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Innovation

The Return of the Guilds

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WHAT?

1. Evidence

- Productivity gains (process innovations): nails, silk cloth, glass, books, painting, ships ➔ NB: high skill sectors
- Use of different techniques within a guild: individual 'secrets'
- Guilds control outcome, not process (what do searches do?)

2. Factor bias in process innovation

- High skill—always
- Capital intensive—sometimes (if the guild is highly differentiated)
- Low skill—sometimes (if does not substitute for high skill labour)

3. Macro- vs. micro-inventions

- Savants vs. masters
- Chains: incremental improvements and standardisation
- 'Stochastic' variation via learning by doing/learning by using

HOW?

1. Train human capital

a) Cognition (cognitive psychology vs. developmental psychology): becoming expert takes time

- How long?
- Levels of expertise: becoming journeyman vs. becoming master
- Levels of expertise: masters vs. super-masters (fees, apprentice nos.)

b) Apprenticeship

- Who?
- How many?
- Do labour market restrictions work?
- How long?
- How much (fees)?

c) Skill premia

- production function for HC
- measure of added value from training
- compare sectors

d) Chains of skill ('trees of knowledge')

- Measure (by sector, etc.)
- Effects (by premia, by 'success', etc.)

e) Labour market segmentation (by gender, skill, kin, origin)

- Does it restrain HC formation?

f) Organisational alternatives

How can master/apprentice opportunism be sanctioned/controlled?

- Family (including extended kin and fictive-kin networks)
- 'Total institutions' ('asilums' e.g. orphanages, hospitals, prisons …)
- Small-scale, 'face to face' communities

2. Generate specialisation and division of labour

a) Coordination of firms (subcontracting and putting-out)

- economies of scale and scope

- Subcontracting (in export-led industries) as a route to craft-based innovation (Lis/Soly)
  - Production is high skill
  - Guilds have political voice
  - Guilds are internally differentiated
  - Affluent masters (AM) can
    - access foreign markets
    - evade restrictions on shop size
    - transfer production risk to subcontractees
  - AM have strong incentives to innovate
    - Will (possibly) innovate more than merchant-entrepreneurs (ME)
    - Or, will always innovate, whereas ME will sometimes not
    - Product or process innovation?

b) Clustering and its externalities

• sharing of skilled labour, intermediate goods, information and knowledge

c) Create markets

• Overcome asymmetric information

3. Protect and share knowledge

Property rights to invention
alternative or complementary to patents and prizes
'secrecy', 'copying' and 'stealing'

4. 'Collective invention and innovation'

Competitive sharing: 'networks of trust'
Costs of 'networks of trust'

5. Codify knowledge

Evidence of codification

Writing and drawing: chemical (e.g. glass), building, shipbuilding
Model building: 'engineering'

Reasons for codification

Interaction btw 'local knowledges'

Processes of codification

Tracking over time

6. Promote labour mobility

- Journeymen
  - Pull (economic) stronger than push (training) factors?
  - Formalised from 14th c.; intensifies from late 17th c.
  - Strong regional and sectoral patterns
- Masters
  - Push (instability) stronger than pull factors pre-1648?
  - Increasing role of pull factors from 17th c.
- Entrepreneurs and labour brokers
  - Where? When? How?

- Integration
  - How are mobile experts integrated into alien communities?
- Rate of technological diffusion (spillover)
  - Is protectionism effective (Venice, Nuremberg)?
  - what are the key differences across technologies that influence the speed of diffusion?
  - what are the key cross-country differences in endowments, institutions, and policies that impinge on technology diffusion?

WHEN?

1. Response to exogenous change is shaped by:

- Factor intensity
  - Small independent producers will adopt skill enhancing, capital saving innovations; they will oppose deskilling and capital deepening innovations
  - Masters and merchant entrepreneurs will adopt labour saving (and possibly capital deepening) innovations
- Internal guild structure
  - Process innovation will be strong(er) in highly differentiated guilds
    - where affluent masters or merchant entrepreneurs have control
- Political context
  - Rent-seeking will prevail in small polities (e.g. city states) where craft guilds have significant influence

2. Response can take 4 forms:

- Adoption
- Skills intensive upgrading
- Cost-reducing (e.g. substituting low skill for high skill labour, subcontracting)
- Rent-seeking (e.g. blocking entry, raising barriers to trade)

3. How does guild (technological, market) protectionism reduce welfare?

- Collectively
- Within the guild

ALTERNATIVES?

- Training 'at home', in face-to-face communities w/ low enforcement costs
- Proto-industry: low skill, capital neutral
- Centralised (manu)factory: mix low/intermediate/high skill, capital intensive