

An experimental UK Human Capital Satellite Account

Dr Robert Dunn

Business Architecture, Transformation & Strategy | QNS



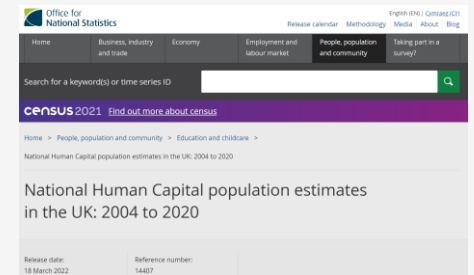
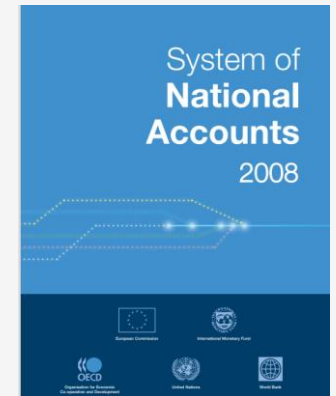
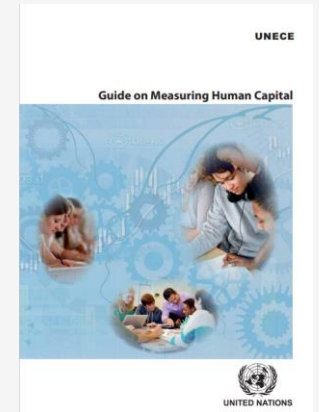
Contents

- Background
- Conceptual points to solve
- Paradigm shift: Labour input vs human capital asset input
- Current experimental results
- Conclusions



Background

- ONS has produced Human capital stock estimates for over a decade, with various demographic breakdowns and improvements over time.
- UNECE (2016) Guide on measuring human capital
- Beyond GDP workstream
- Measuring human capital in the UK economic accounts: An experimental satellite account – ESCoE discussion paper published [May 2022](#)



System of National Accounts Guidance note

Labour, Education & Human Capital (WS.4) main recommendations:

- a) Develop cost-based education measures, in accordance with the recommendations under Education and Training
 - i.e. produce a Satellite Account for Education and Training
 - Within the discussion paper this is used to provide initial estimates of intermediate consumption for the purposes of producing human capital assets.
- b) Produce income-based monetary stock measures with gender, age, and education detail.
 - Within the discussion paper this approach forms the output estimate of human capital

Conceptual points to solve

- Human Capital definition used:
“...the knowledge, skills, competencies and other attributes embodied in individuals or groups of individuals acquired during their life and used to produce goods, services or ideas in market circumstances”
Fender (2012)
- Movement between two balance sheet positions requires the identification of the following:
 - Transactions (gross investment, depreciation)
 - Revaluations (nominal price effects)
 - Other volume changes (changes which are neither transactions or price related)



Conceptual points to solve (1/2)

- Where is it produced?
 - Human capital assets seen to be produced in the household sector due to the embodied nature of the asset.
- What are the inputs to a human capital asset production function?
 - Inputs seen as education (state and private funded) and purchased training.
 - Structure given by the format of the Satellite Account on Education and Training (SAET)



Conceptual points to solve (2/2)

- Routing human capital inputs to the household sector
 - State funded education re-classified to market output in central government and local government sectors;
 - Purchased training counted as an output of an intermediate human capital asset input for all institutional sectors;
 - Incorporation of a current transfer to households to facilitate the re-routing.
- How to capture human capital investment from the start of education?
 - Recording of human capital asset production as output for own consumption in household sector
 - Allows for the recording of human capital assets as GFCF as it is formed.



Paradigm shift: Labour input vs human capital asset input

- We need the **return to the human capital** asset to be recorded as net operating surplus (NOS).
- We need to **avoid double-counting** the return to human capital asset between compensation of employees (CoE) and (NOS).
- Within modern economies is it a **labour input** (return shown in CoE) or a **human capital input** (return shown in NOS) in the production functions?
 - Both are based on labour costs to evaluate returns to the input.



Paradigm shift: Labour input vs human capital asset input

- Human capital assets are seen to be economically **owned by households** yet the majority of the time are used by other institutional sectors to produce goods and services.
- How to represent this on a transactional basis?
- Current solve: parallel with concept of **operating lease**
 - In essence, households **lease** their human capital to employers in return for a **rental payment**.



Current experimental results

- The current experimental estimates draw data from published UK economic accounts and human capital estimates.
 - These are presented to meet the needs of the human capital satellite account.
 - There are conceptual weaknesses in the current data which future research would look to address
 - This is the first UK presentation of a human capital satellite account and it illustrates the magnitude of the impacts human capital assets could have on the economic accounts.



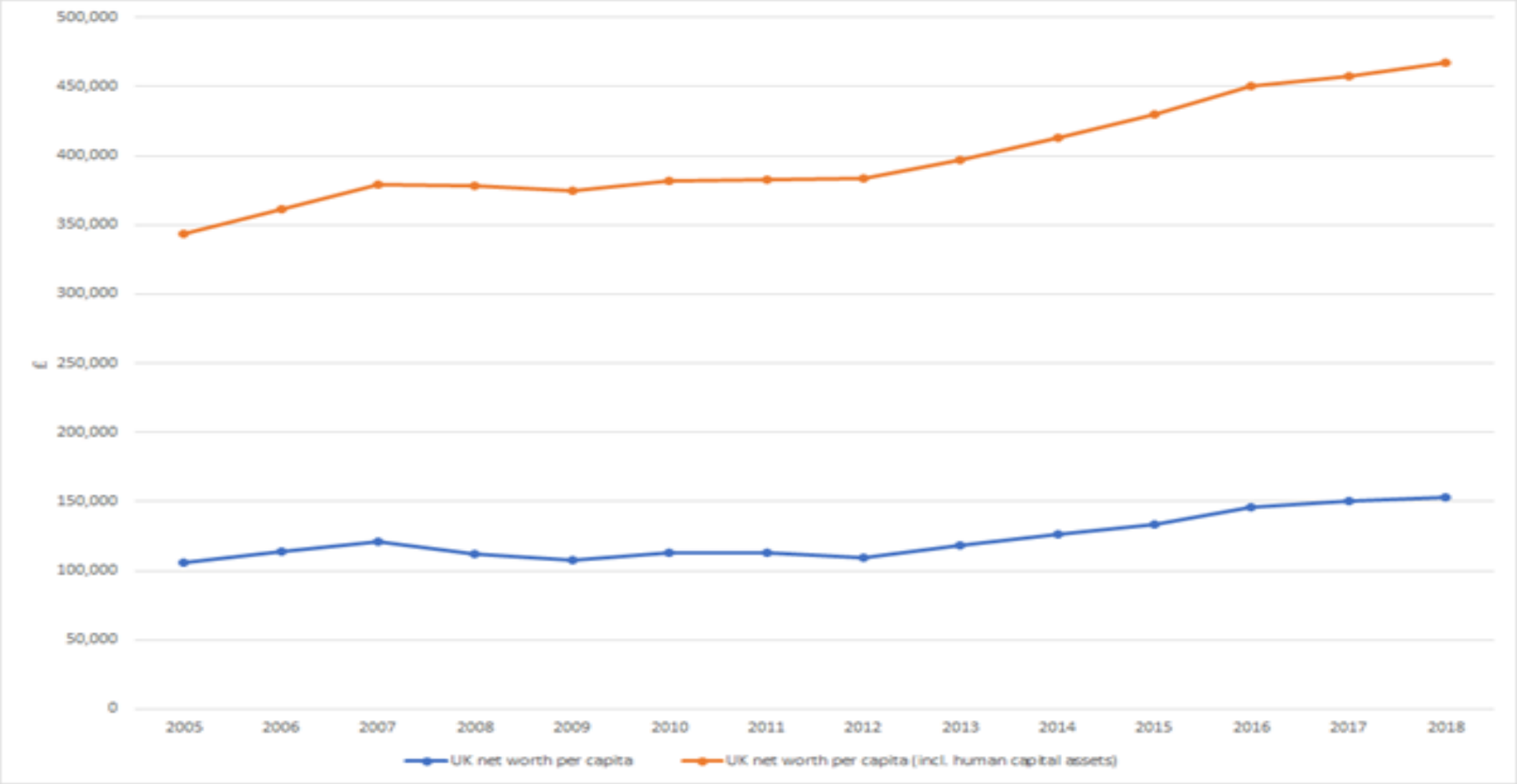
Current experimental results (reference year 2018)

Main aggregate	Experimental estimated change for domestic economy, S.1 (£m)	Current value of variable for domestic economy, S.1 (£m)	Experimental estimated change for S.1 as percentage of current variable (%)
Gross value added	+406,804	1,910,247	21.30
Gross operating surplus	+1,455,047	693,900	209.69
Changes in net worth due to saving and capital transfers	+527,397	301,942	174.67
Gross fixed Capital formation	+527,397	381,249	138.33
Net lending/net borrowing	0	-82,075	0.00
Net worth	+20,839,267	10,176,340	204.79

Comparison of Nominal Gross Value Added growth



Comparison of UK net worth per capita



Conclusions

- Human capital assets are **very large assets**
 - Based on current estimates human capital assets are approximately **double the size** of the total of all other non-financial assets!
 - Inclusion of human capital assets has a **large impact** on other main economic aggregates.
- Not the end of the road
 - Further work is need to capture the build up of human capital from the start of the education process;
 - Need to identify transactions, revaluations and other volume changes separately
 - Refine the boundary between labour input and human capital asset
 - Inclusion of the opportunity cost of work experience as an input?



Thank you

robert.dunn@ons.gov.uk