Varieties of Vocational Education and Training Systems

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Structure of presentation

1. Same technologies - different VET systems
2. Traditional meaning of VET
3. Decline of VET – Examples USA/South Korea
4. Modernization VET: German apprenticeship-system
5. Transition from education to work in different VET systems
6. Conclusions
1.1 Same technologies - different VET systems

Examples of national differences

- Assembling the Airbus: intensive on-the-job training in UK, FR, ES, vocational training in DE (Bremer 2008)
- Retail trade: No or short on-the-job-training in FR, UK, USA, vocational training in DK, NL and DE (Carré et.al. 2010)
- Nurses: Vocational training in DE, bachelor/master in UK and USA

**VET in a sandwich-position between academic education and training and on-the-job training**
1.2 Same technologies - different VET systems

Catch-phrases like “knowledge” or “information” – society cannot explain differences in VET-systems

Different form of work organization possible:
- “Hour-glass“: Hierarchical – high level of supervision
- “Egalitarian”: Flat hierarchies, high autonomy

No technological determinism – VET-systems are made by actors, there are choices, of course also political and economic constraints

For example: UK had an excellent apprenticeship in the 1950’s – it was **sustainable, but not sustained** by important actors (employers, unions and the state)
1.3 Same technologies - different VET systems

- Upgrading of job structure slower than educational expansion
- Up to 25% of jobs for highly skilled in developed countries
- Share of graduates from tertiary education above 25% in many countries
- “Academic drift” not only driven by “needs” of the labour market but also by “status” considerations
- “Elevator effect” of education expansion (Beck 1992): Parents discover that their children’s high educational attainments are devalued by the even higher or more prestigious qualifications obtained by others
1.4 Share of population in highly skilled jobs and share of population with tertiary education (2006)

Share of the 25-to-64-year-old working population in highly skilled jobs (ISCO 1-3 Managers, Professional, Technicians and Associate Professionals) and share of the 25-to-64-year-old population with tertiary education (2006)

Source: Müller 2009: 45; BIBB, BWP 2, 42-46
2.1 Vocational education and training

Traditional Meaning:

- Work related preparation for specific jobs or occupations

- Educational level less than a bachelor’s degree (above this level professional education which is wrongly often regarded as general education)

- Preparation for immediate work not for subsequent education
2.2 Vocational training in the past

- Only small minority of young people went to university
- Most industrial countries (also US or UK) had developed vocational training systems
- Strong links between work and training - access to well-paid middle-class occupations with high social prestige
- Often high influence of social partners depending on the industrial-relations-system (craft or industrial unions)
3.1 Decline of traditional VET

- “Academic drift” - Expansion of higher education
- High supply of graduates from tertiary education
- less investment of companies in VET
- Declining reputation of VET among parents and school leavers. Different reasons: low quality, risk of low pay, “academic ceiling” blocking careers, early tracking with few opportunities for further study
- VET controversial issue between employer’s and unions because of job demarcations – therefore lack of cooperation to sustain apprenticeship-systems
- Vocational training did not keep pace with structural change – lack of modernization
3.2 Decline of VET in the USA (I)

Apprenticeship systems
- Based on collective agreements
- Not formally integrated into the school system – state plays marginal role
- Decentralized collective bargaining – no strong federal unions or employer associations
- 1980’s: Creation of National Skill Standards Board in USA, – Failure: No creation of national standards
- Craft unions locked into fights on demarcations – barriers to flexible work organization
- Number of apprentices fell with the decline of unions
- Substantial skill shortages
3.3 Decline of VET in the USA (II)

- Most vocational training school-based (2000 16.2% of credits earned in US High Schools were vocational) – mostly terminal in the past

- With expansion of tertiary education increasing importance of VET in college/ university
  - „College for all“: USA 2000 45% of undergraduates enrolled in community colleges of those 65% in vocational programmes – Transfer from two year to four year college
  - „Bachelor for all“: Vocational tracks at bachelor level – 25% in Canada

- Distinction between vocational and general education blurred

- Weak links with labour market: Vocational certificates only signals for skill level, but strong links for professions like nurses, doctors and lawyers and in regulated labour markets (licensing)
3.4 Decline of VET: South-Korea (1)

- Korea’s strategy of industrialization required trained work force – **strong state intervention**
- Promotion of VET through levy exemption system: between 1976 6% participants, since 1999 0.7% of gross wages / SME’s < 150 employees 0.1%
- Highly dualistic labour market (52% irregular workers) - in-company training mostly covers only regular workers
- Seniority-based wage systems reduces incentives for training
- Decentralized industrial relations – weak national actors
- State develops standards for vocational training by Human Resource Development Service – not accepted in the labour market
3.5 Decline of VET: South-Korea (II)

- Vocational training school based
- Vocational tracks in high schools and colleges
- High state investments in vocational tracks
- Declining share of pupils in vocational tracks (in high schools from 41.2% 1997 to 29.1% 2004)
- Increasing advancement rates to university (80% of high school graduates go on to university – much lower advancement rates from vocational tracks)
- No link between vocational training and the labour market: entry as unskilled worker
- Access to good jobs only with a university degree
4.1. Revitalization of the German apprenticeship-system

- Apprenticeship-contract with a firm
- **Modern duality with more theoretical learning:** Now 2 days in public vocational schools – before 1 day
- Social partners responsible (develop occupational profiles, curricula, examination procedures with support from the Federal Institute of Vocational Training, control and supervision by chambers)
- Around 360 standardized national occupational profiles – cannot be split up in modules
- 2 - 3.5 years of training (around 85% 3 years+)
- Promotional training curricula in all occupations (master, technicians, business administrator) **on bachelor level** (Level 6 European Qualification Framework)
4.2 Modernization of the German apprenticeship system

System requires continuous pro-active modernization:

- „employer demands“ not reliable signals for modernization - High diversity of employers „demands“ depending on work organization, time horizon of planning, average tenure of employees, low road vs. high road strategies,
- Therefore modernization based on early warning systems - analysis of new technologies and forms of work organization, training in most advanced companies, trends in further training....
- Basic decision for broad vocational training in Germany - Goal of training: „Working and acting competently and autonomously in an occupation“ (“Berufliche Handlungsfähigkeit”)
4.3 Modernization of the German apprenticeship system

Last two decades several waves of modernization:
- **Fast track** (6 months for modernization, 1 year new occupation)
- **Creation of broader occupations**
- **New learning forms reflecting modern work organization**
  (team work, customer orientation)
- **Reforms always compromise between modern and traditional companies** – implementation of new curricula a challenge for traditional companies
- **Increasing importance of vocational schools and regional partnerships for SME‘s** – boarding schools for some occupations
- **Growth of dual-study - 64 000 in 2012** – combination of VET and tertiary study – apprenticeship contract with a company

- **1987**
  - Basic training
  - General training for the occupational field
  - Basic occupational training
  - Specific training

- **2004**
  - Occupational training
  - Joint core competences

**INTEGRATED LEARNING**

Duration of training in years
4.5 Example of new service occupations

- **Strategic Professionals**
  - Certified IT Technical Engineer
  - Certified IT Business Engineer

- **Operational Professionals**
  - Certified IT Systems Manager
  - Certified IT Business Manager
  - Certified IT Business Consultant
  - Certified IT Marketing Manager

- **Specialists**
  - 29 Specialist profiles for 6 IT sectors:
    - Software Developer, Solutions Developer, Administrator, Co-ordinator, Technician, Advisor

- **Vocational Training**
  - IT System Electrician
  - IT System integration Specialist
  - IT System Support Officer
  - IT System Officer

4.6 New learning forms: From product towards team work and customer-or business process orientation

Source: Bosch 2000a
4.7 Outcomes of broad apprenticeship training

Advantages of “egalitarian” systems:
- Short learning curves after technological change
- Better communication flow if middle managers are recruited from the skilled shop floor
- Less supervisors: in German machine-tool companies 4% of employees in bottom layer of management compared with 11% in the UK (Ryan et. al. 2011)
- More multi-skilling: Example retail-trade – in NL, DE, DK employees take on typical management functions, such as ordering stock (Carrée et.al. 2010)
- More incremental innovation – specialisation in products of higher value (Prais et. al 1989; Steedman/Wagner, 1989)
- Dissemination of innovation into SME’s: Example SME’s In DE
4.8 SMEs introducing product and process-innovation 2010 as % of SMEs

5.1 Transition from education to work in different VET and employment systems

Myriad studies:
- Fast and stable transitions in countries with apprenticeship systems
- Difficult transitions in countries with school based VET and even more with general education systems

Reasons:
- Apprentices are employes not pupils – are represented by unions and works councillors – are „insiders“
- Social consensus to recruit apprentices – pressures from employer organizations, unions and the state
- High reputation of VET among employers and young people: Modernized occupations not second choice for poor school performers
- High scale – apprenticeship rate 6% in Germany
## 5.2 Types of VET in the EU

A Heuristic Typology of European VET Systems *(Sabates et. al. 2011)*

<table>
<thead>
<tr>
<th>Type of VET system</th>
<th>Countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apprenticeship-based</td>
<td>Austria, Germany, Denmark</td>
</tr>
<tr>
<td>Continental school-based</td>
<td>Netherlands, France</td>
</tr>
<tr>
<td>Market-led</td>
<td>UK, Ireland,</td>
</tr>
<tr>
<td>General Education</td>
<td>Greece, Spain, Poland, Hungary</td>
</tr>
<tr>
<td>Egalitarian School-based</td>
<td>Finland, Sweden</td>
</tr>
</tbody>
</table>
### 5.3 Population that has Attained Upper Secondary Education and Upper Secondary Enrolment Rates by Orientation of Programmes (2006)

<table>
<thead>
<tr>
<th>Programmes</th>
<th>Upper secondary enrolment rates*</th>
<th>Vocational programmes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>General programmes</td>
<td>Vocational programmes</td>
</tr>
<tr>
<td></td>
<td>All programmes</td>
<td>Of which: combined school and work based</td>
</tr>
</tbody>
</table>

#### Apprenticeship-based

<table>
<thead>
<tr>
<th>Country</th>
<th>General programmes</th>
<th>Vocational programmes</th>
<th>Of which: combined school and work based</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>22,7</td>
<td>77,3</td>
<td>33,3</td>
</tr>
<tr>
<td>Denmark</td>
<td>52,3</td>
<td>47,7</td>
<td>47,2</td>
</tr>
<tr>
<td>Germany</td>
<td>42,6</td>
<td>57,4</td>
<td>42,2</td>
</tr>
</tbody>
</table>

#### Continental school-based

<table>
<thead>
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<th>Vocational programmes</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Netherlands</td>
<td>32,4</td>
<td>67,6</td>
<td>18,5</td>
</tr>
<tr>
<td>France</td>
<td>56,2</td>
<td>43,8</td>
<td>12,1</td>
</tr>
</tbody>
</table>

#### Market-led

<table>
<thead>
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<th>Vocational programmes</th>
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</thead>
<tbody>
<tr>
<td>UK</td>
<td>58,6</td>
<td>41,4</td>
<td>m</td>
</tr>
<tr>
<td>Ireland</td>
<td>65,5</td>
<td>34,5</td>
<td>2,2</td>
</tr>
</tbody>
</table>

#### General Education

<table>
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<th>Vocational programmes</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Greece</td>
<td>68,3</td>
<td>31,7</td>
<td>a</td>
</tr>
<tr>
<td>Spain</td>
<td>56,6</td>
<td>43,4</td>
<td>1,9</td>
</tr>
<tr>
<td>Hungary</td>
<td>76,4</td>
<td>23,6</td>
<td>13,2</td>
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#### Egalitarian School-based

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<th>Vocational programmes</th>
<th>Of which: combined school and work based</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sweden</td>
<td>42,9</td>
<td>57,1</td>
<td>a</td>
</tr>
<tr>
<td>Finland</td>
<td>33,3</td>
<td>66,7</td>
<td>11,5</td>
</tr>
</tbody>
</table>

**Source:** OECD (2009), Education at a glance Table C1.4

**Note:** *Percentage of upper secondary graduates in the population at the typical age of graduation by programme orientation. m = missing; a = not applicable
5.4 Transition from Education to Work: Unemployment rates and labour force experience (in years): ISCED 3 leavers (1990’s)

Source: Müller/Gangl, Transitions from Education to Work in Europe, Oxford 2003
5.5 No or low increase of youth unemployment rates (YURs) in countries with apprenticeship systems (*increase of YUR’s in the EU 2008 - 2013 in percentage points*)

Source: Eurostat 2014
Conclusions

- New meaning of VET: less early tracking, more subsequent study, increasing share of VET on tertiary level
- High diversity of VET across countries
- Strong impact of VET on work organization: “Egalitarian” work organization higher efficiency
- Transplantation of apprenticeships systems difficult - Reasons: low reputation of VET, low investment of companies in training, weak national actors, low acceptance of standards in the labour market
- Possibilities for transplantation:
  (1) Licensing; (2) Levy systems; (3) Subsidies (UK); (4) More school-based approach like in Austria; (5) Self-obligation of the state including its suppliers to train (London); (6) Self-obligation of key employers incl. suppliers
References (1)


References (II)


