Considerations in adopting a 'disciplinary' analysis

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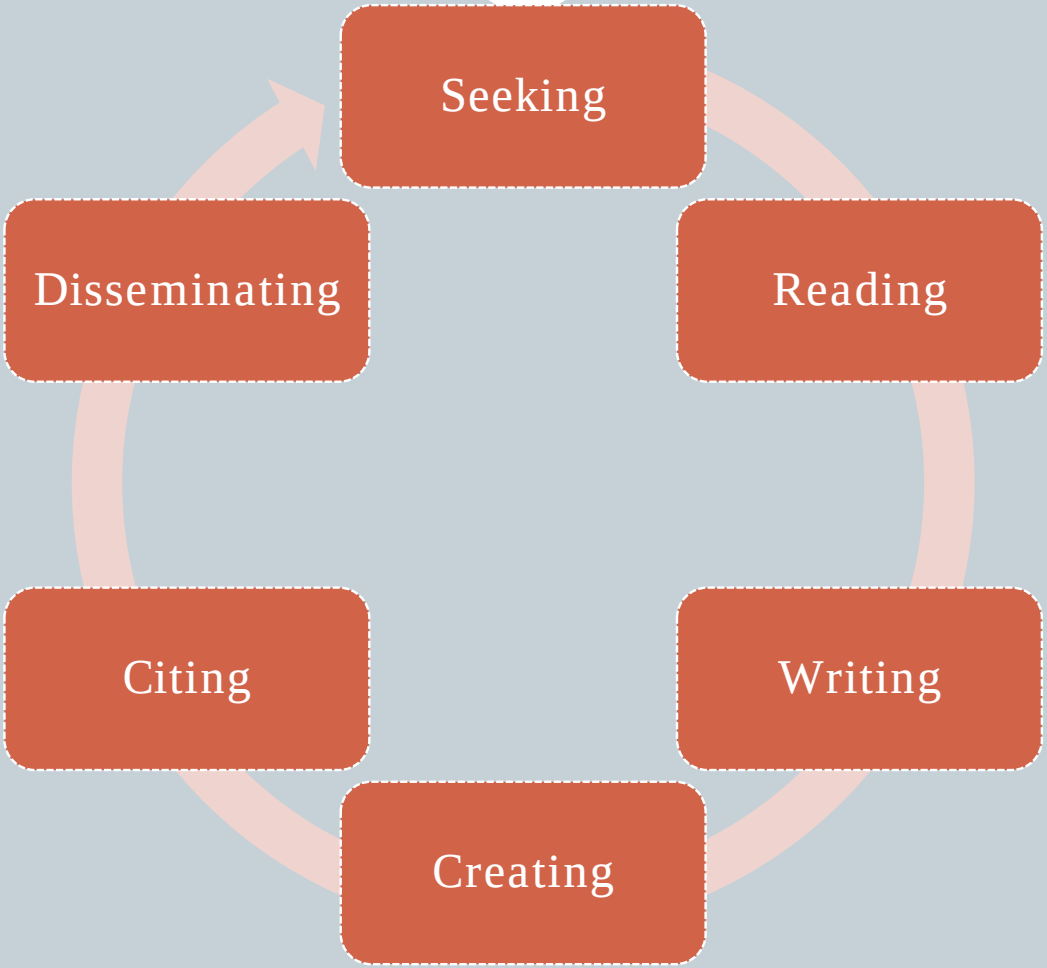
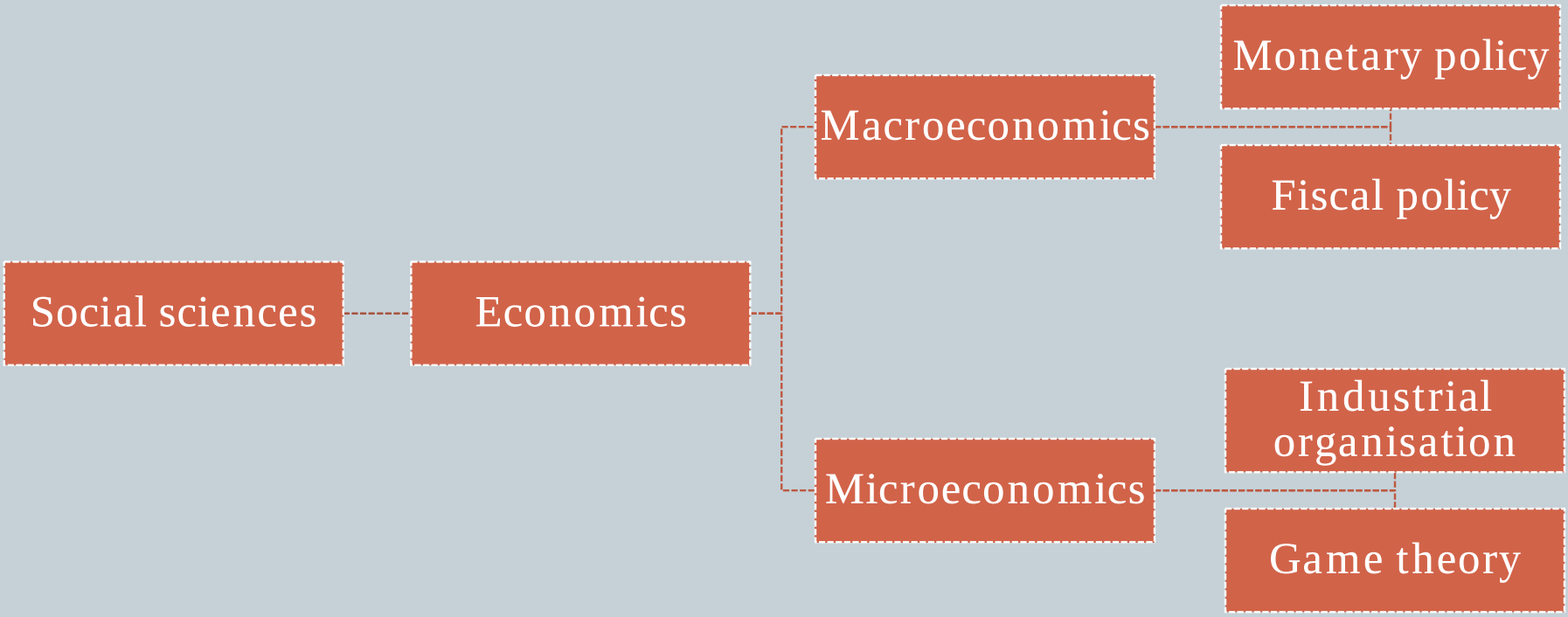
Scholarly communication in context



Organisation and control of research

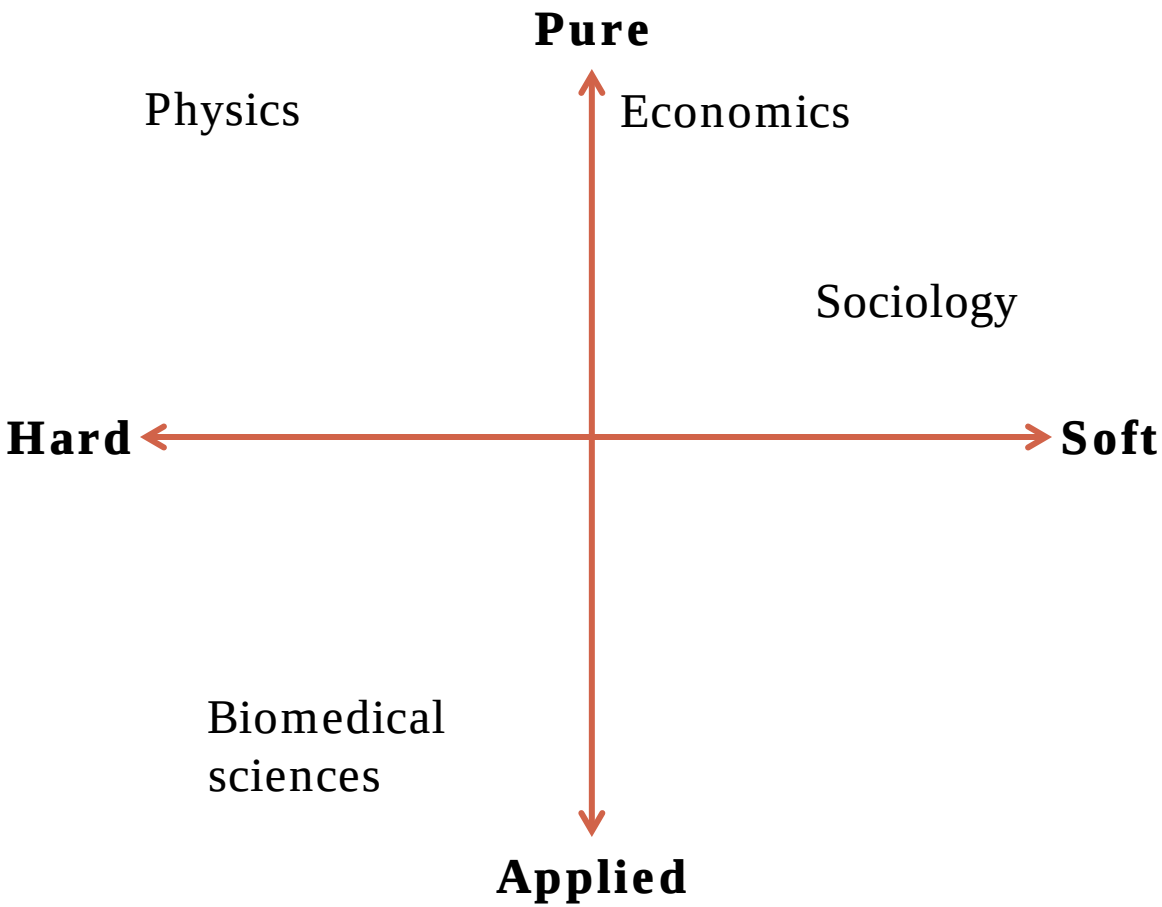
- *Research problem(s)* - e.g. whether a specific gene is related to breast cancer
- *Research object(s)* - e.g. DNA, patients, radiographs etc.
- *Resources* - e.g. funding, laboratory facilities, research assistants etc.
- *Social system* - e.g. quality control, peer-review, reputation building, recognition and reward, research evaluation mechanisms
- *Communication* - e.g. coordinating and prioritising research outcomes, structuring results, influencing peers through dissemination and publication

Labelling knowledge domains



Theorising knowledge domains

Becher's (1987, 1989) typology of knowledge (intellectual) structures



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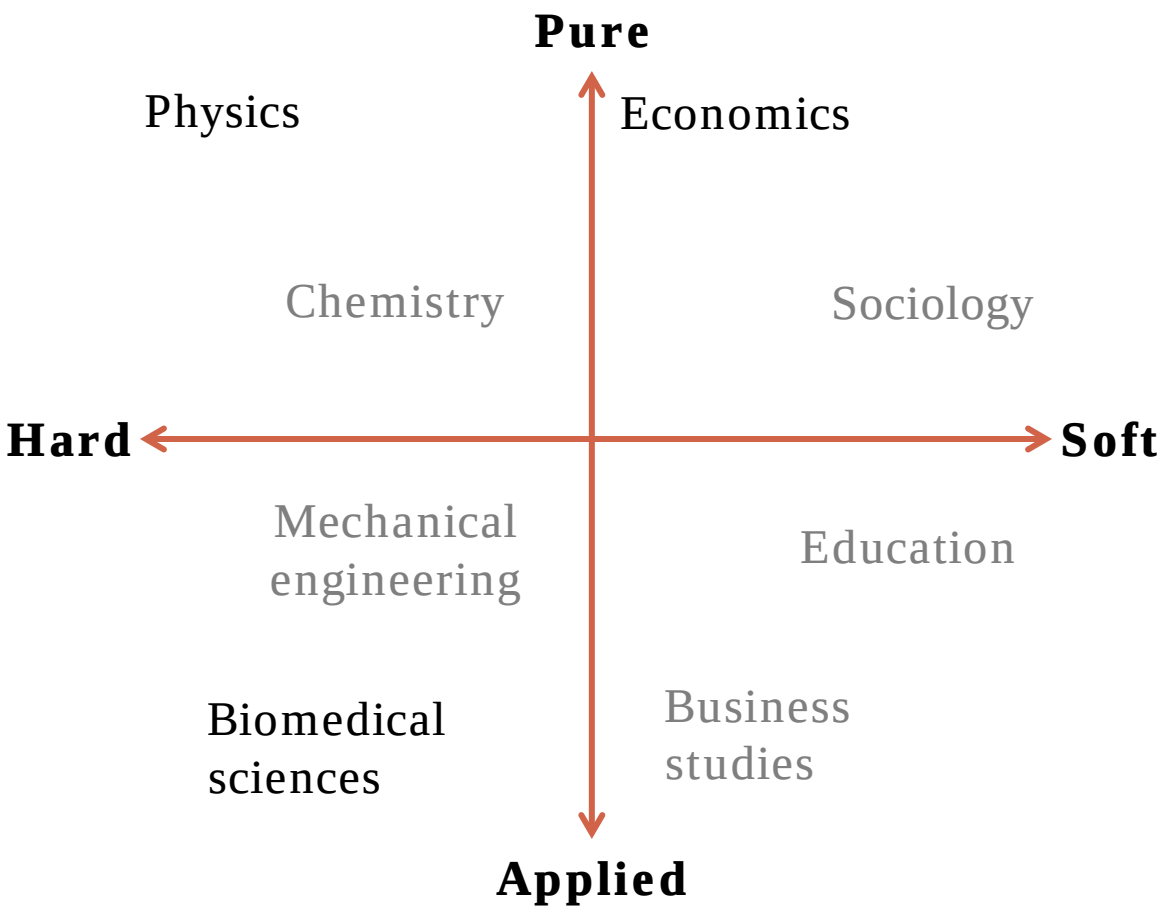
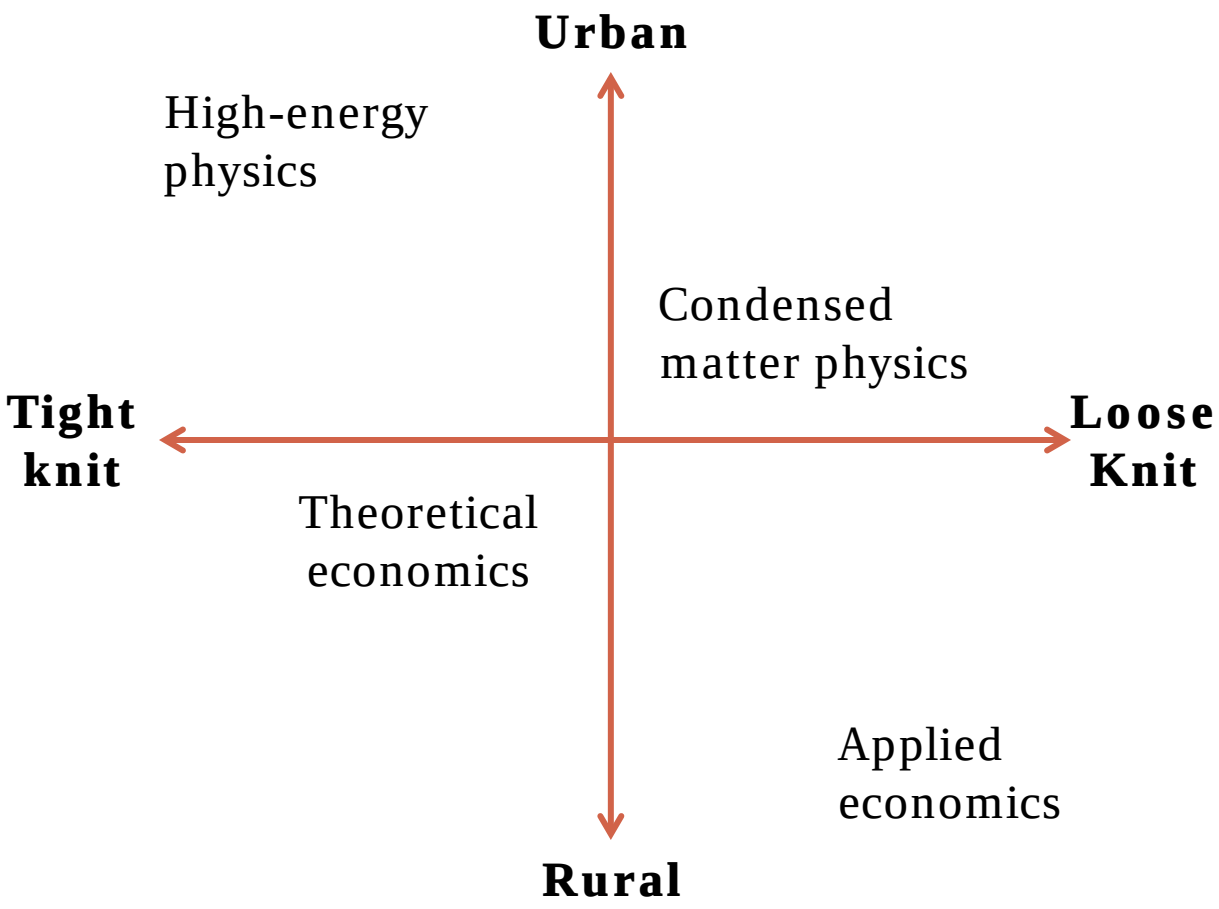


Theorising knowledge domains

Becher's (1989) typology of research communities (social structures)



The internal organisation of domains

- Whitley (2000) identifies two interrelated factors that explain the internal structure of knowledge domains:
  - The degree of *interdependence* that exists between researchers/ research communities in order to create new knowledge, and;
  - The degree of *uncertainty* in selecting valid research problems, approaches and methods; and peer evaluation of the knowledge created
- Collectively, these two factors relate to the coordination of research problems, strategies and outcomes; and to reputational control

Examples from Whitley's seven domains

- 'Conceptually integrated bureaucracies' e.g. physics
  - Relative scarcity of resources
  - Competition regarding significance of research problems and strategies
  - National funding agencies play a role in adjudicating over research priorities
  - Theoretical coordination of research is highly valued and used as a mechanism for integrating the goals of various sub-disciplines into a coherent intellectual order
  - Results relatively predictable and theoretical implications of outcomes relatively easy to discern

Examples from Whitley's seven domains

- 'Partitioned bureaucracies' e.g. economics
  - Highly rule governed and hierarchically organised
  - Standardisation of training programmes and skills leads to theoretical coherence, which in turn;
  - Enables the reputational elite to control what constitutes legitimate research problems and strategies
  - Lack of technical control over empirical phenomena , however, threatens theoretical coherence
  - Distinct difference in research organisation between the analytical theoretical core and applied peripheral areas
  - Theoretical elaboration is more prestigious than empirical exploration

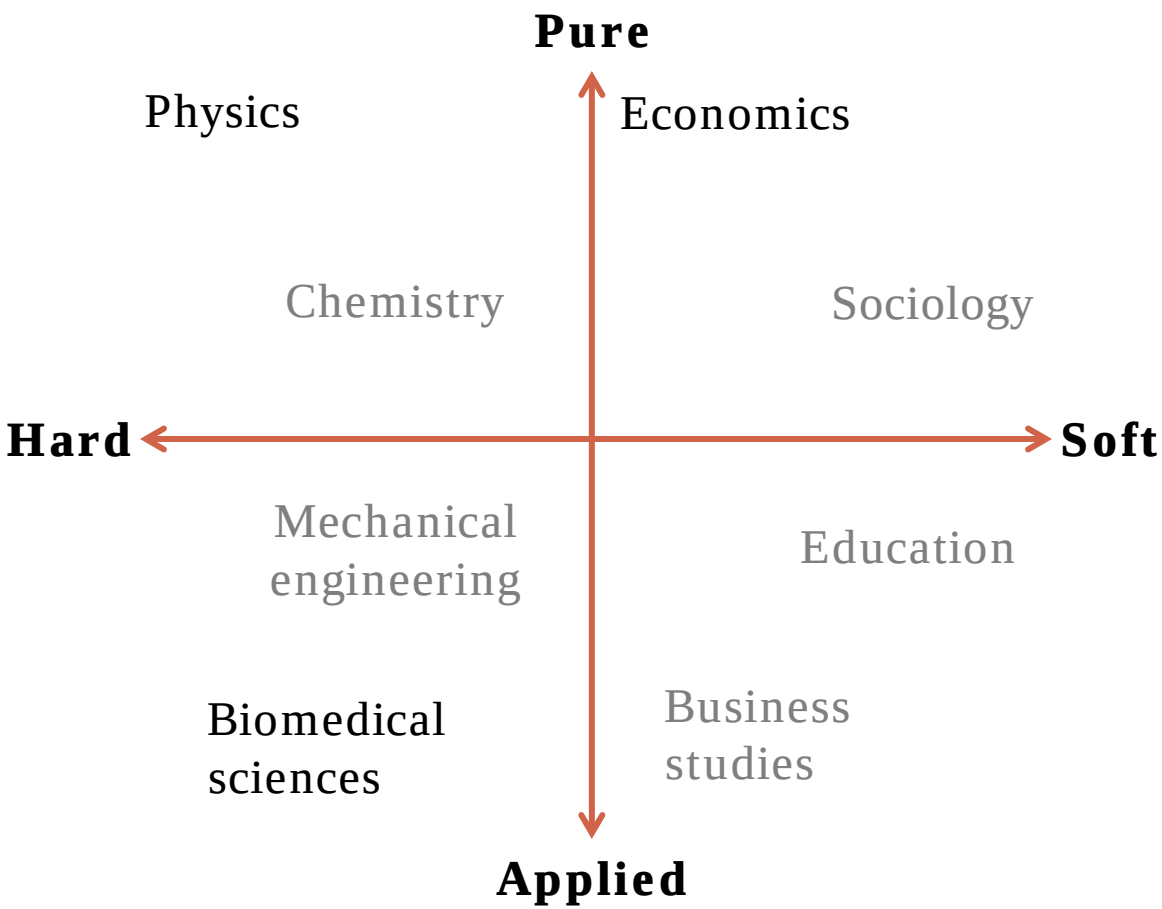
Examples from Whitley's seven domains

- 'Professional adhocracies' e.g. biomedical sciences
  - Skills and technical procedures highly standardised
  - Strong organisational consciousness and identity, with an emphasis on following collective rules correctly
  - Diverse range of reputational organisations that control the production of research and its certification;
  - Judgements about the relevance and importance of outcomes are likely to vary from one reputational group to another
  - A variety of funding sources and research is conducted across a range of settings e.g. universities, research institutes, industry
  - Empirical evidence is critical to research contributions and despite a wide diversity of research problems outcomes are very specific in nature
  - A high degree of theoretical integration is unlikely

Granularity

Metadisciplines, disciplines and sub-disciplines

Becher's (1987, 1989) typology of knowledge (intellectual) structures



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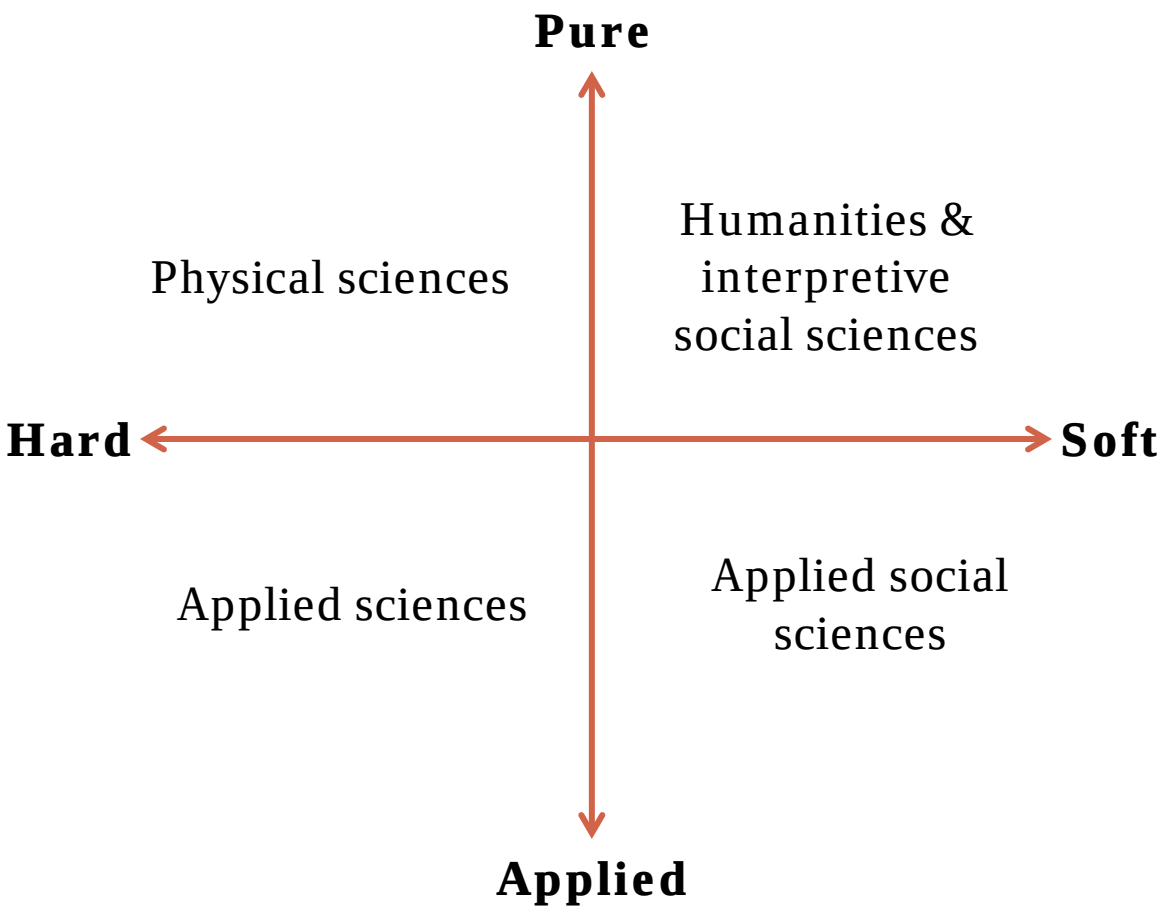

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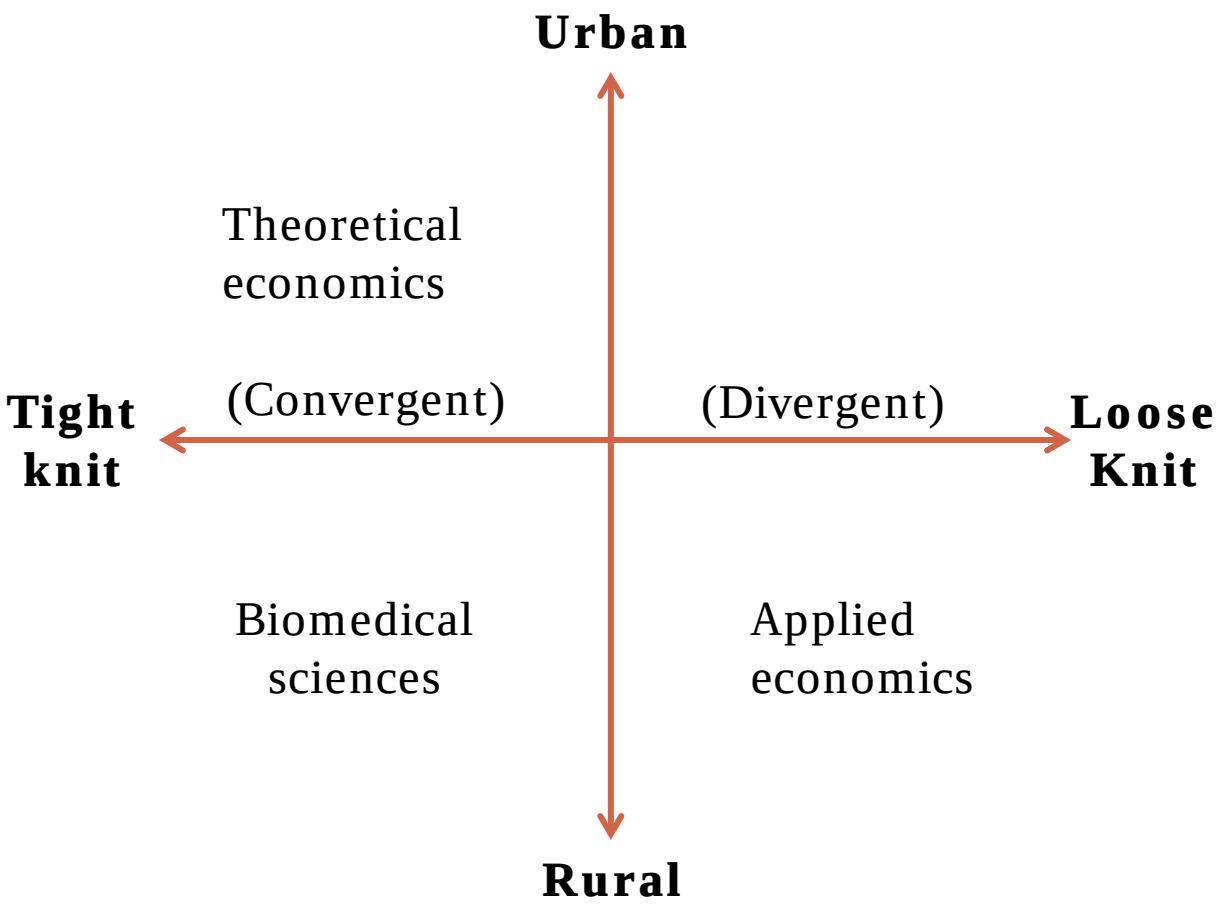

Ideas for further thought

- What are the strengths/weaknesses of Becher's and Whitley's theories in relation to operationalising them at different levels of granularity?;
- Are they still meaningful in the context of increasing interdisciplinarity? If not, are there alternative theories that are more relevant?;
- How do such typologies relate to theory in domain analysis e.g. Hjørland's (2002) 'epistemological schools'?

References

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- Whitley, R. (2000). (2nd Ed.) *The intellectual and social organization of the sciences*. Oxford: Clarendon Press.