

**A Decision Support Model for
University Management**

by

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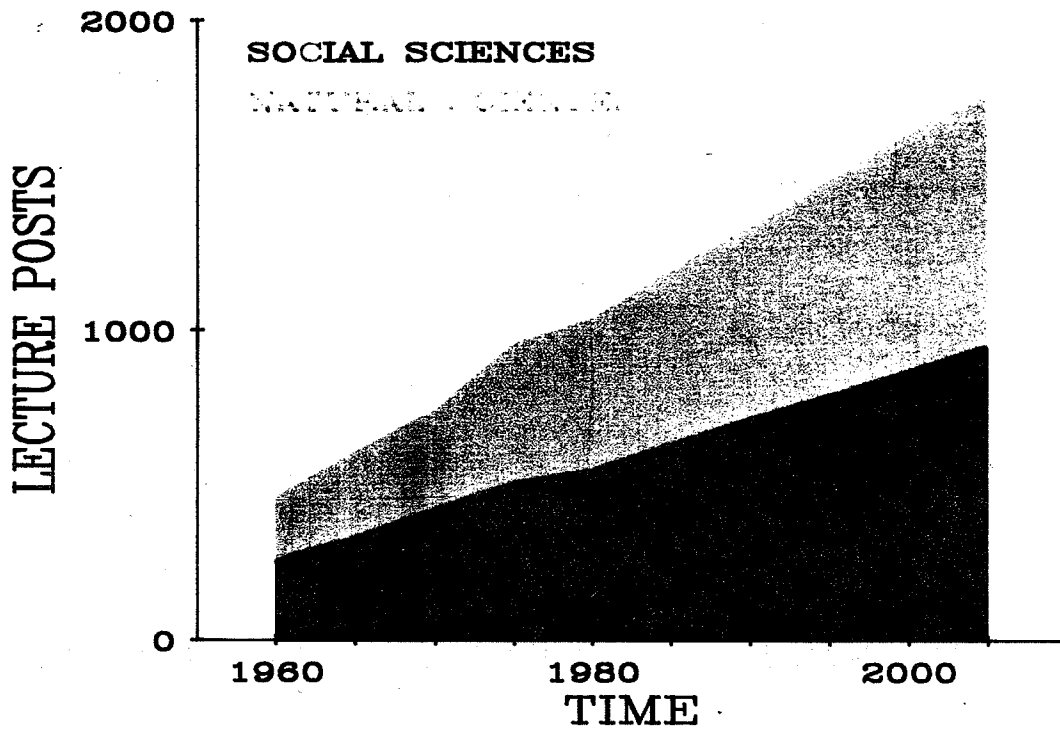
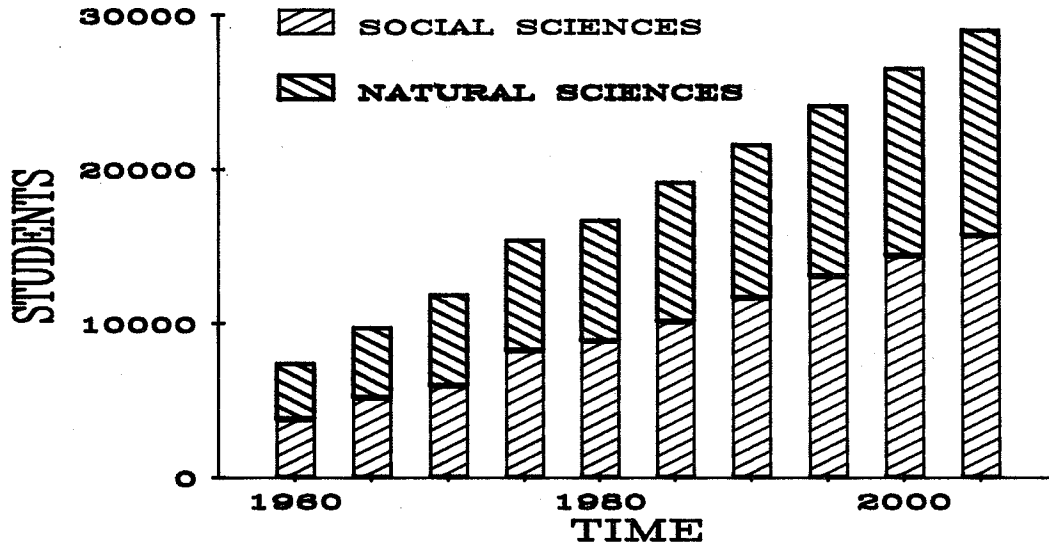
PROBLEM

PRE-1986 SITUATION

- (a) UNCONSTRAINED GROWTH OF UNIVERSITIES
- (b) 6% GROWTH RATE
- (c) 85% GOVERNMENT SUBSIDY - UNCONDITIONAL
- (d) OPEN CHOICE OF FIELD OF STUDY
- (e) ADMISSION CRITERIA IN SOME FACULTIES (E.G. MEDICAL & VETERINARY) DUE TO LIMITED FACILITIES
- (f) LECTURING POSTS ACCORDING TO SUBSIDY FORMULA

PROBLEM

HISTORICAL TRENDS AND EXTRAPOLATION



PROBLEM

NEW DISPENSATION AND CONSTRAINTS

- (a) GOVERNMENT SUBSIDY RESTRICTED TO 1986
UNDERGRADUATE STUDENT NUMBERS
NO GROWTH INCENTIVE
- (b) GROWTH IN POST-GRADUATE ENROLEMENT WILL
ENHANCE GOVERNMENT SUBSIDY
- (c) GROWTH IN TECHNICONS WILL BE STIMULATED AT
THE EXPENSE OF UNIVERSITIES
- (d) NATIONAL MANPOWER REQUIREMENTS MUST BE
CONSIDERED
- (e) RESEARCH OUTPUT AT UNIVERSITIES WILL BE
REMUNERATED BY THE GOVERNMENT
- (f) HIGHER STUDENT SUCCESS RATE ENCOURAGED
- (g) UNIVERSITIES ENCOURAGED TO GENERATE OWN
FUNDS

PROBLEM

FACTORS CONSIDERED BY MANAGEMENT

(A) EXTERNAL FACTORS

- (a) MANPOWER REQUIREMENTS
STIMULATE/DEPRESS CERTAIN FACULTIES
AND DEPARTMENTS
- (b) POPULATION GROWTH
- (c) STATE OF NATIONAL ECONOMY
- (d) GROWTH OF COMPETING TERSIARY INSTITUTIONS

(B) POLICY FACTORS

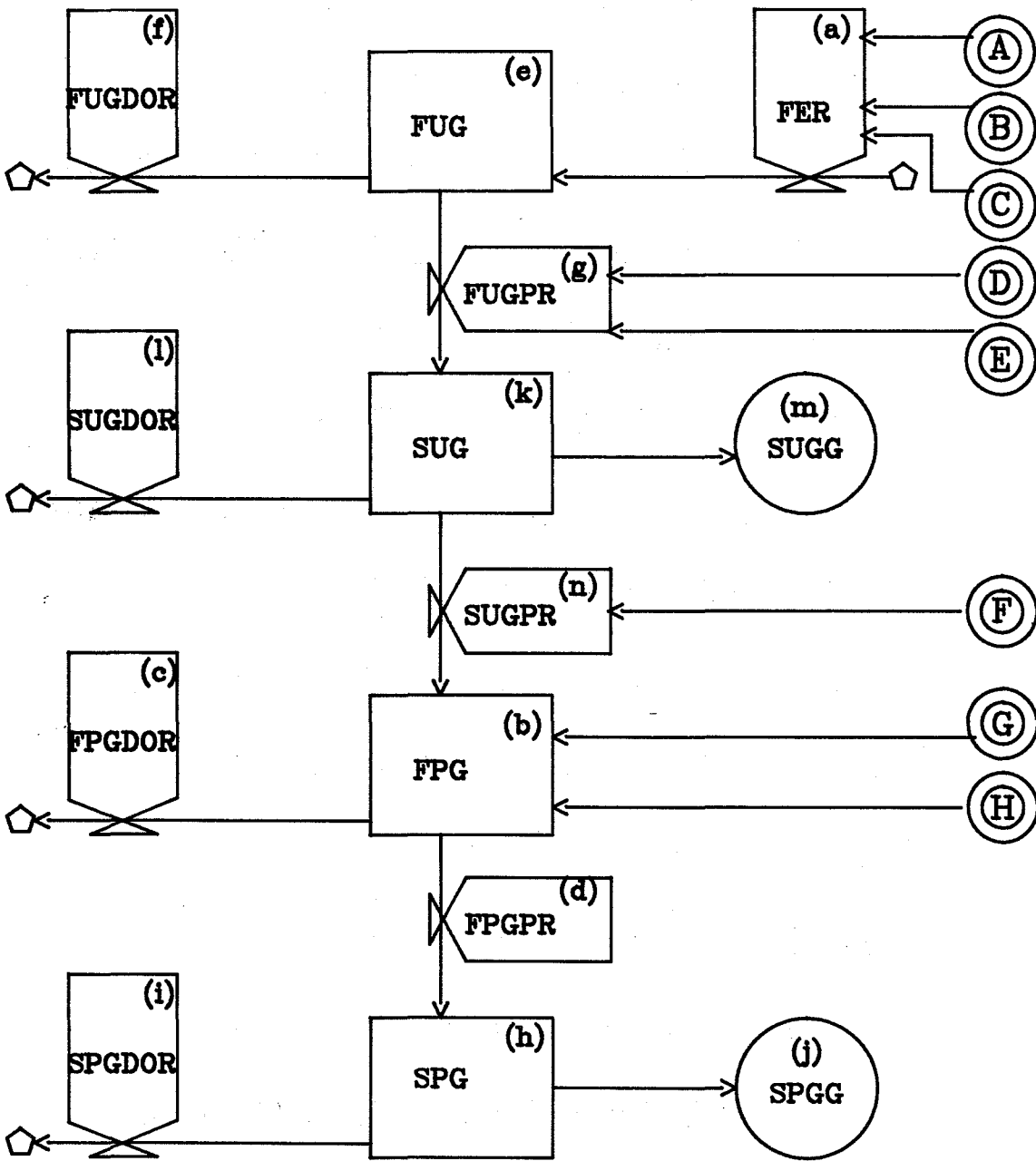
- (a) NUMBER AND QUALITY OF BURSARIES
- (b) UNDER/POST-GRADUATE SELECTION
PROGRAMMES
- (c) RECRUITMENT PROGRAMMES
- (d) FUND RAISING CAMPAIGNS
- (e) "EXCELLENCE" OF PERSONNEL

MODEL

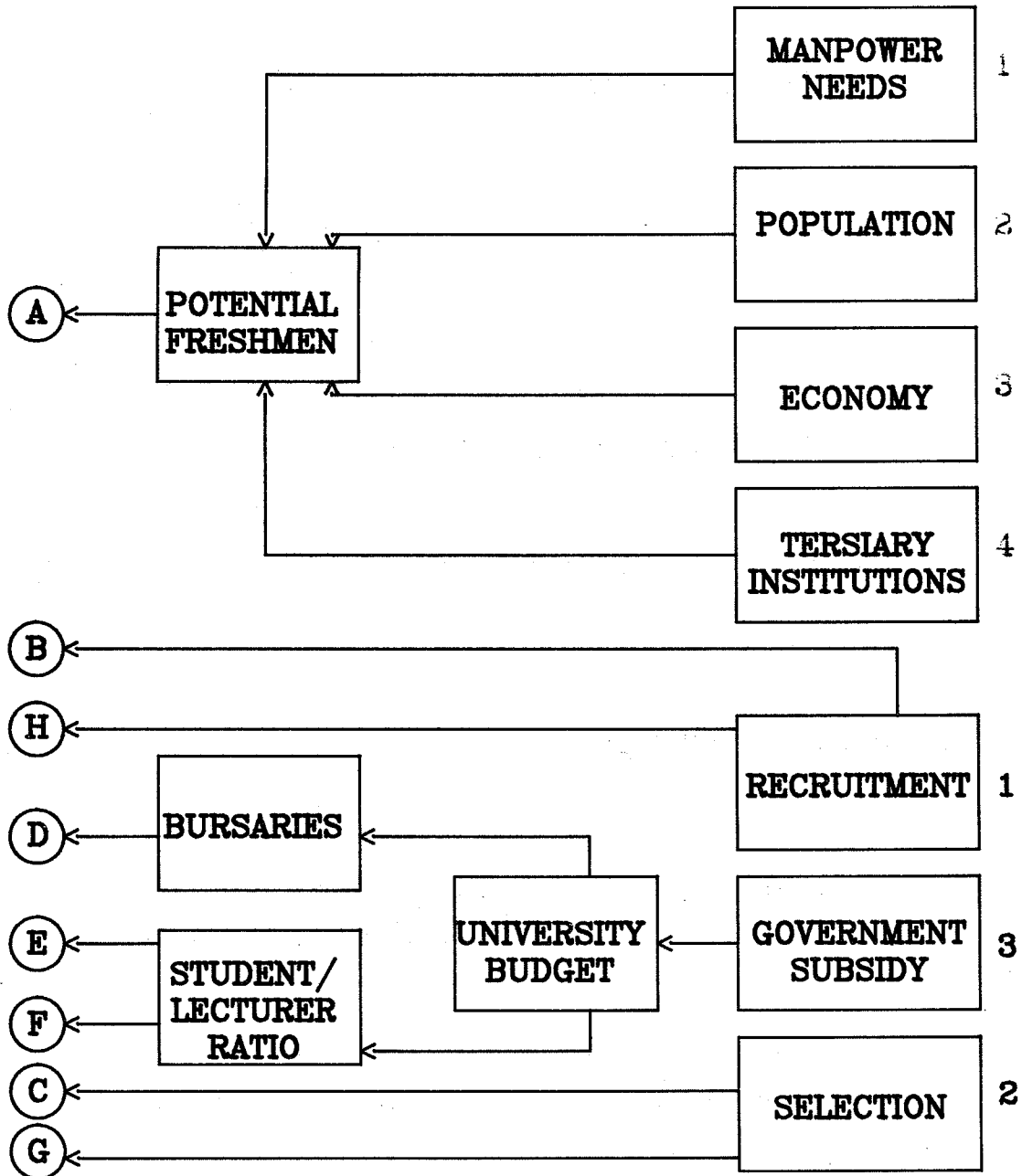
NOMENCLATURE OF VARIABLES IN FLOW DIAGRAM

- (a) FER - FRESHMEN ENROLEMENT RATE
- (b) FPG - FRESHMEN POST-GRADUATES
- (c) FPGDOR - FRESHMEN POST- GRADUATE DROP OUT RATE
- (d) FPGPR - FRESHMEN POST-GRADUATE PROMOTION RATE
- (e) FUG - FRESHMEN UNDERGRADUATES
- (f) FUGDOR - FRESHMEN UNDERGRADUATE DROP OUT RATE
- (g) FUGPR - FRESHMEN UNDERGRADUATE PROMOTION RATE
- (h) SPG - SENIOR POST-GRADUATES
- (i) SPGDOR - SENIOR POST-GRADUATE DROP OUT RATE
- (j) SPGG - SENIOR POST-GRADUATE GRADUATIONS
- (k) SUG - SENIOR UNDERGRADUATES
- (l) SUGDOR - SENIOR UNDERGRADUATE DROP OUT RATE
- (m) SUGG - SENIOR UNDERGRADUATE GRADUATIONS
- (n) SUGPR - SENIOR UNDERGRADUATE PROMOTION RATE

MODEL



MODEL



MODEL

DECISION OPTIONS

EXTERNAL SCENARIO PARAMETERS

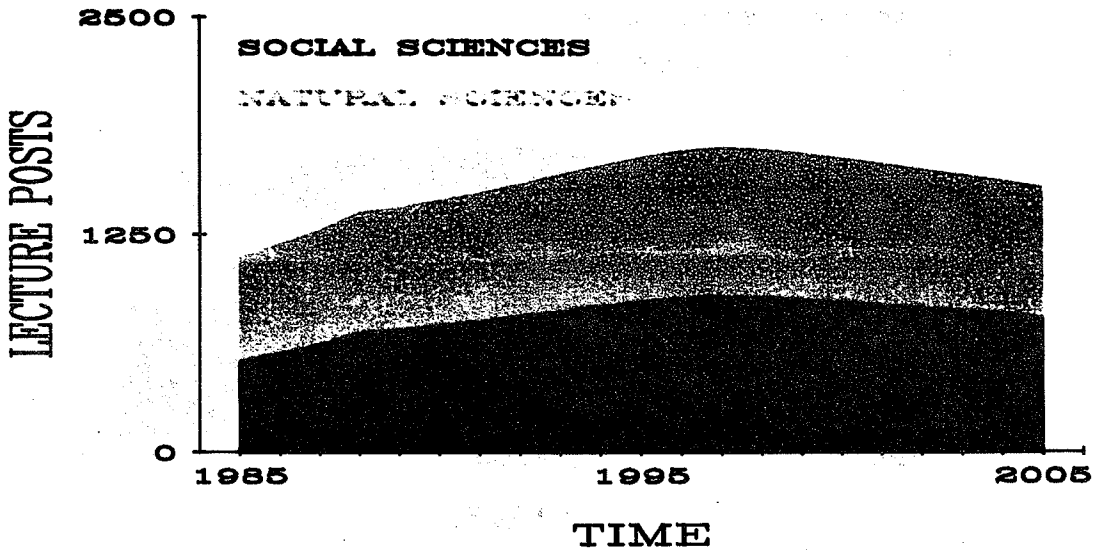
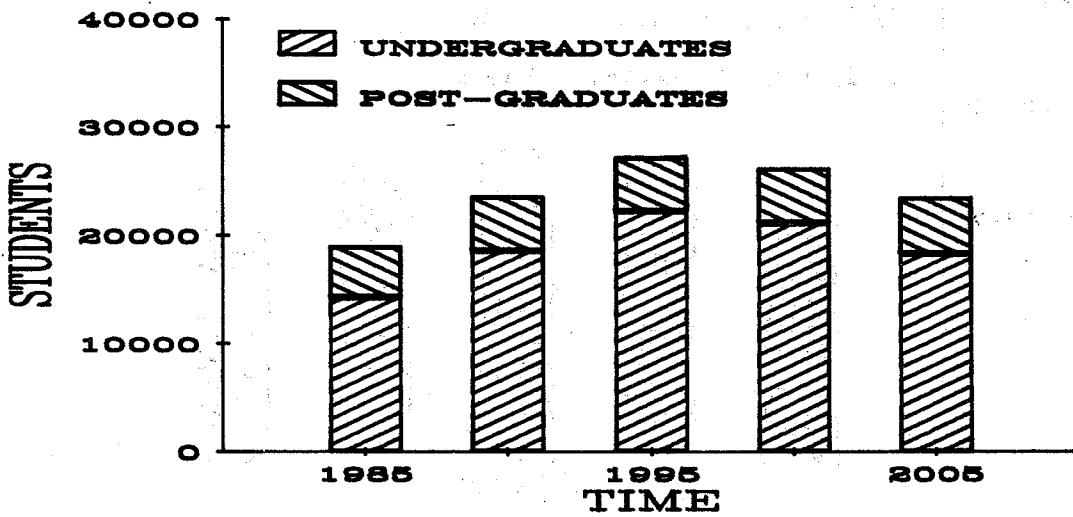
1. MANPOWER NEEDS IN CESM-CATEGORIES
2. POPULATION GROWTH RATE AND MIGRATION
3. GROWTH RATE OF THE ECONOMY
4. OTHER TERSIARY INSTITUTIONS

POLICY OPTIONS

1. UNDER- AND POST-GRADUATE RECRUITMENT PROGRAMMES FOR THE 22 CESM-CATEGORIES
2. UNDER- AND POST-GRADUATE SELECTION PROGRAMMES FOR THE 22 CESM-CATEGORIES
3. GOVERNMENT SUBSIDY AND DISTRIBUTION OF UNIVERSITY BUDGET

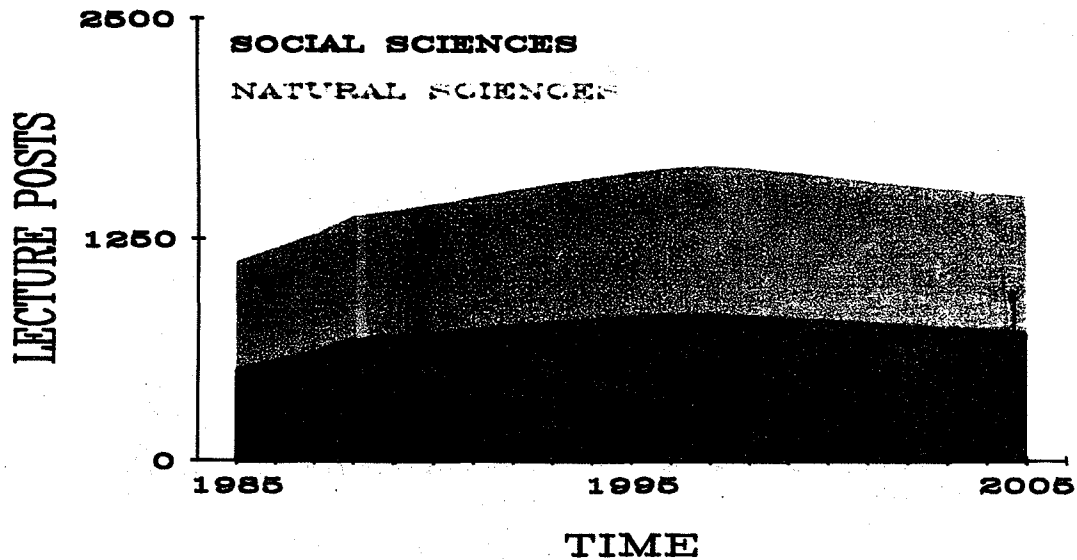
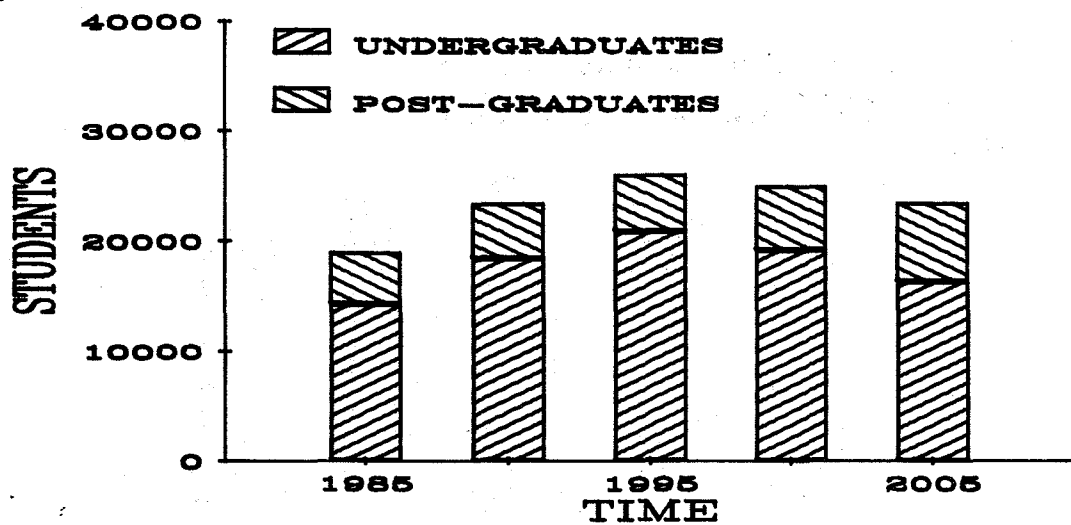
RESULTS

SCENARIO 1 * NO RECRUITMENT
* NO SELECTION



RESULTS

- SCENARIO 2**
- * UNDERGRADUATE RECRUITEMENT FROM 1992
 - * POST-GRADUATE RECRUITEMENT FROM 1988
 - * SELECTION IN SOME CESM-CATEGORIES

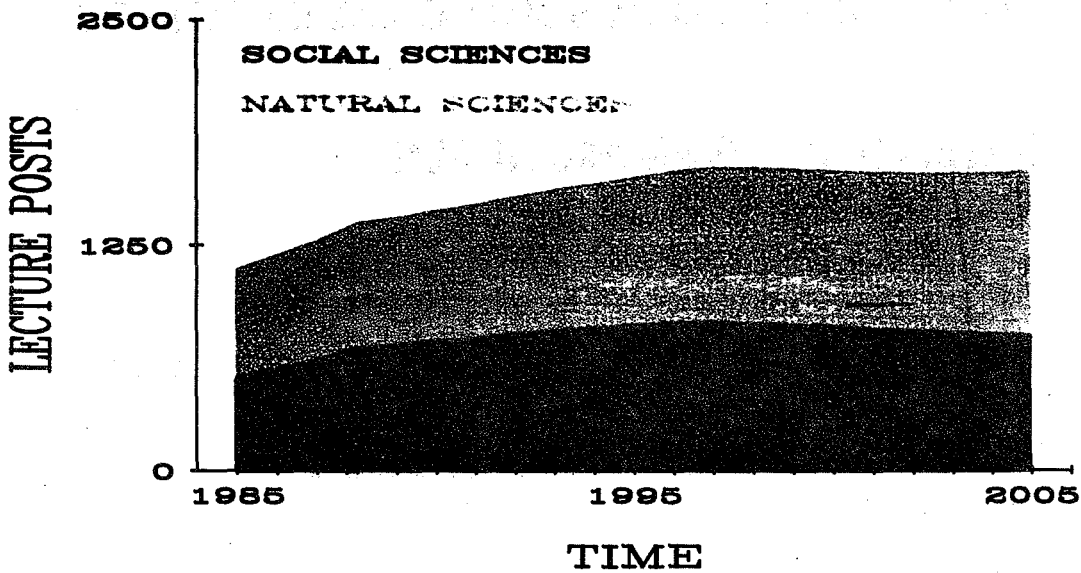
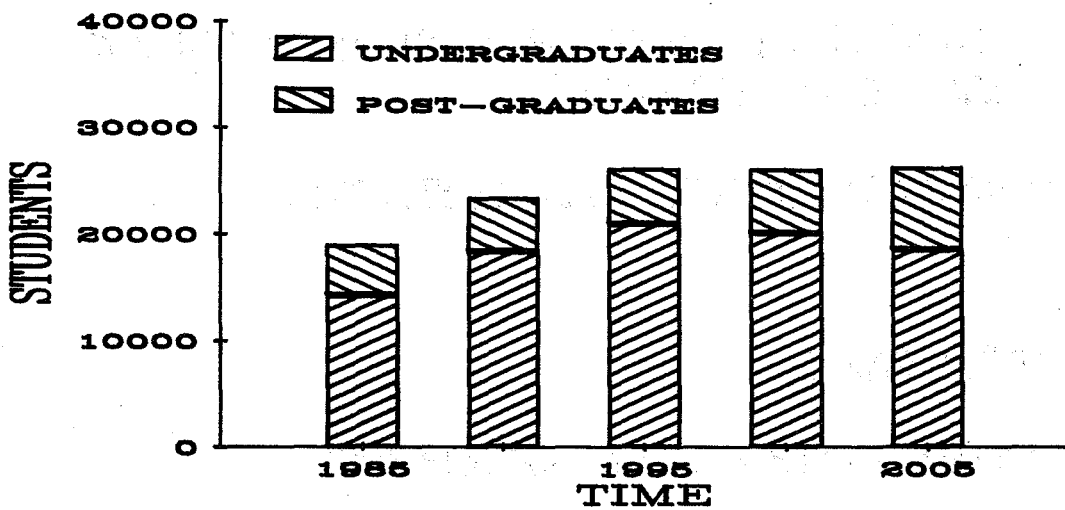


RESULTS

SCENARIO 3

* SAME AS SCENARIO 2

* ENHANCED RECRUITMENT IN SOME
CESM-CATEGORIES



RESULTS

OBSERVATIONS

1. SCENARIO 1 - STANDARD RUN

- * ABSORB SUBSIDY LOSSES UNTIL NUMBER OF STUDENTS AGAIN REACH 1986 LEVEL
- * NO GROWTH IN POST-GRADUATE STUDENTS

2. SCENARIO 2

- * SMALLER OVERSHOOT OF 1986 STUDENTS
- * MORE POST-GRADUATE STUDENTS
- * MORE PHYSICAL AND MATHEMATICAL SCIENCE STUDENTS

3. SCENARIO 3 - EQUILIBRIUM RUN

- * DESIRED DROP IN UNDERGRADUATE STUDENTS
- * GROWTH IN POST-GRADUATE STUDENTS - MORE SUBSIDY
- * STABILIZING OF TOTAL NUMBER OF STUDENTS