

**A Decision Support Model for  
University Management**

**by**

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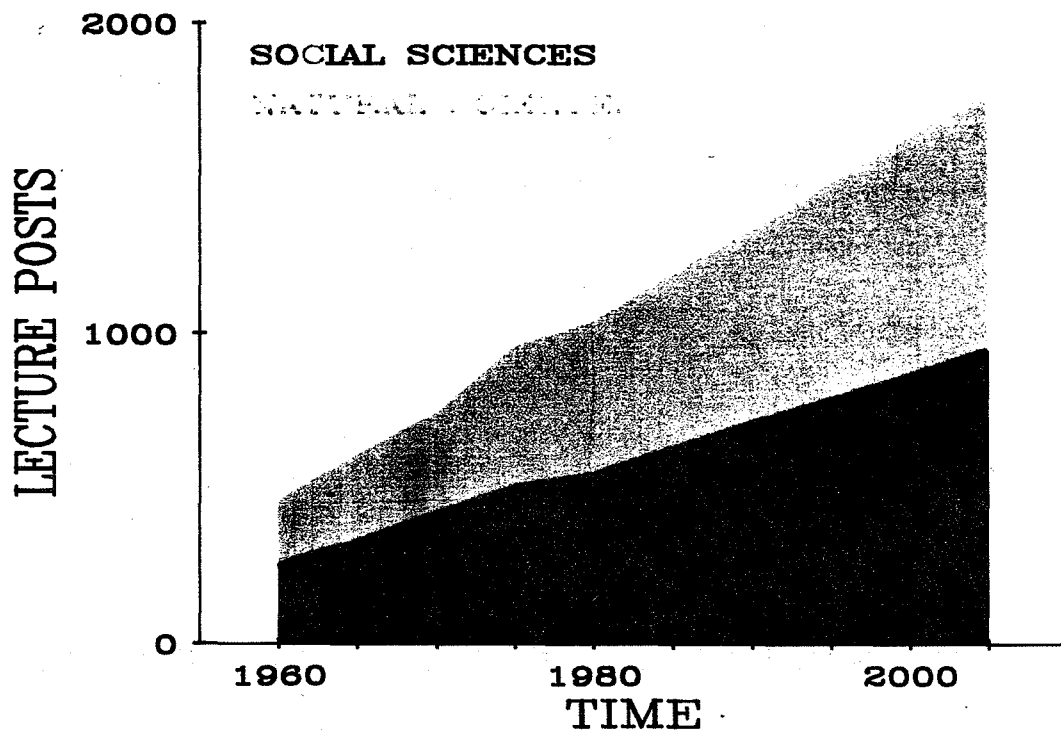
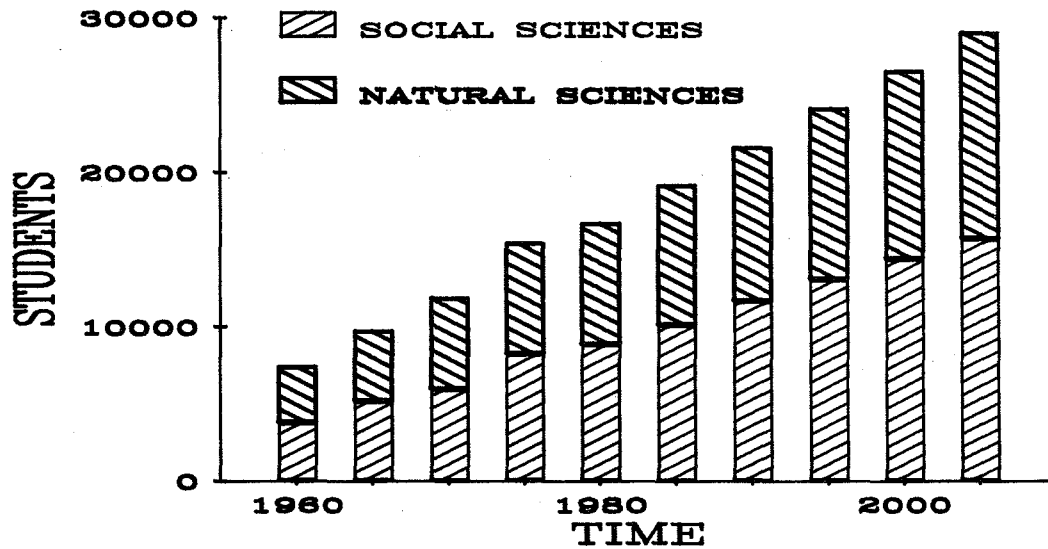
# PROBLEM

## 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

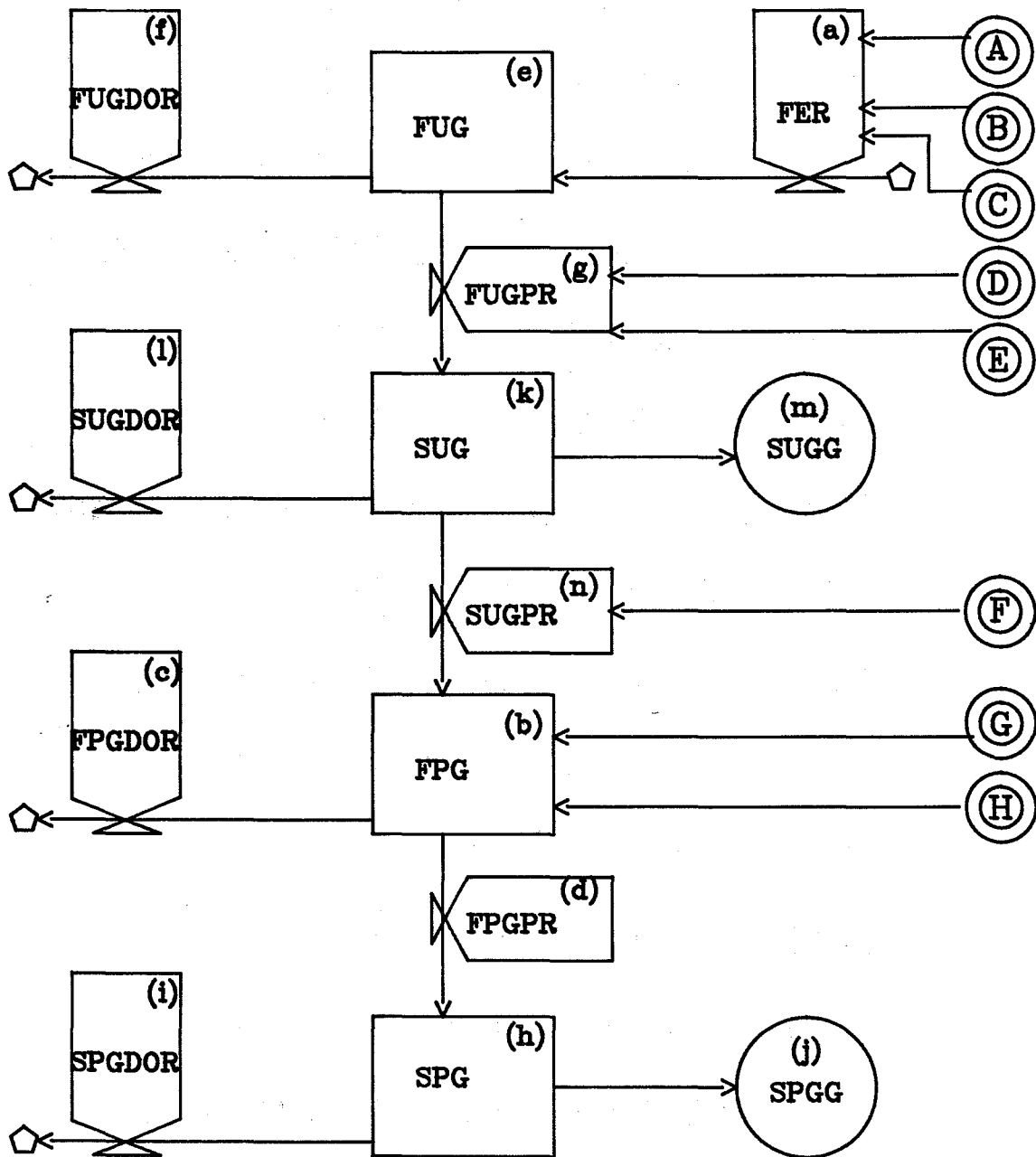
- (a) NUMBER AND QUALITY OF BURSARIES
- (b) UNDER/POST-GRADUATE SELECTION  
PROGRAMMES
- (c) RECRUITMENT PROGRAMMES
- (d) FUND RAISING CAMPAIGNS
- (e) "EXCELLENCE" OF PERSONNEL

# **MODEL**

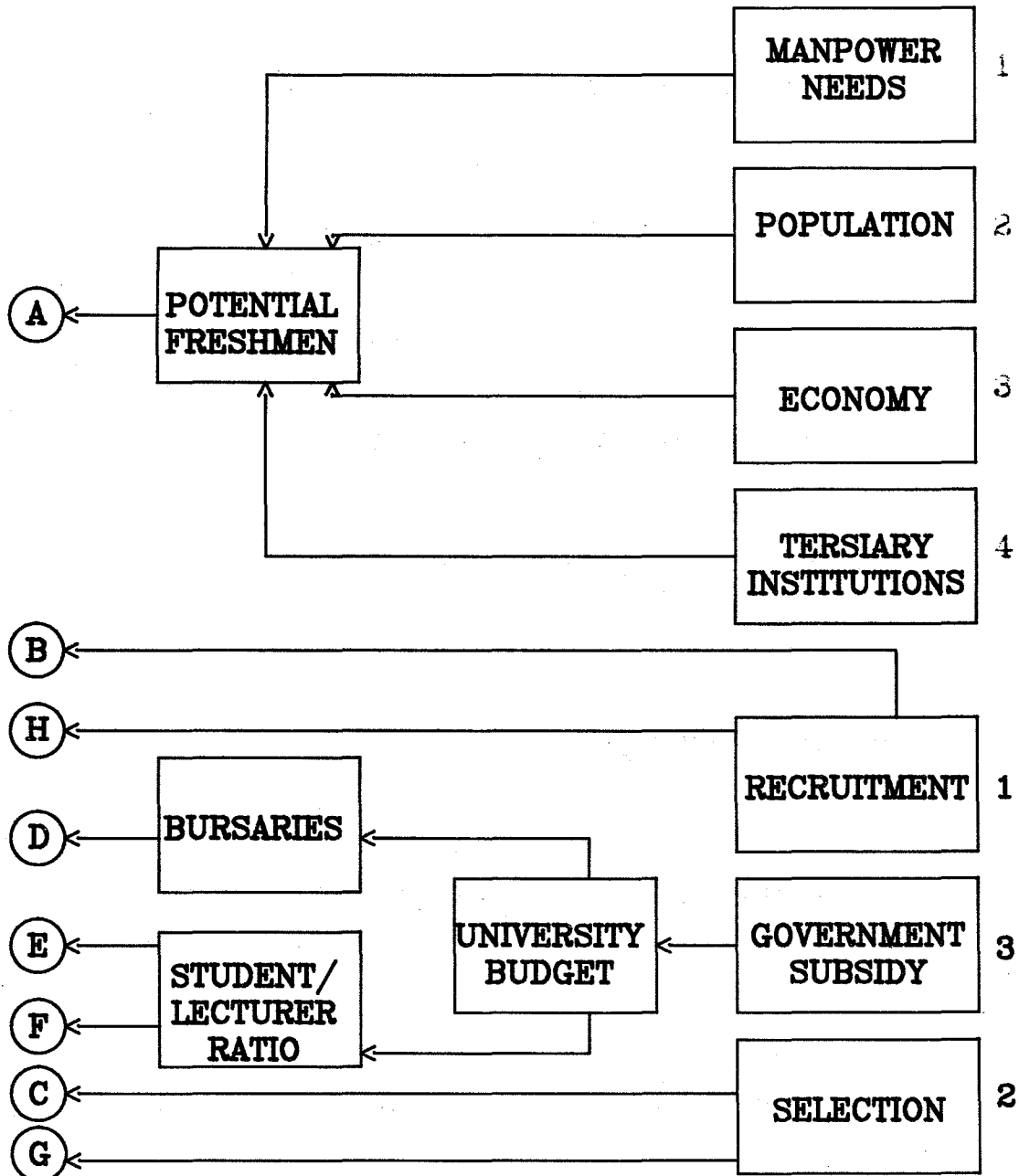
## **NOMENCLATURE OF VARIABLES IN FLOW DIAGRAM**

- (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**

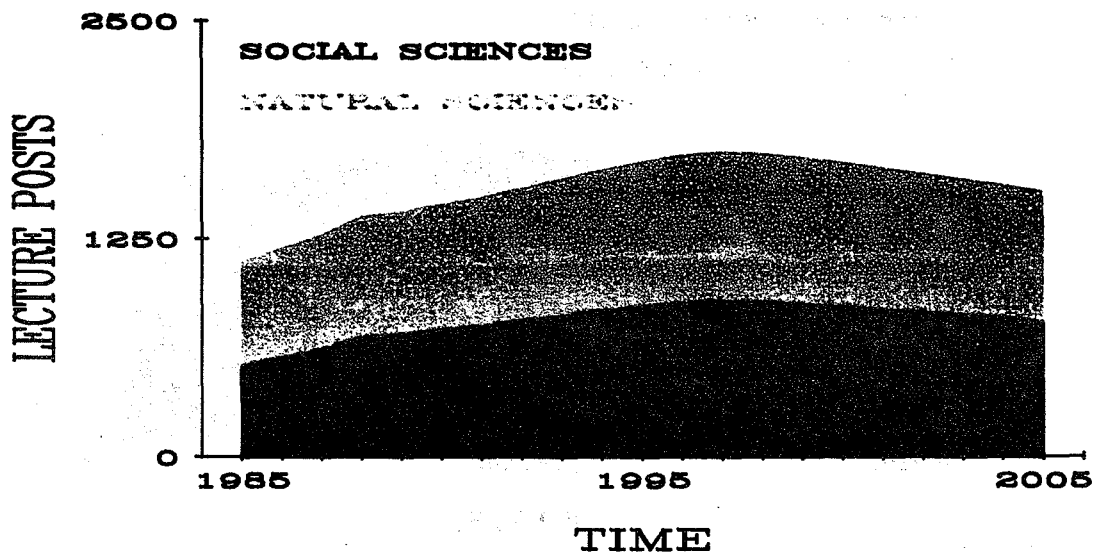
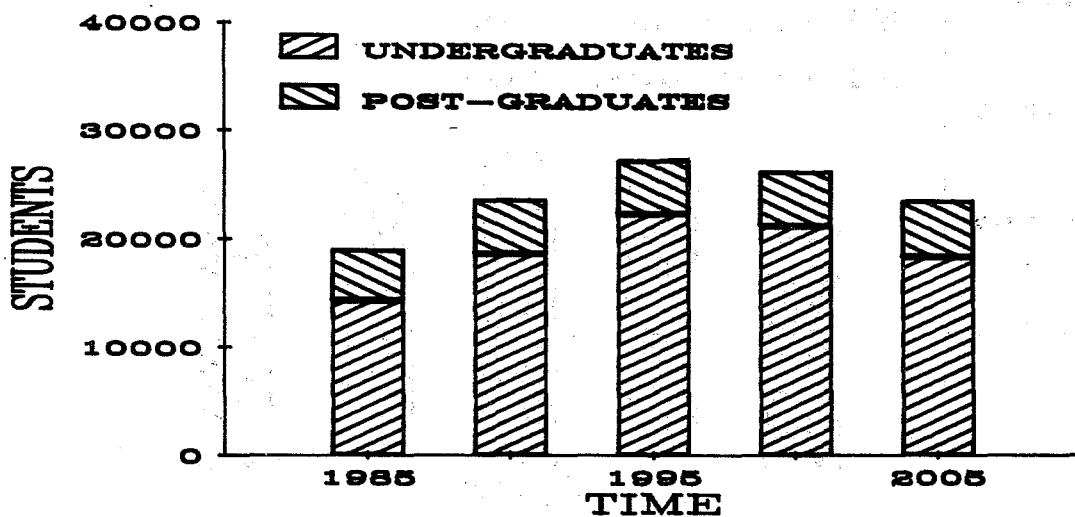
1. UNDER- AND POST-GRADUATE RECRUITMENT PROGRAMMES FOR THE 22 CESM-CATEGORIES
2. UNDER- AND POST-GRADUATE SELECTION PROGRAMMES FOR THE 22 CESM-CATEGORIES
3. GOVERNMENT SUBSIDY AND DISTRIBUTION OF UNIVERSITY BUDGET

# RESULTS

## SCENARIO 1

\* NO RECRUITMENT

\* NO SELECTION



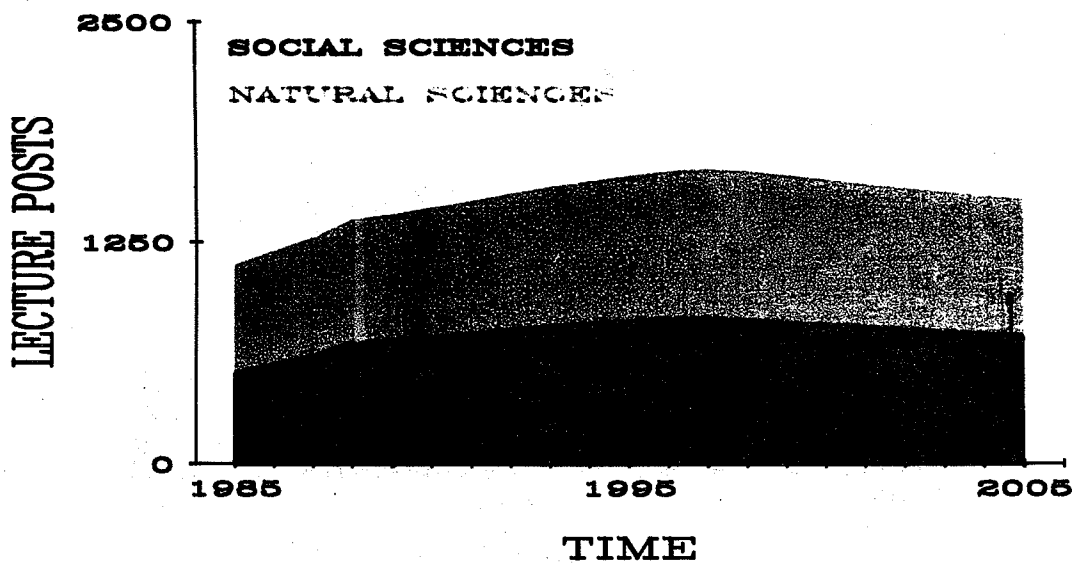
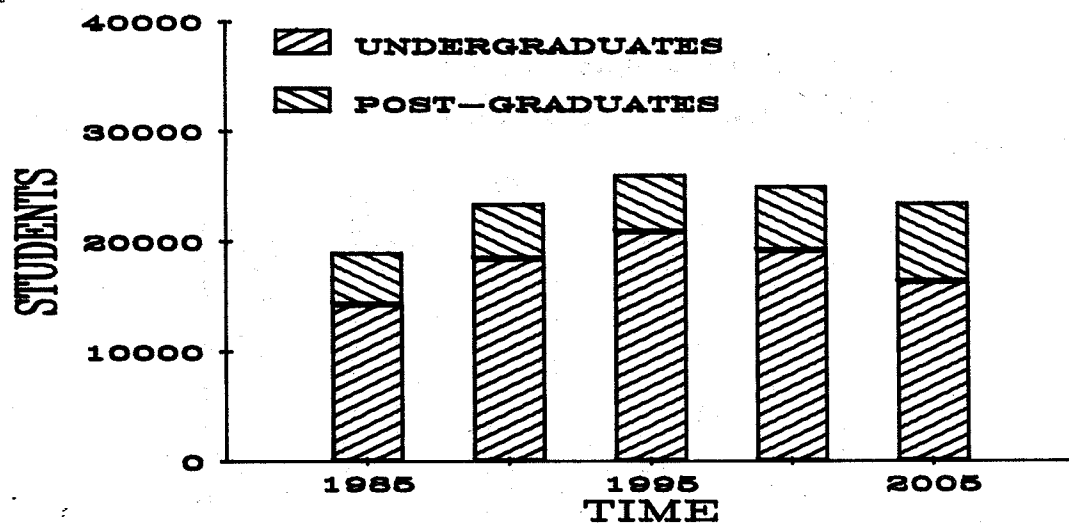
# RESULTS

## SCENARIO 2

\* UNDERGRADUATE RECRUITEMENT FROM 1992

\* POST-GRADUATE RECRUITEMENT FROM 1988

\* SELECTION IN SOME CESM-CATEGORIES

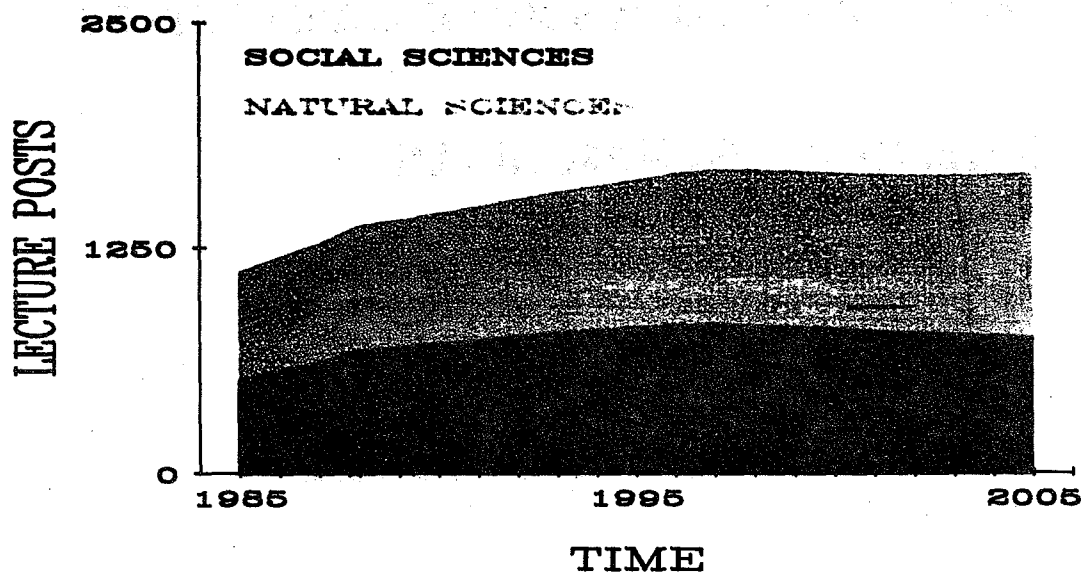
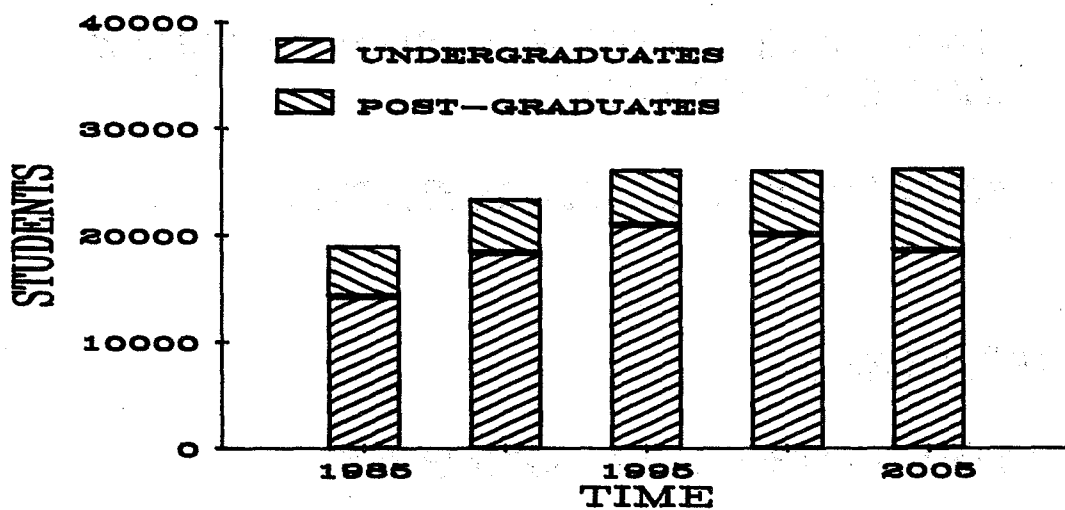


# RESULTS

## 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