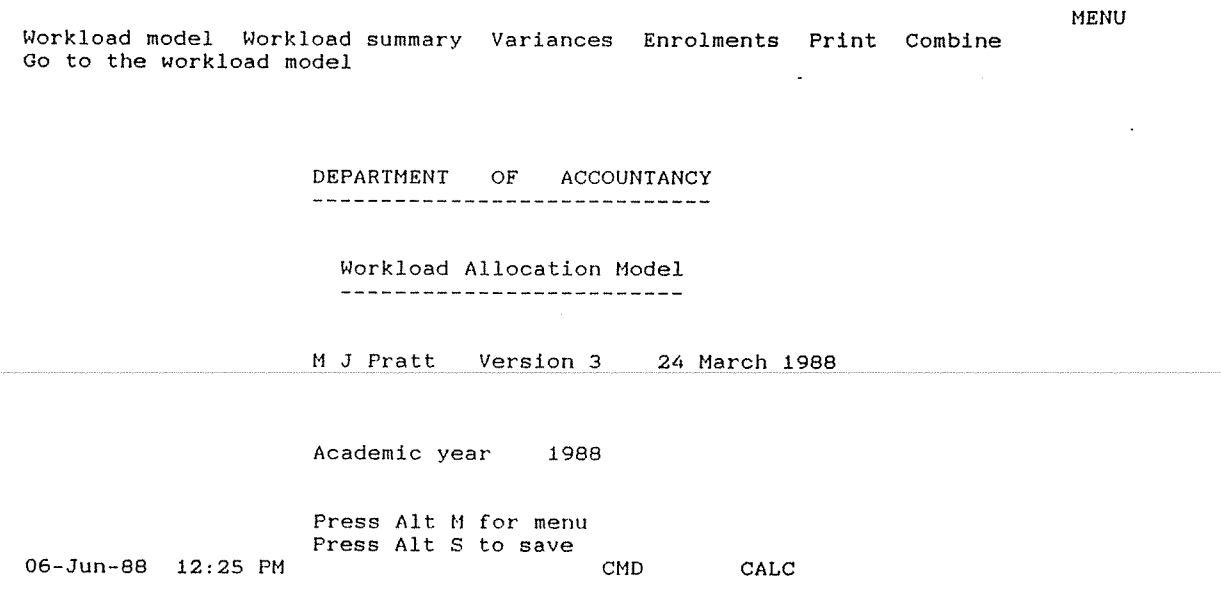
The Workload Planning and Allocation Model

The Workload Planning and Allocation Model interfaces with the Enrolment Planning Model and utilises the PPVs described above, as diagrammatically explained in figure 3.

Figure 3



On signing onto the Workload Planning and Allocation Model system as developed, the following menu will appear-



Selecting-

the Workload Model menu option will access a submenu which allows the user to change PPVs or allocate faculty to specific courses; a listing of faculty by course is also displayed;

the Summary model displays a listing of all faculty with their status and workload allocation expressed in units;

the Variances model displays a listing of the calculated faculty entitlement, total allocated faculty and variance (allocation under or over entitlement) by course expressed in units;

the Enrolment menu displays enrolment data used in calculations as combined from the Enrolment Planning subsidiary model;

the Print menu selects a submenu which allows each of the above four models to be printed;

the Combine menu options prompts the user for a year from which to combine the base data from the Enrolment Planning subsidiary model, thus facilitating planning/workload allocation for any year for which enrolments actuals/forecasts are available.

At the heart of the Workload Model is the course resource entitlement algorithm which subsumes-

1. a calculation of the number of tutorial groups required based on the tutorial group size PPV for the appropriate course level
2. a calculation of the number of lecture streams required based on the size of the course
3. an allocation of administration units based on the size of the course
4. a calculation of the allocated number of extramural tutorial groups based on whether or not vacation schools are held.

To update a model, a decision maker has available the following macro routines.

Alt M	access the menu from any point in the system
Alt S	save a modified model to disk
Alt A	allocate a new staff member to a specified course
Alt R	remove a staff member from a course
Alt C	change the workload allocation for a particular course/staff member
Alt N	add a new staff member to the model
Alt D	delete an existing staff member from the model.

The model will identify at any time the required faculty based on specified Primary Planning Variables. These PPVs can be flexed on a 'what if' basis to equate required faculty to available faculty, before detailed allocation to courses commences. At this point the decision maker can formulate rational trade-offs between policy variables. For example, class sizes could be increased, or the number of units expected of each staff member could be adjusted upwards if there is a shortfall in available faculty.

Once the required and available faculty figures are balanced, staff can be allocated to individual courses in accordance with staff preferences and departmental needs, after suitable discussion. Units of sessional or casual assistance can be applied to balance the budget if necessary.

In sequence a decision maker will:

1. add or delete staff members from the model;
2. add or remove staff members from a specified course;
3. change the allocation to a course/courses to equate to the calculated entitlement;
4. compare the calculated allowance for each course with the sum of the faculty allocation to that course and increase or reduce as necessary; at this point additional resources could be granted to take account of, for example, a major redevelopment;

5. check the workload summary to ensure that faculty workloads accord with the norms discussed earlier; at this point subjective adjustment up or down can be made on account of, for example, the redevelopment of a course or a major research project commitment.

The final workload allocation will be printed out, checked for course or faculty variances and the model saved to disk. Once the decision maker is content with the equity of course and faculty allocation, the model, faculty summary and course summary can be circulated to staff for comment. Examples of these printouts are included at appendix B.

Advantages of the Use of the Workload Planning and Allocation Model

The model satisfies the initial objectives identified at the commencement of this paper namely:

1. it is simple, accessible, flexible and quick to operate;
2. the underlying algorithm allows for the equitable allocation of available resources;
3. primary planning variables and policy variables are explicitly stated and demonstrated in the model print outs;
4. primary planning variables can be readily flexed by the decision maker to demonstrate the impact on the critical endogenous variable - total faculty required;
5. the model provides evidence that course resource allocation and faculty workload allocation are in line with calculated and policy norms.

Additional advantages will be obtained from model development:

1. the decision maker is forced to consider all the interrelationships between use and availability of resources within his/her department; a better understanding of these interrelationships, and therefore better decisions are likely to result;
2. critical policy variables have to be identified and made explicit so that planning decisions can be consistently based;

3. the decision maker can be assured that all courses are properly covered, and that faculty resources are fully but not excessively utilised;
4. by running the model for future years faculty resources requirements can be readily determined.

Use of the model has major human resource management advantages. As well as demonstrating the equity of staff workload allocation, the model diffuses any individual concerns about relatively excessive workload in that discussion can focus on the policy variables rather than on the individual. If the policy variables can be shown to be inequitable they can be modified for all. This is preferable to ad hoc adjustment to individual workloads. The model also demonstrates in advance when the total resource allocation from the central university administration is inadequate, so representation can be made on an objective basis for an increased allocation in advance of need.

Potential disadvantages of usage of the Workload Planning and Allocation Model identified by the author include:

1. The danger that decision makers can become slaves to the model; it must be remembered that the figures are only as good as the underlying policy judgements, and that they are an aid to decision making not a substitute for it.
2. Decision makers who prefer that the basis of their decisions remain undisclosed will not be served by the processes described above; though it is hoped that such an unenlightened approach to departmental management no longer pertains.
3. Decision makers who are uncomfortable with micro computers will of course be hard placed to use models. Their virtue lies primarily in the understanding gained by the decision maker him/herself; models used by others on behalf of the decision maker will be of limited value.

Bloomfield and Updegrove (1981a:97-98) provide a summary of critical university model building and operation benefits as follows:

> "the decision maker makes better decisions,
> the decision maker understands the problem more clearly,
> modelling can also function as a communication mechanism ..."
> "discrepancies appearing between model forecasts and personal estimates become the basis for either changes in the model or revised ideas about the real world, both of which represent learning opportunities for the decision maker".

Dickmeyer (1979:94) demonstrated that decision makers can "change their policy preferences through an examination of alternatives, and by a better understanding of the relative importance of different variables".

Conclusion

The Workload Planning and Allocation Model described above has been developed and refined in the Department of Accountancy at Massey University over the past two years. It is considered to be sufficiently generic to facilitate comparatively simple modification to suit the needs of other departments and other universities.

The traditional crude EFTS based model of workload planning and allocation is considered to be too blunt an instrument for use in the efficient and equitable application of faculty resources against the instruction, administration and research missions at department level. The simple yet sophisticated alternative described above is offered as a quantum improvement to departmental heads in all tertiary educational institutions.

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Appendix A

MASSEY UNIVERSITY - Department of Accountancy

MJP 18-May-88
ENROLLMENTS per COURSE — Accountancy

	1987 act		1988 act		1989 est	
	Int	Ext	Int	Ext	Int	Ext
100 level papers						
100 Principles Total	653	569	660	790	700	1000
100 " Accy Portion	527	460	533	638	565	808
110 Intro Fin Acc	749	603	372	458	395	580
	1276	1063	905	1096	960	1387
200 level papers						
200 Man Acc for Non mjors	218	75	366	87	370	121
210 Corp Acc	243	165	268	212	271	294
220 Man Acc	228	120	276	211	279	293
240 Accounting Inf Systems			0		40	30
241 Financial Modeling			32		60	
250 Prim industry	71	31	83	51	80	60
256 Small bus FM	43		93		80	50
257 Not for profit			0		20	20
260 Public Sector Accy	27	13	54	18	60	30
271 Int audit	52	17	52	42	60	50
275 Tax & Auditing	54		365	149	279	207
281 Trusts & Estates			0	27		30
286 Tax practice	8		0	34	20	30
2xx Special Topic	33		0			
	977	421	1589	831	1619	1215
300 level papers						
310 Adv Fin Acc	100	83	158	133	174	171
311 Acc theory	132	66	180	106	218	186
313 International Accounting			0			
314 Social accounting	2		0	5		10
320 Adv Man Acc	60	63	85	71	89	80
321 MIS in Accounting			6	5		10
350 Adv Primary Ind			9		30	
370 Ext auditing	91	106	47	149	89	80
371 Operat auditing	9		9	7	30	15
380 Tax & est planning	93	83	38	86	89	80
384 Taxation policy		4	0	9		15
393 International taxation			5			
	487	405	537	571	719	647

Accountancy

Post graduate papers	1987 act Int	1987 act Ext	1988 act Int	1988 act Ext	1989 est Int	1989 est Ext
400 Accounting for Bus Admin	12.6				10	
MBA ccounting for MBA	31.2		30		30	
410 Adv Fin Acc	1		1		1	
411 Adv acc theory	4		5		4	
413 International acc	4				4	
414 Societal acc	3		2		4	
415 Beh asp acc						
417 Research methods	5		9		6	
420 Adv man acc	6		8		6	
441 Dec Sup Sys in Acc			1			
450 Rur acc sys	3		2		6	
470 Cont issues in aud	3		4		4	
480 Cont issues in tax	3		9		4	
484 Adv tax policy	1					
485 Sp Top Int Issues in tax	2		5		5	
490 Sp Topic PhD			3		4	
492 Sp Top	1		6		6	
495 Sp Topic Acc for Marketing			8		8	
498 Sp Topic adv operat auditing			2		2	
499 Research reports	3		5		8	
599 Thesis						
900 PhD	2		8		12	
	84.8	0	108	0	124	0
Diploma papers						
601 Acc for Bus Admin						
602 DHA Fin Man		34		39		40
603 DBS Acc Fundmntls	6	171	11	269	20	270
604 DBS Fin Man	3	77	11	97		100
605 Pub sector man	1	55	1	65		75
606 Internal Audit			1	1		10
	10	337	24	471	20	495
Papers for other degrees						
100 Intro acc	26	27				
501 Vet jurisprudence						
041 Cert in DFM	7		10		10	
	33	27	10	0	10	0
TOTAL	2868	2253	3173	2969	3452	3745
		5121		6142		7196
% Growth			10.6%	31.8%	8.8%	26.1%
				19.9%		17.2%

DEPT OF ACCOUNTANCY - EFTS calculations
MJP 18-May-88

Enrollments Summary	Accountancy 1987 act Int	Ext	1988 act Int	Ext	1989 est Int	Ext
100 level papers	1276	1063	905	1096	960	1387
200 level papers	977	421	1589	831	1619	1215
300 level papers	487	405	537	571	719	647
Graduate papers	83	0	100	0	112	0
PhD	2	0	8	0	12	0
Diploma papers	10	337	24	471	20	495
Other degrees	33	27	10	0	10	0
	2868	2253	3173	2969	3452	3745
EFTS factors						
100 level papers	0.130	0.104	0.130	0.104	0.130	0.104
200 level papers	0.145	0.116	0.145	0.116	0.145	0.116
300 level papers	0.180	0.144	0.180	0.144	0.180	0.144
Graduate papers	0.200	-	0.200	-	0.200	-
PhD	1.000	-	1.000	-	1.000	-
Diploma papers	-	0.160	-	0.160	-	0.160
Other degrees	0.000	0.000	0.000	0.000	0.000	0.000
EFTS calculation						
100 level papers	165.9	110.5	117.7	114.0	124.8	144.3
200 level papers	141.7	48.8	230.4	96.4	234.7	140.9
300 level papers	87.7	58.3	96.7	82.2	129.4	93.2
Graduate papers	16.6		20.0		22.4	
PhD	2.0		8.0		12.0	
Diploma papers		53.9		75.4		79.2
Other degrees	0.0	0.0	0.0	0.0	0.0	0.0
	413.8	271.5	472.7	367.9	523.3	457.6
		685.4		840.6		980.9
% Growth int / ext			14.2%	35.5%	10.7%	24.4%
average				22.7%		16.7%
Student / staff ratio		19.00		19.00		19.00
Notional staff establishment		36.07		44.25		51.63
Actual establishment 31 March		34.81		38.32		39.32
Actual ratio		19.68		21.93		24.94
Shortfall		1.26		5.93		12.31

Appendix B

DEPARTMENT OF ACCOUNTANCY
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HJP
06-Jun-88

Schedule of Courses by Sections
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being offered in 1988

PPVs: Units 10
Intern tut ratio 400 8
Intern tut ratio 300 12
Intern tut ratio 200 15
Intern tut ratio 100 18
Exm tut rto vac cse 30
Exm tut rto no vc cse 60
Fixed element ‹200 1
Fixed element ›200 2
Total staff reqd 42.8

ACCOUNTING PRINCIPLES	Controller Asst Contr	Hours lecs	Tuts	Extnl	Staff reqd	Staff assigned	Staff units	Tot units per cours
10.100 Introductory Accounting	AStaffmembe	6	36.66	790	5.88	AStaffmember	0.80	5.50
						AStaffmember	1.00	
						AStaffmember	0.20	
						AStaffmember	0.30	
						AStaffmember	0.00	
						AStaffmember	0.70	
						AStaffmember	0.20	
						AStaffmember	0.60	
						AStaffmember	0.20	
						AStaffmember	0.70	
						AStaffmember	0.10	
						AStaffmember	0.10	
						AStaffmember	0.60	
10.110 Financial Accounting	AStaffmembe	4	20	458	3.46	AStaffmember	0.10	3.3
						AStaffmember	0.80	
						AStaffmember	0.30	
						AStaffmember	0.40	
						AStaffmember	0.60	
						AStaffmember	0.20	
						AStaffmember	0.20	
						AStaffmember	0.70	
						AStaffmember	0.00	
10.200 Accounting for Managers	AStaffmembe	4	20	87	2.99			2.90
						AStaffmember	0.80	
						AStaffmember	0.30	
						AStaffmember	0.30	
						AStaffmember	0.50	
						AStaffmember	0.10	
						AStaffmember	0.40	
						AStaffmember	0.00	
						AStaffmember	0.50	
10.603 DBS Accounting Fundamentals	AStaffmember			269	0.55	AStaffmember	0.10	0.55
						AStaffmember	0.45	
10.604 Accounting for Non Specialists	AStaffmember			97	0.26	AStaffmember	0.15	0.25
						AStaffmember	0.10	
43.411 Technology service course	AStaffmembe	1.00			0.10	AStaffmember	0.10	0.10

DEPARTMENT OF ACCOUNTANCY Academic year 1988 06-Jun-88

Workload Variance analysis	Budget	Actual	Variance
ACCOUNTING PRINCIPLES			
10.100 Introductory Accounting	5.88	5.50	-0.38
10.110 Financial Accounting	3.46	3.30	-0.16
10.200 Accounting for Managers	2.99	2.90	-0.09
10.603 DBS Accounting Fundamentals	0.55	0.55	0.00
10.604 Accounting for Non Specialists	0.26	0.25	-0.01
43.411 Technology service course	0.10	0.10	0.00
AUDITING			
10.271 Internal Auditing	0.84	0.85	0.01
10.275 Principles of Auditing & Taxation	1.85	1.90	0.05
10.370 External Auditing	1.20	1.00	-0.20
10.371 Operational & Value for Money Auditing	0.42	0.40	-0.02
10.471 Advanced Performance Auditing	0.00	0.00	0.00
10.470 Contemporary Issues in Auditing	0.30	0.10	-0.20
10.606 Internal Auditing Project	0.10	0.10	0.00
FINANCIAL ACCOUNTING			
10.210 Corporate Accounting	2.81	3.00	0.19
10.310 Advanced Financial Accounting	2.14	2.15	0.01
10.311 Accounting Theory	2.25	2.10	-0.15
10.313 International Accounting	0.00	0.00	0.00
10.314 Societal Accounting	0.12	0.10	-0.02
10.410 Contemporary Issues in Financial Accountin	0.30	0.20	-0.10
10.411 Advanced Accounting Theory	0.30	0.20	-0.10
10.413 International Accounting	0.00	0.00	0.00
10.414 Advanced Societal Accounting	0.20	0.20	0.00
10.417 Research Methods in Accounting	0.40	0.40	0.00
MANAGEMENT ACCOUNTING			
10.220 Management Accounting	2.90	2.90	0.00
10.240 Accounting & Business Systems	0.00	0.00	0.00
10.241 Financial Modelling	0.50	0.50	0.00
10.256 Small Business Financial Management	0.90	0.60	-0.30
10.320 Advanced Management Accounting	1.34	1.20	-0.14
10.321 Management Information Systems in Accntg	0.42	0.30	-0.12
10.400 Accounting & Finance for Bus Administrator	0.00	0.00	0.00
10.400 MBA	0.50	0.50	0.00
10.420 Contemporary Issues in Management Accntg	0.30	0.20	-0.10
10.495 Accounting for Marketing	0.30	0.30	0.00
Primary Industry			
10.041 Industrial financial & managerial accntg	0.10	0.10	0.00
42.033 Diploma of Meat Technology	0.05	0.05	0.00
10.250 Primary Industry Accounting	1.07	1.05	-0.02
10.350 Advanced Primary Industry Accounting	0.30	0.30	0.00

10.450 Contemp Issues in Primary Ind Accounting	0.30	0.20	-0.10
Public Sector			
10.257 Accounting for Not for Profit Organisation	0.00	0.00	0.00
10.260 Public Sector Accounting	0.76	0.75	-0.01
10.602 DHA Financial Management	0.23	0.20	-0.03
10.605 DBS Public Sector Financial Management	0.32	0.30	-0.02
TAXATION			
10.275 Principles of Auditing & Taxation	1.85	2.00	0.15
10.380 Advanced Taxation	1.20	1.10	-0.10
10.281 Acc for Trusts & Estates	0.19	0.20	0.01
10.286 Tax for Managers	0.21	0.20	-0.01
10.384 Tax Policy	0.13	0.15	0.02
10.480 Contemporary Issues in Taxation	0.40	0.30	-0.10
10.485 Int Issues in Tax	0.30	0.30	0.00
PhD & 499 Supervision	1.50	1.40	-0.10
14.253 Business Communication	0.30	0.30	0.00
	42.84	40.70	-2.14

Department of Accountancy

Massey University

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