

# ECONOMICS OF EDUCATION





NEW

SZÉCHENYI PLAN

# ECONOMICS OF EDUCATION

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Course Material Developed by Department of Economics,

Faculty of Social Sciences, Eötvös Loránd University Budapest (ELTE)

Department of Economics, Eötvös Loránd University Budapest

Institute of Economics, Hungarian Academy of Sciences

Balassi Kiadó, Budapest



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**06 40 638 638**



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ELTE Faculty of Social Sciences, Department of Economics

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# ECONOMICS OF EDUCATION

Author: Júlia Varga

Supervised by Júlia Varga

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## Week 2

Human capital  
Investment decisions by firms

Júlia Varga

# Types of on the job training

Marginal productivity of trainees increases:

in all (many) firms → general training

only in the firm providing the training → specific training

$$MP_t = W_t$$

'n' number of periods the trainee meant to be employed in the firm

training period: initial (0) period, non-training periods:  $n-1$

# On the job training

$$MP_0 + \sum_{t=1}^{n-1} \frac{MP_t}{(1+i)^t} = W_0 + k + \sum_{t=1}^{n-1} \frac{W_t}{(1+i)^t}$$

**Returns to firm training  
labour**

**Costs to firm training  
labour**

*k = direct costs of training*



# On the job training

$$MP_0 + \sum_{t=1}^{n-1} \frac{MP_t}{(1+i)^t} = W_0 + k + \sum_{t=1}^{n-1} \frac{W_t}{(1+i)^t}$$

$$\sum_{t=1}^{n-1} \frac{MP_t - W_t}{(1+i)^t} = G$$

$$MP_0 + G = W_0 + k$$

# On the job training

$$MP_0 + G = W_0 + k$$

Indirect costs of training: the difference between what could have been produced  $MP'_0$  and what is produced ( $MP_0$ ):

$$MP_0 - MP'_0$$

$$C = k + (MP'_0 - MP_0)$$

$$MP'_0 + G = W_0 + C$$

# General training

$$MP'_0 + G = W_0 + C$$

$$G=0 \quad \rightarrow \quad \sum_{t=1}^{n-1} \frac{MP_t - W_t}{(1+i)^t} = G$$

# General training

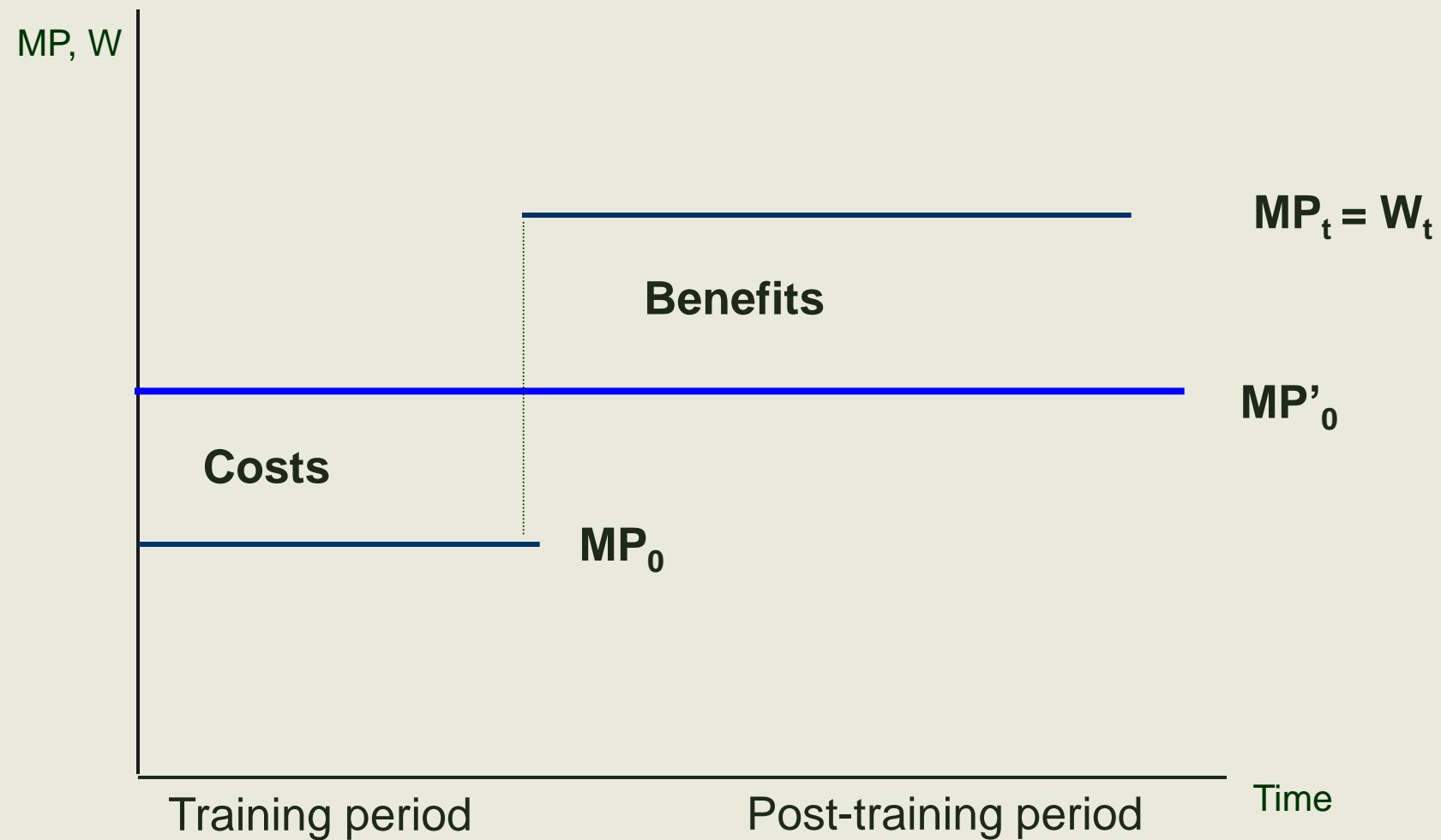
$$MP_0' = W_0 + C,$$

$$MP_0' = (MP_0' - MP_0) + k$$

$$W_0 = MP_0 - k$$

Employees pay for general training by receiving wages below their (opportunity) productivity by the total cost of training.

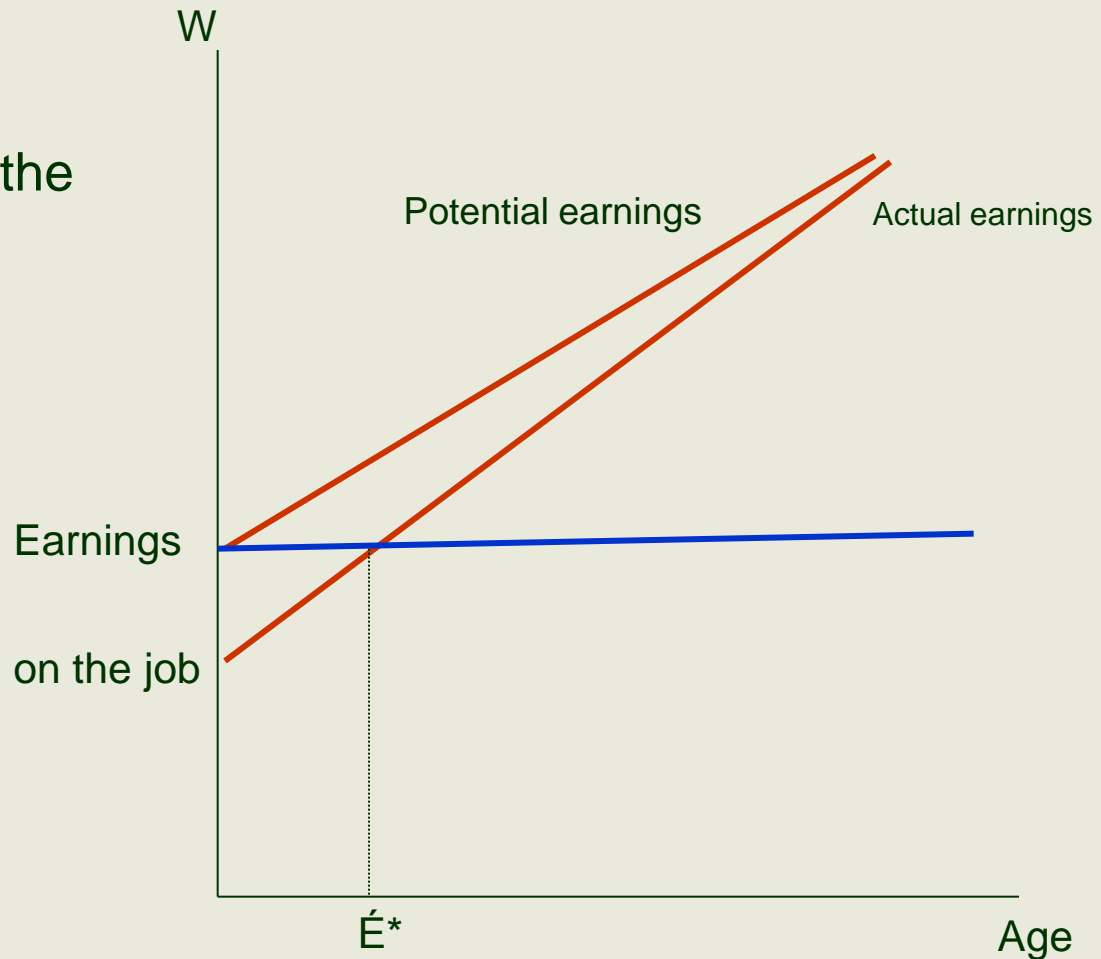
# General training – firms could not capture any of the return



# General training – employees pay for general on the job training

training raises future earnings capacity of the individual

without training



# Firm – specific training

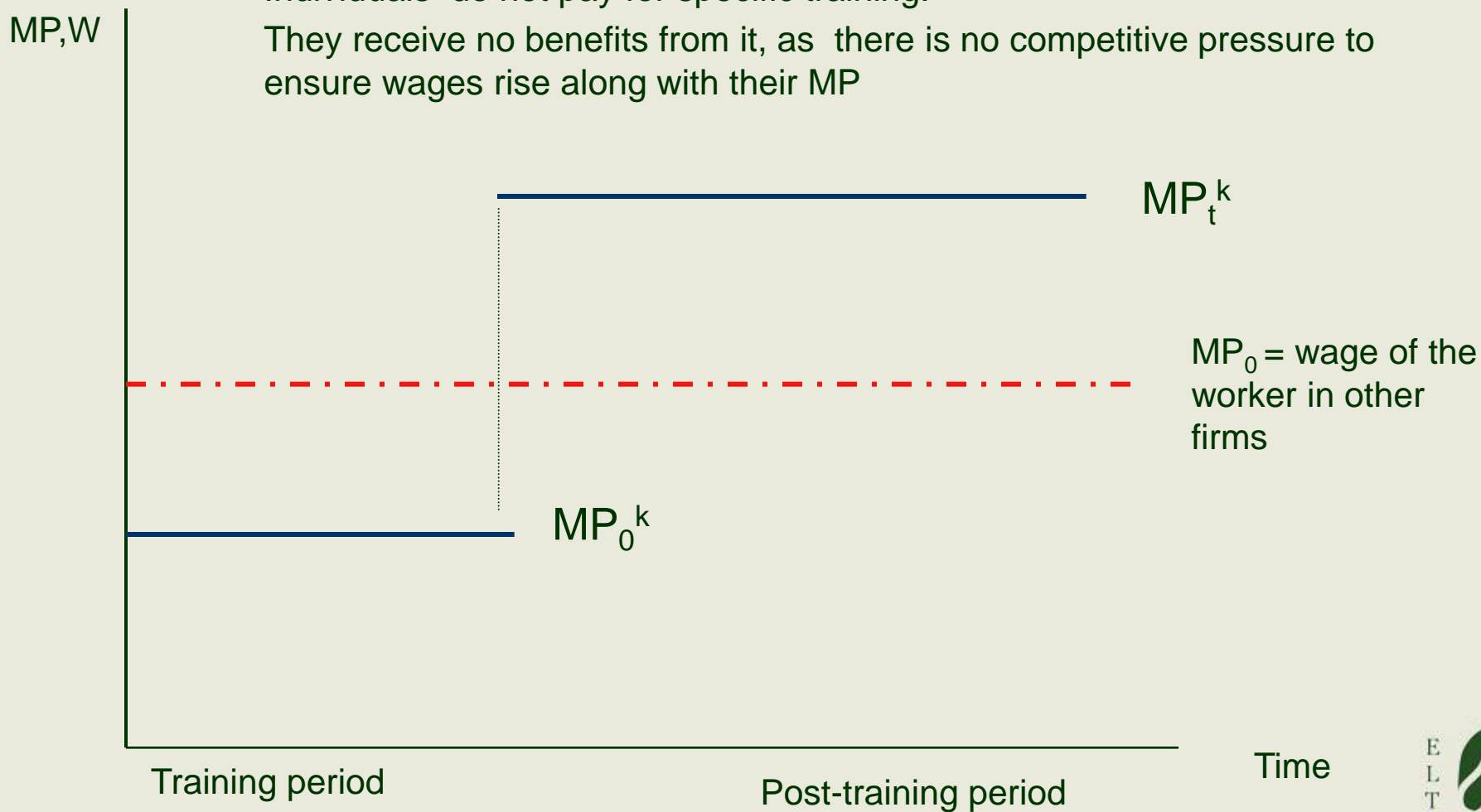
*Marginal productivity of the employee:*

- without on the job training:  $MP_0$
- after training, in the firm providing training:  $MP_t^k$
- after training, in other firms:  $MP_0$
- during training:  $MP_0^k < MP_0$

# Specific training

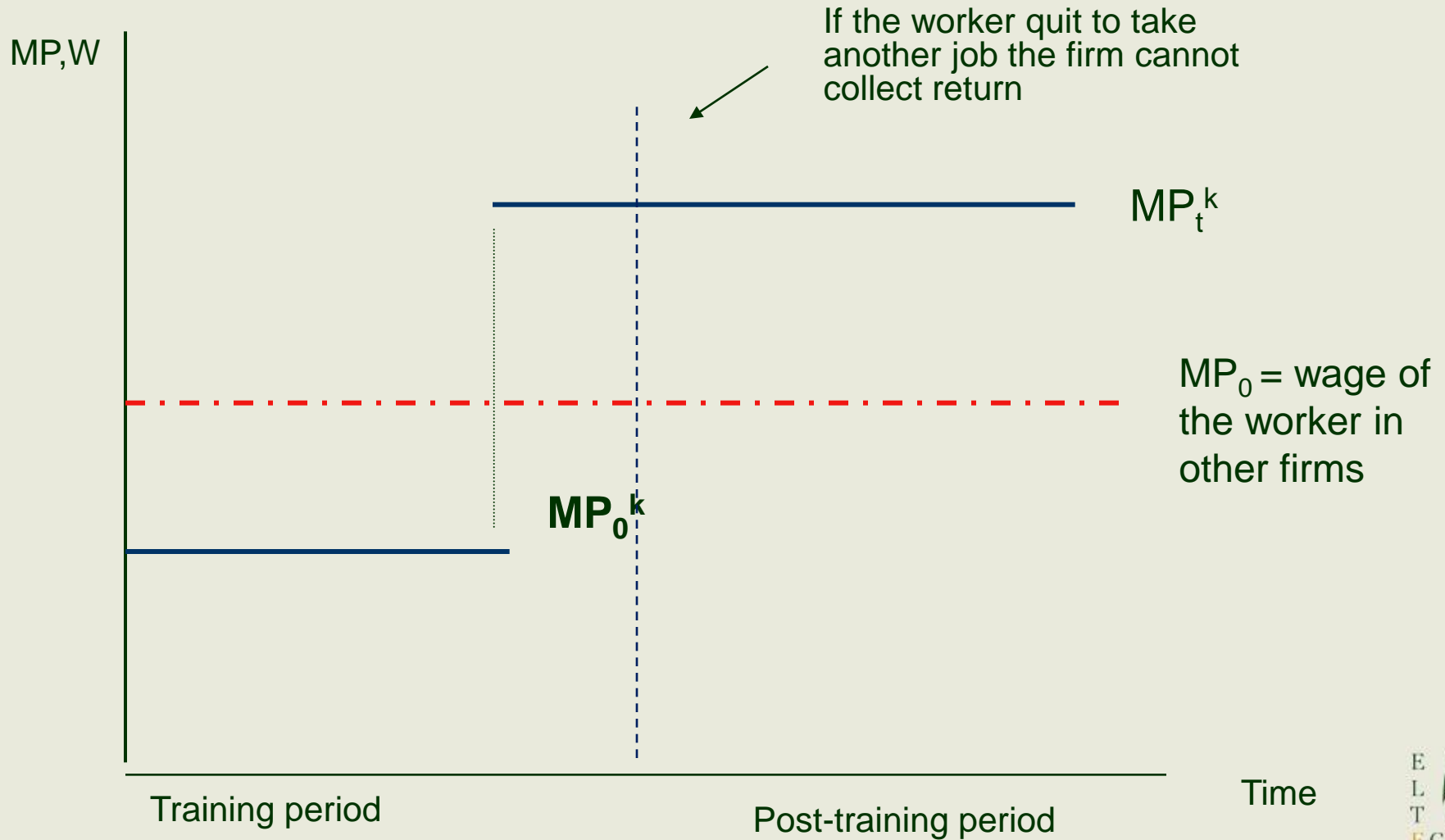
Individuals do not pay for specific training.

They receive no benefits from it, as there is no competitive pressure to ensure wages rise along with their MP

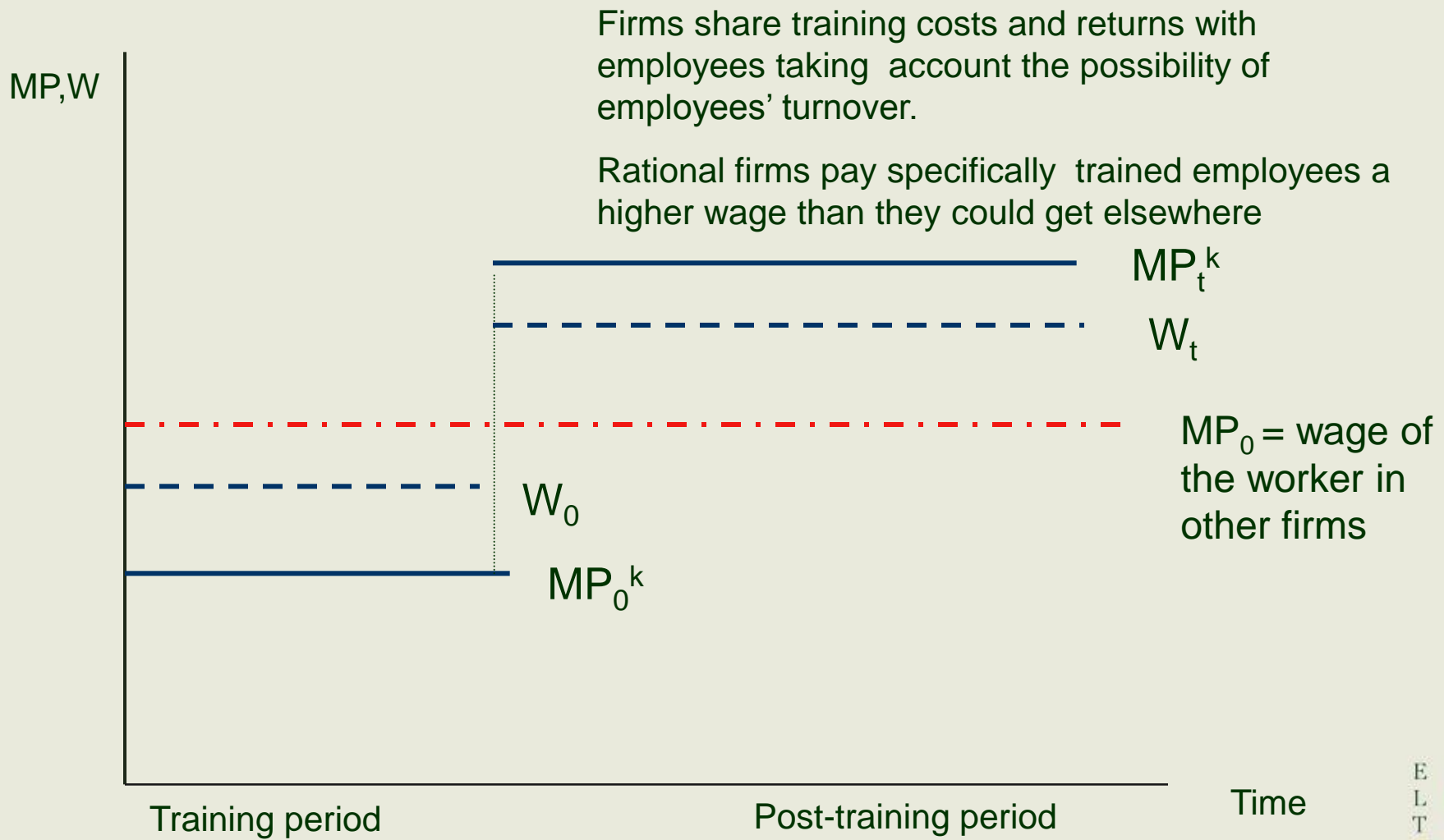




# Specific training



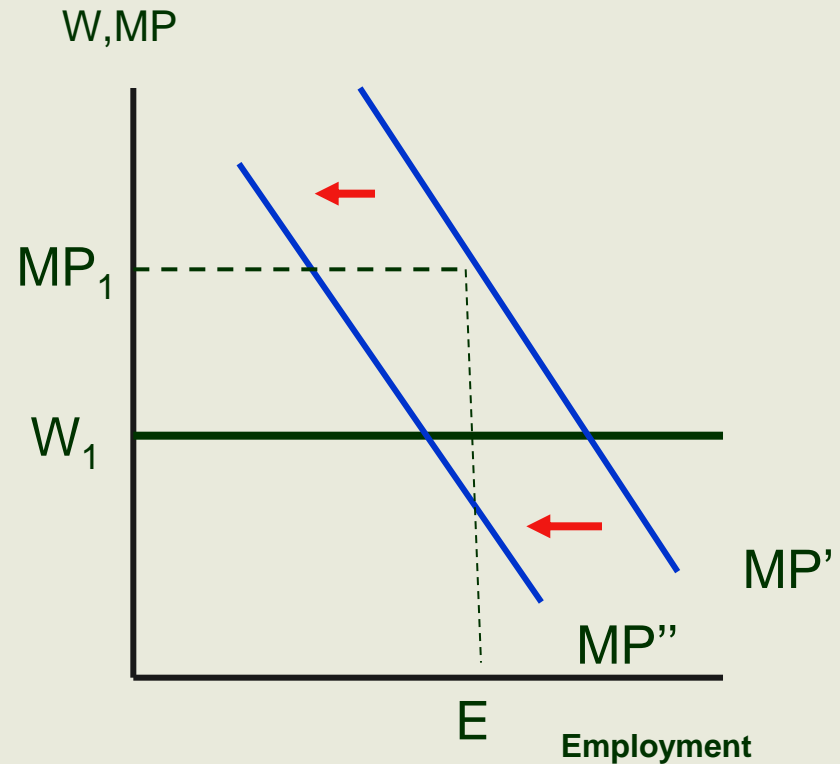
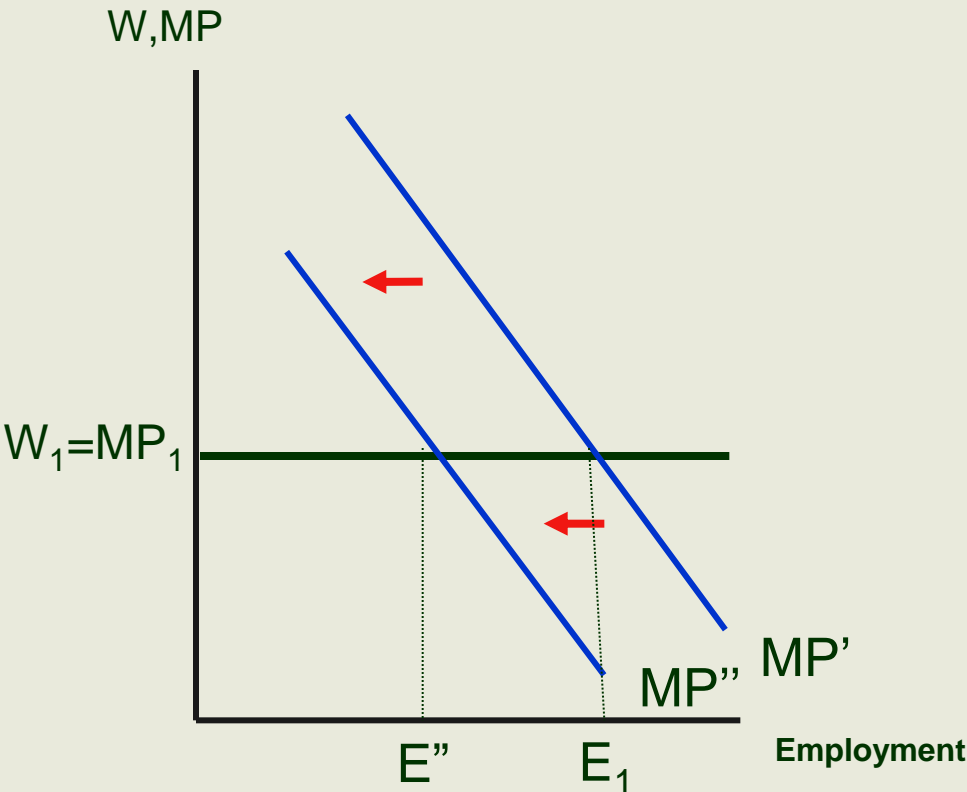
# Specific training



# The effect of a decline in demand on employment with general and specific training

General training

Specific training



A decline in MP will reduce employment for those whose real wage =  $MP'$  initially, but will not necessarily reduce employment for those whose real wage  $< MP'$  initially