Discussion of
A Stylized Satellite Account
for Human Capital
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Paper Objective

- To construct a human capital satellite account
  - Consistent with the SNA
  - Showing the cost and lifetime income approach
Context
Interest in Human Capital

- Stiglitz-Sen-Fitoussi Commission 2008-9
  - “Beyond GDP”

- Wealth estimates
  - World Bank 2006, 2011
  - Inclusive Wealth Report 2015

- OECD Human Capital project – Liu (2011)

- UNECE Task Force (TF) on Human Capital
  - Draft report January 2016
HC Violating SNA Rules

- Fails SNA 3\textsuperscript{rd} party criterion
  - Outside production boundary
- Not tradable, is embodied
  - Not an asset

- Ch. 2 TF (van de Ven)
  - But HC does bring benefits to “owners”
  - 3\textsuperscript{rd} party not referred to under asset definition
  - Goodwill already an exception
Straight-jacket?

- SNA can restrict measurement innovation
- World is becoming much more “intangible”
- Difficult to see education as anything but an investment yielding a future income stream
Satellite Approaches – Ch. 2 TF

- To look upon the relevant activities in the sector paying for the produced services as producing a
  - Capital input which is transferred to the household sector via capital transfers.
  - Non-capital market output that is transferred to the households where it is used as intermediate consumption into the production process of households producing HC.
Allocation of Difference Between Cost-based & Lifetime Income-based Measures

- Liu and Gu (TF ch. 6) essentially agree
  - Liu GOS
  - Gu GOS/mixed income
    - Net compensation of employees & consumption of human capital
Supply Table Discussion
Exposition with Supply Table

- **Cost rows:** Other products vs. education products (school level + training & courses) broken out
- **Cost columns:** Other industries vs. education by:
  - Market producer, Government, & NPISHs
  - Imports set to zero for convenience

- **Lifetime rows:** Adds HC investment by school level + training & courses
- **Lifetime columns:** Adds individuals taking education as an industry
Exposition with Supply Table

- Non-blank entries the same in both approaches through the education by industry column (market, gov’t, NPISH)

- Lifetime: In the intersection of the HC investment by type row (school level + training & courses) and individuals taking education column, the lifetime value of the education appears

- Lifetime: Total supply=total output is larger by the sum of these entries
Summary of Supply Table Results

- **Lifetime: Column: Total output=total supply is higher by the amount of individuals taking education industry**

- **All other changes are breakouts of 1) all products into other products vs. education products (school level + training & courses) rows and 2) all industries into other industries vs. education by type industries (market, gov’t, NPISH) columns**
Use Table Discussion
Cost Exposition with Use Table

- Rows: Other products vs. education products (school level + training & courses) broken out
- Rows: Value-added includes compensation of employees, other net taxes on production, CFC, NOS

- Columns: Industries: Other industries vs. education industries by type (market, gov’t, NPISH) broken out
- Columns: Final use: HH, Gov’t, NPISH, GCF, & Export
Lifetime Exposition with Use Table

- **Rows:** Adds before total use, HC investment by type (school level + training & courses)
- **Columns:** Adds individuals taking education as an industry
- **Columns:** Splits GCF into other assets vs. HC
Exposition with Use Table

- **Rows:** Entries the same through total use by other industries and education by industries columns (market, gov’t, NPISH), except for training & courses

- **Cost:** Training & courses are assumed to be provided by other industries and have a positive number entry, but a zero other industries entry in lifetime table

- **Lifetime:** Shift: This training & courses entry appears in individuals taking education column
Exposition with Use Table

1) Lifetime: In industry by education type rows (school level + training & courses), final consumption by type entries are summed and transferred into the individuals taking education column.

2) Lifetime: In other products industry, expenditures for books and other products used for education are deducted from final consumption by HH and entered into the individuals taking education column.

- Lifetime: Total uses for final consumption by type (market, gov’t, NPISH) is lower due to 1) and 2)
Exposition with Use Table

- **Column:** Total use entries are the same for the industry education by type columns (market, gov’t, NPISH)

- **Lifetime Column:** The GFC HC entry now has positive entries in the HC investment by type row (school level + training & courses)
Exposition with Use Table

- **Lifetime:** Columns: Assumes that training & courses input is all labor, so compensation is higher by the amount of training & courses provided by other industries.

- **Row:** Total use column entries identical through education by type row (school level + training & courses).

- **Row:** Total output entries identical through education by type column (market, gov’t, NPISH).
Summary of Use Table Results

• Lifetime: Column: Total use is higher by the amount of GCF HC

• Lifetime: All other changes are simply transfers among cells

• Investment share of final use goes up and industry output increases
Comparison with TF ch. 6 - Gu

- Liu uses the HC produced in the household sector approach
- Gu shows both – HC produced in the household sector and capital transfer approach
- Gu constructs many more component accounts of the SNA
  - Current, capital, & wealth accounts
  - Current & capital accounts include HH, NPISH, corporation, government, & ROW sub-accounts
Kendrick cost-based approach

- In common usage, the term “cost-based” is narrowly defined
- Expenditures already appearing in the SNA, maybe without complete enumeration of some expenditures such as those for training
- Kendrick’s cost-based approach was far more complicated and inclusive
Kendrick (1976)
Extra HC Investment

- Average constant dollar rearing costs per child up to age 14, but excludes cost of parent time
- Informal education investment
- Intangible medical, health & safety investment
- Intangible mobility investment such as unemployment, job search, hiring, and moving, including immigration, costs
- Avg. cohort lifetime investment includes current and earlier ages
Productivity –Based Integration

• In a 1992 paper by J-F “Investment in Education and U.S. Economic Growth”, the impact of HC on economic growth was assessed by constructing GDP as the combination of an education and a non-education sector

• Productivity/NIPA based formulation, not a SNA construct
Output, Outcome, & Quality

- Have some issues with Liu and the Schreyer papers he cites
- Outcome an even trickier issue

- But this analysis would require writing another paper!
Bottom Line

- Excellent paper
- Substantial contribution
- Of course, I prefer the lifetime income HC produced in the household sector approach