7.º CONFERÊNCIA DO BANCO DE PORTUGAL
DESENVOLVIMENTO ECONÓMICO PORTUGUÊS NO ESPAÇO EUROPEU

RETURNS TO VOCATIONAL EDUCATION IN PORTUGAL
Sofia Oliveira, Nova SBE

General vs Vocational Education

General education or academic track ("ensino regular") prepares students especially to pursue superior level studies. Vocational education or job-oriented track ("ensino profissional") prepares students especially for an occupation.

Research Questions
- Is there a wage premium to vocational education vis-à-vis general education when entering the labor market?
- If so, does it dissipate over the worker's lifecycle?

Goal: to derive wage-experience patterns.

1. Literature Review

Empirical studies on the returns to different types of education:
- For the Portuguese labor market: Pereira and Martins (2001)

2. Dataset and Sample

Dataset: Quadros de Pessoal

Selected sample:
- Individuals with upper secondary attainment (12th grade)

Reasons for such sample:
- Upper secondary was the main target of vocational education reforms in Portugal
- Increases similarity between individuals
- These individuals experienced the education system after the creation of vocational schools in 1989

Individuals born between January 1974 and 1990

Observations from 1993 to 2009

The sample is an unbalanced panel.
- # individuals: 633 549
- # observations: 1 794 272
- % of workers with vocational education: 13.37%

3. Variables

Explanatory variable: log of wage

Explanatory variables:

Worker-related variables:
- Type of education (voc=1 if vocational)
- Age
- Gender
- Hours worked per week
- Tenure in years
- Labor-market experience in years
- Previous experience
- Presence in the labor market with 18, 19, 20 and 21 years old
- Hierarchy level within the firm

Firm-related variables:
- Industry
- Region
- Log of sales
- Number of branches
- Number of employees
- Shares of public and private capital stock

4. Econometric Model

\[
\log w_{it} = \beta_0 + \beta_1 \exp_{it} + \beta_2 \exp_{it}^2 + \beta_3 \text{voc}_{it} + \beta_4 \text{voc} \times \exp_{it} + \beta_5 \text{voc}_{it} \times \exp_{it}^2 + \mu_i + \epsilon_{it}
\]

Plus worker’s and firm’s controls.

Estimation method: random effects.

5. Results

<table>
<thead>
<tr>
<th>Variable</th>
<th>Estimates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exp</td>
<td>0.0211***</td>
</tr>
<tr>
<td></td>
<td>(0.0006)</td>
</tr>
<tr>
<td>Exp^2</td>
<td>-0.0001**</td>
</tr>
<tr>
<td></td>
<td>(0.0001)</td>
</tr>
<tr>
<td>Voc</td>
<td>0.0190***</td>
</tr>
<tr>
<td></td>
<td>(0.0018)</td>
</tr>
<tr>
<td>Voc*Exp</td>
<td>-0.0025**</td>
</tr>
<tr>
<td></td>
<td>(0.0010)</td>
</tr>
<tr>
<td>Voc*Exp^2</td>
<td>-0.0001</td>
</tr>
<tr>
<td></td>
<td>(0.0001)</td>
</tr>
<tr>
<td>No. of observations</td>
<td>1 509 643</td>
</tr>
<tr>
<td>No. of individuals</td>
<td>553 319</td>
</tr>
<tr>
<td>R^2 (overall)</td>
<td>0.54</td>
</tr>
</tbody>
</table>

Source: Quadros de Pessoal

Note: Dependent variable: logarithm of wage. Robust standard errors in parentheses. Significant at ***1%, **10%, *5%.

6. Wage-Experience Patterns

- Investigating differences between job-oriented tracks:

7. Summing up

- Workers with vocational education earn 2% more at the beginning of the career, but their wages grow at a slower rate.
- Generally educated workers catch up at 8 years of experience.
- Such wage-experience profile is more pronounced in the case of vocational courses of level III when compared to other job-oriented tracks.