



**Tshwane University
of Technology**

We empower people

Economic Aspects of Innovation

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Presentation to Social Dimensions of Innovation

Workshop , 25th OCTOBER 2005





Outline

- Introduction
- Evolutionary Political Economy
 - Schools of Economic Thought & Innovation
 - Critique of Neo-classical Economics
 - Evolutionary Political Economy
- National Systems of Innovation
 - History
 - Current divergent paths
- Policy Matters
 - Explicit
 - Implicit
- Concluding Challenges





Introduction

- Definitions, concepts & compromises are time bound
- Shaping Theory from Facts!!!





Critique of Neo-classical Economics

- Walrasian **general equilibrium theory**
 - theoretically untenable
 - basic assumptions about human decision making have been empirically falsified
 - consistently makes poor predictions of economic behaviour

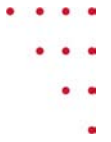




Economic & Innovation

- **Neo-classical**
 - Technology is exogenous
 - Modelling orientated towards equilibrium
 - Decontextualised abstraction of a profit maximising individual agent operating with perfect information
- **New Growth Theory**
 - Unpacked residual growth factor as technology
- **Institutional Economics**
 - Collective action & environmental factors shape behaviour





Evolutionary Political Economy

- Technology is an endogenous result from production
 - Information is imperfect and asymmetrical
 - Dynamic modeling to reveal complexity and chaos
 - Organisation routines forms the base of innovation
 - Searching for new, better, more efficient routines is critical
 - Selection environment determines the pace and scope of finding new routines
 - Resultant innovation is the source of cost, quality and scarcity advantages
 - Learning aggregates from the firm to industry and sector levels, but without linearity
- (Nelson & Winter: 1982)





NSI Academic History

- Friedrich List – “national systems of innovation” (1841)
 - Bengt-Åke Lundvall – “the interaction between private firms and knowledge institutions” (1985)
 - Christopher Freeman (1987)
 - Richard Nelson (1988)
 - OECD, UNCTAD (1990)
- Finland, Canada, South Africa, et al...





NSI Divergences

- Three schools identified:
 - rooted in the R&D-system
 - rooted in the production system
 - rooted in the production and human resource development system
- (Lundvall: 2002)





NSI Policy

- Narrow:
 - Innovations in products, services, processes, & institutional strategies
- Systems of Innovation:
 - Totality of know-how in a firm, industry, sector, cluster, region or nation
 - Functional & dysfunctional arrangements
 - Coordination challenge





NSI Policy Matters

- Explicit Policy

- White Paper on Science and Technology
- National Research and Development Strategy





NSI Policy Matters

- Implicit
 - Fiscal
 - Monetary
 - Competition
 - Industrial
 - Geo-spatial Planning
 - Sustainability & Environment





New Tools for Old Systems

- Updating the economic & institutional regime
- Upgrading education & learning
- Building information infrastructure
- Raise the technological level of the economy:
 - Actively diffusing new technologies throughout the country
 - Improving the Research & Development system
 - Exploiting global knowledge

World Bank advice to China in *Preparing for the Knowledge Economy* (2002)





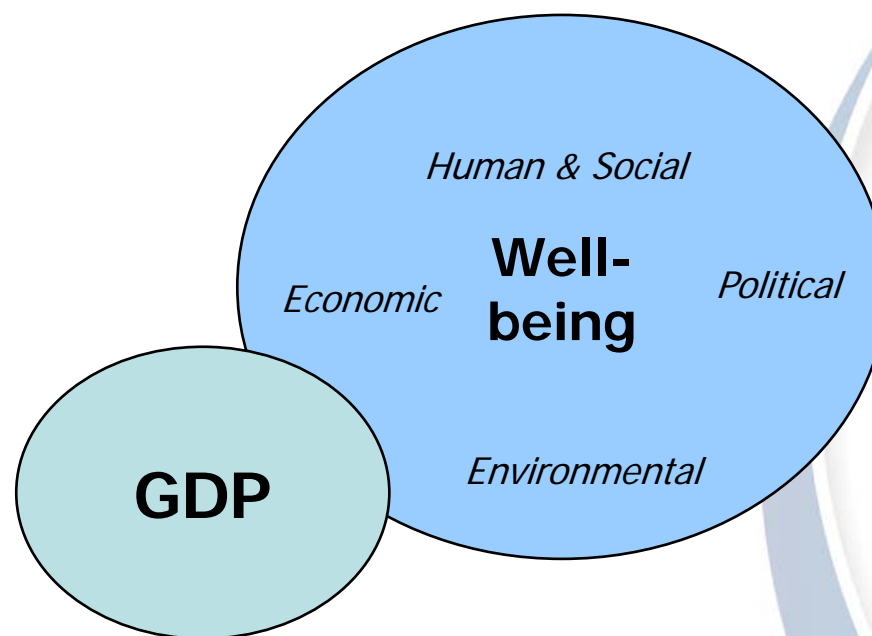
The Big Picture

Natural Capital
(Endowments)

Produced Capital
*(Physical & Disembodied
Technology)*

Social Capital
*(Norms & networks
facilitating inter- &
intra-group cooperation)*

Human Capital
(Learning & Health)



OECD (2001) Social Capital





Concluding Challenges

- Incorporate empirically-based information about human behaviour in the study of human wants, needs and also in their formation
 - information about the evolution of the genetic component of decision making
 - the cultural dimensions of behaviour
- Expand economic analysis beyond stylised market behaviour to focus on well-being (real utility)





Thank You

- For more information, contact:
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