

ECONOMICS OF EDUCATION

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Educational Planning

Educational planning at macro level

Aim: allocating resources among levels and types of education, assessing investment priorities in the education sector.

Approaches to educational planning

1. Manpower-requirement approach
2. Rate of return (or cost-benefit) approach

Assumptions of manpower requirement approach

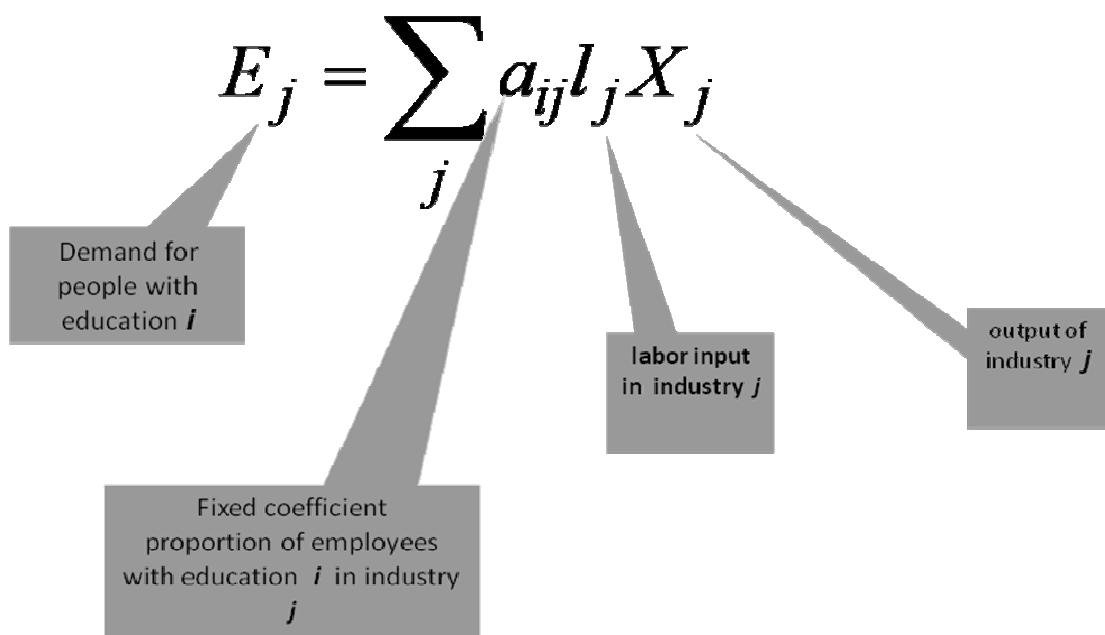
- Inflexibilities and rigidities provide significant barriers to efficient working of the market.
- Historical factors institutional structures also constrain the markets of efficient resource use.
- Shortages and surpluses of differently qualified groups of labor will constantly arise in the absence of planning.
- Imperfect information on future wages, employment vacancies and labor availability.
- Each level of national income and rate of economic growth requires specific types and levels of skills and these have precise implications for the education system.

1. Manpower requirement approach

Purpose: to ensure that appropriate supplies of manpower are available when new requirement arise.

1. Forecasting demand
2. Forecasting supply
3. Forecasting "educational requirements"

Fixed coefficient input-output model (Leontief model)



Changes in demand

$$\Delta E_j = \sum_j a_{ij} \Delta l_j X_j$$

Output is linked through some rigid coefficient to the

- quality of labor (education level)
- quantity of labor
- elasticity of substitution between labor and other inputs: 0

Typical steps of manpower forecasting

I. FORECASTING LABOR DEMAND

1. Estimating the growth and future level of national income.
2. Estimating the structural transformation of the economy as expressed by the distribution of output by economic sector as it evolves over time.
3. Estimating labor productivity by economic sector and its evolution over time.

Based on:

- average productivity attained in an other country,
 - observing past trends and extrapolating them,
 - surveying industrial estimates of productivity changes.
4. Estimating the occupational structure of the labor force within economic sectors and its evolution over time.
 5. Estimating the educational structure of the labor force in given occupations within economic sectors over time.

II. FORECASTING SUPPLY

1. Estimating the population by age, sex and educational level.
2. Assessing the number of graduates, dropouts by age, sex and educational level.
3. Finding the labor force participants by applying age, sex, educational level labor force participation rates to the number of graduates.
4. Estimating the occupational supply based on the labor supply by education level possibly using an education to occupation matrix.

III. BALANCING SUPPLY AND DEMAND

1. Computing the required change in annual outflow from the several types of education.
2. Computing the required enrolments in each type of education to achieve the result of step 1.

Critique of the manpower requirement approach

What is lacking from the model?

Wages (costs and returns)

Recognition of the scarcity of resources (when funds are insufficient to finance all projected investment requirements there is no way to determine priorities among them).

- What are educational "requirements"? – Do they vary with the availability of manpower?
- How to transform occupational requirements into outputs of the educational system?
- Any occupational classification of labor reflects only the types of jobs now in existence – new jobs introduced by technological advancement can not be foreseen.

Empirical findings on elasticity of substitution between educated* and less educated labor

<i>Study</i>	<i>Sample</i>	<i>Elasticity of substitution</i>
Bowles (1969)	Different countries	2.02
Johnson (1970)	US states	1.3
Welch (1970)	US states	1.4
Tinbergen (1974)	Different countries	0.6 –1.2
Freeman (1975)	US different years	1.0–2.6

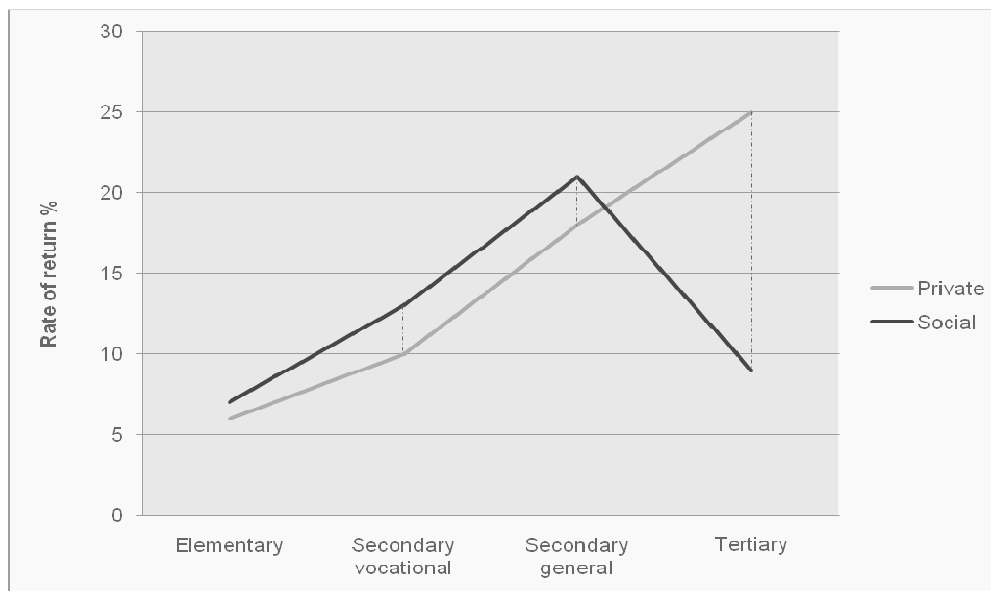
*at least upper secondary level

Source: Freeman, 1986

2. Rate of return approach

- Identifying priorities
More resources should be allocated to those levels of education which social rate of return is the highest.
- Suggestions for changes in financing education
Due to government subsidies private returns exceed social returns would changing the distribution of subsidies enhance allocative efficiency

Rate of return approach assessing the policy implications – example



Critique on rate of return approach

- Rate of return estimations use past data to project future profitability of educational investments.
- Are earnings a good proxy for labor productivity?
- Externalities produced by education are ignored.

Conceptual differences between the two planning approaches

	Manpower requirements	Rate of return
Direction of causation	Output → skills required	Skills supply → Output
Student's motivation to acquire education	Non economic	Economic
Cost of producing skills	–	–+
Input coefficients in producing skills	Fixed, no substitution between different inputs	Variable, all inputs are substitutable
Substitution between skills	0	∞
Elasticity of demand for skills	0	∞
Production function of economic output	Leontief	Neoclassical