



Voorburg Conference Cross Cutting Topic 6: New Techniques in Measurement of Intangibles

Francisco Moris, Ph.D.

22 September 2021

National Center for Science and Engineering Statistics

Social, Behavioral and Economic Sciences

National Science Foundation

Outline: Comments on “A review of statistics on intangible assets” by Melanie Lewis/UK

- Background
- Discussion
- Questions and Ideas for Future Work

Intangibles (*) in the System of National Accounts (SNA) manual on GDP and related measures

- Software and databases
- R&D
- Entertainment, literary, and artistic originals
- Mineral exploration

(*) Intellectual Property Products [IPPs]

Focus of Presentation

Table 1.2 Business intangibles, by broad group

Name of group	Type of knowledge capital
Computerized information	Knowledge embedded in computer programs and computerized databases
Innovative property	Knowledge acquired through scientific R&D and nonscientific inventive and creative activities
Economic competencies	Knowledge embedded in firm-specific human and structural resources, including brand names

Branding
Training
Org. capital
-- all outside SNA

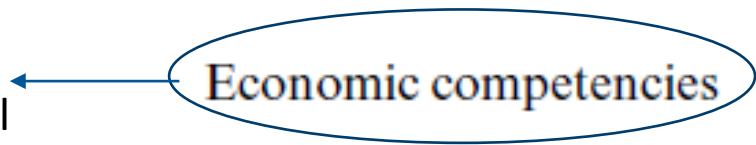
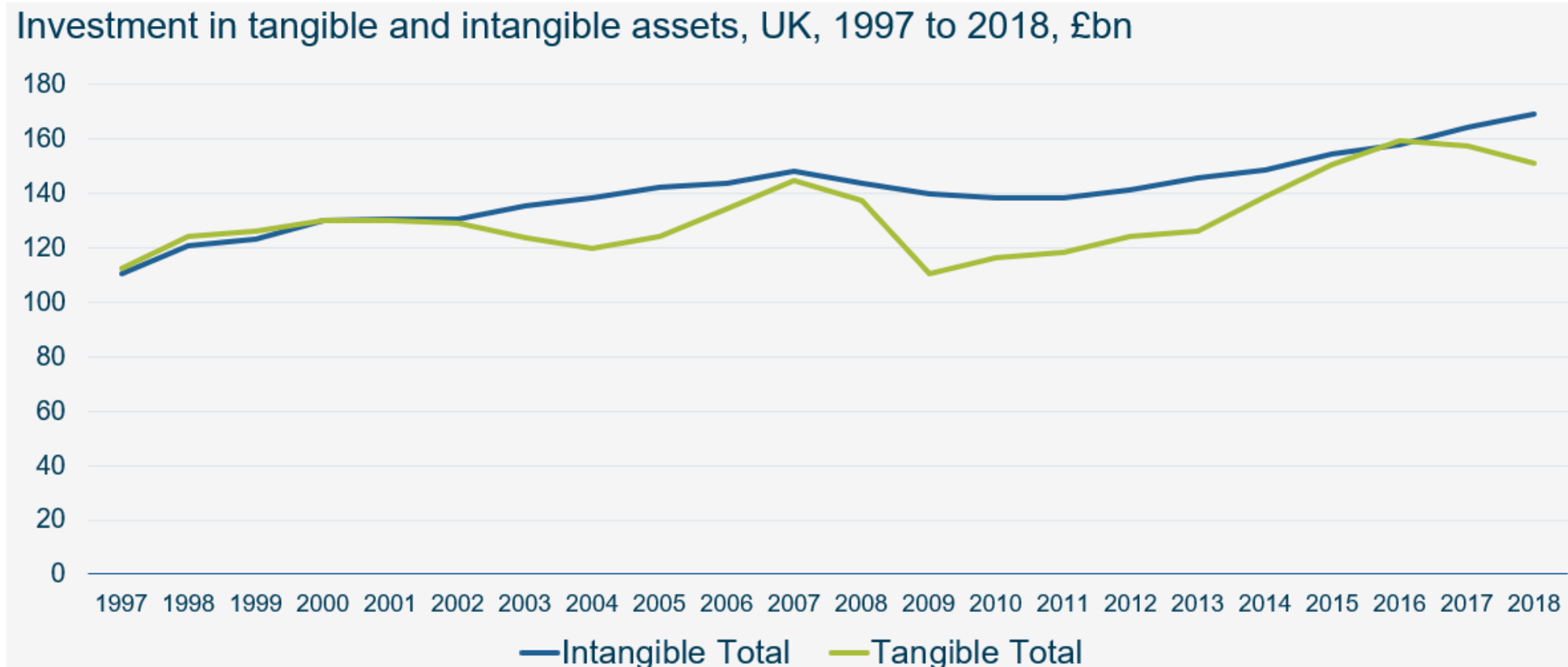


Table source: Corrado et al. Measuring Capital and Technology: An Expanded Framework, NBER 2005

Economic Competencies: Measurement

- Embedded in firm-specific assets → often created internally
- Little market transactions/price data
- Next: Contributions from presentation

Main Result: Parity of UK's physical and intangible investment under expanded version for the latter



Other Contributions

Strategies to expand intangibles measurement

- Data sources for production activity, transactions, and deflators (UK Annex)
- Consideration of overlap among intangibles (UK slide 16)

Remaining Work Noted in the Presentation

- Price indexes and depreciation for intangibles
- Formal satellite accounts
- Expansion of IPPs in the SNA

Questions and Ideas for Future Work

- 1) Scope: Business vs. Public Intangibles
- 2) Market Conditions: Globalization
- 3) Statistical Manuals and Data Integration
- 4) Purchasing Power Parity (PPPs) for IPPs

Scope

- Work presented today on economic competencies seems to focus on the private sector.

Could the methodology be adjusted to measure economic competencies produced by the public sector?

- SPINTAN Project (next slide)

SPINTAN Project (Smart Public Intangibles)

Table 2: Knowledge Capital for a Total Economy

Market Sector	Nonmarket Sector
Computerized Information	Information, Scientific, and Cultural Assets
1 Software	1 Software
2 Databases	② Open data
Innovative Property	
3 R&D, broadly defined to include all NPD costs	3 R&D, basic and applied science
4 Entertainment & artistic originals	④ Cultural and heritage, including arch. & eng. design
5 Design	
6 Mineral exploration	5 Mineral exploration
Economic Competencies	Organizational Competencies
7 Brands	6 Brands
8 Organizational capital (a) Manager capital (b) Purchased organizational services	⑦ Organizational capital (a) Professional and manager capital (b) Purchased organizational services
9 Firm-specific human capital (employer-provided training)	8 Function-specific human capital (employer-provided training)

NOTE—NPD=New Product Development, including testing and spending for new financial products and other services development not included in software or conventional science-based R&D.

Source:
Corrado et al.
Public intangibles:
the public sector
and economic
growth in the SNA,
SPINTAN WP 2017.
See also 2016
SPINTAN Database

Market Conditions: Globalization

- **Own-account vs. Purchases and Imports**
Most intangibles may be produced under own account...
but purchases or imports may be significant for smaller countries
and cross border flows within MNEs are important for intangibles.
These features may be considered in future work on intangibles.
- **MNEs and Trade in Intangibles**
 - Domestic supply = production + imports; Supple-Use/IO tables
 - Import/export prices
 - Intra-MNE trade: transfer pricing
- **Economic Ownership; Use vs. Production within MNEs and Global Value Chains (GVCs) [SNA Research Agenda]**

MNEs Multinational enterprises

International Statistical Manuals and Data Integration

- Balance of Payments and Int'l Investment Position Manual (BPM6 2009), Table 10.4: Treatment of IPP
- OECD Handbook on Deriving Capital Measures of IPP (2010): software, R&D, etc. covering *gross fixed capital formation, prices, volumes, and trade*
- Manual on Statistics of International Trade in Services (MSITS 2010) – IPP topics across Modes of Supply, FATS, EBOPS
- Data integration: industry vs. product; and services data across survey types (expense surveys vs. services trade); crosswalks (next slide)

Annex I

2010 Extended Balance of Payments Services Classification (EBOPS 2010)

Data integration: *Concordance* of 2010 MSITS/EBOPS and CPC v2.1

https://unstats.un.org/unsd/tradeserv/tfsits/msits2010/ebops2cpc_detailed.htm

- 10.2 Professional and management consulting services
 - 10.2.1 Legal, accounting, management consulting, and public relations services
 - 10.2.1.1 Legal services
 - 10.2.1.2 Accounting, auditing, bookkeeping, and tax consulting services
 - 10.2.1.3 Business and management consulting and public relations services
 - 10.2.2 Advertising, market research, and public opinion polling services

	2010 EBOPS		Central Product Classification, Version 2.1
10.2.1.3	Business/management consulting & public relations services (MSITS 2010, 3.241)	8311	Management consulting and management services: provide advice and operational assistance concerning
		83111	Overall policy, strategy, and control
		83112	Areas that are financial in nature
		83113	Human resources strategies, practices and procedures
		83114	Marketing strategy and marketing operation
		83115	Systems and procedures, service operations
		83116	Supply chain management
		83117	Bundled services (IT, machinery, labour, facilities)
		83118	Intra-enterprise management services
		8312	Business consulting services
		83121	Public relations
		83129	Regional, industrial or tourism development
		8319	Other management services
		83190	Project management services

Intangibles and Purchasing Power Parity (PPPs)

- PPPs are the standard tool to compare real GDP across countries; compiled by WB/IMF/OECD.
- PPPs are available for selected GDP components, **but not for R&D or other intangibles.**
- OECD practice: GDP-wide PPPs to compute comparable R&D expenditures.
- Need for R&D-specific PPPs - NBER 2007: International Comparisons of R&D: Does an R&D PPP make a difference?

Recap: opportunities and challenges

- Great work estimating additional intangibles
- Globalization: trade in intangibles and prices
 - Combining domestic services and international services (and FDI/MNE) data; example: applying concordance of classifications with EBOPS
 - Imports prices (estimation of domestic supply; SUT/IOT)
- Purchasing Power Parity (PPPs) for IPPs
- Intangibles and globalization in the National Accounts/SNA Research Agenda – potential contribution from future work on services statistics

Resources

International Measurement Projects

Research, Documentation, and Data/Metadata Quality

- Eurostat-OECD Task Force Land, Other Non-financial Assets; Survey of Capital Measures for R&D (2017/2018)
- SNA Research Agenda: Inter-secretariat WG on National Accounts (ISWGNA); OECD WP on National Accounts; WP Int'l Trade in Goods and Services Statistics; Expert Group on Extended SUTs (ESUTs); UNECE Expert Group on National Accounts;
- UNECE Common Metadata Framework

Data Development/Data Integration

- BEA/NCSES-NSF: U.S. Intangibles in TiVAs and SUTs
- EU Framework Regulation Integrating Business Statistics (FRIBS)
- EU SPINTAN: Public Intangibles database
- MSITS 2010/EBOPS Implementation: R&D services and other IPP transactions
- OECD/NESTI: R&D and intangibles in MNEs and GVCs implementing globalization chapter in Frascati Manual

International Statistical Manuals

- 2008 SNA: IPP Accounts
- 2009 Balance of Payments and Int'l Investment Position Manual (BPM6), Table 10.4. 'Treatment of Intellectual Property', page 176
- 2010 Handbook on Deriving Capital Measures of IPP – software, R&D, entertainment, mineral exploration
- 2010 Manual on Statistics of International Trade in Services (MSITS) – EBOPS, FATS and R&D Services
- 2011 The Impact of Globalisation on National Accounts Handbook – chap. 7 on IPP transactions
- 2015 Guide to Measuring Global Production – chap. 4 'Ownership of intellectual property products inside global production'
- 2016 EU Manual Measuring Intangible Capital in the Public Sector (SPINTAN)
- 2018 UN Handbook on SU-IO Tables with Extensions and Applications



Contact: Francisco Moris, Ph.D.
SBE/ NCSES
National Science Foundation
703-292-4678 fmoris@nsf.gov