



MEASURING HUMAN CAPITAL – AN OECD PROJECT

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Outline of the presentation

1. Background
2. Methodology
3. Database
4. Empirical results
5. Concluding remarks

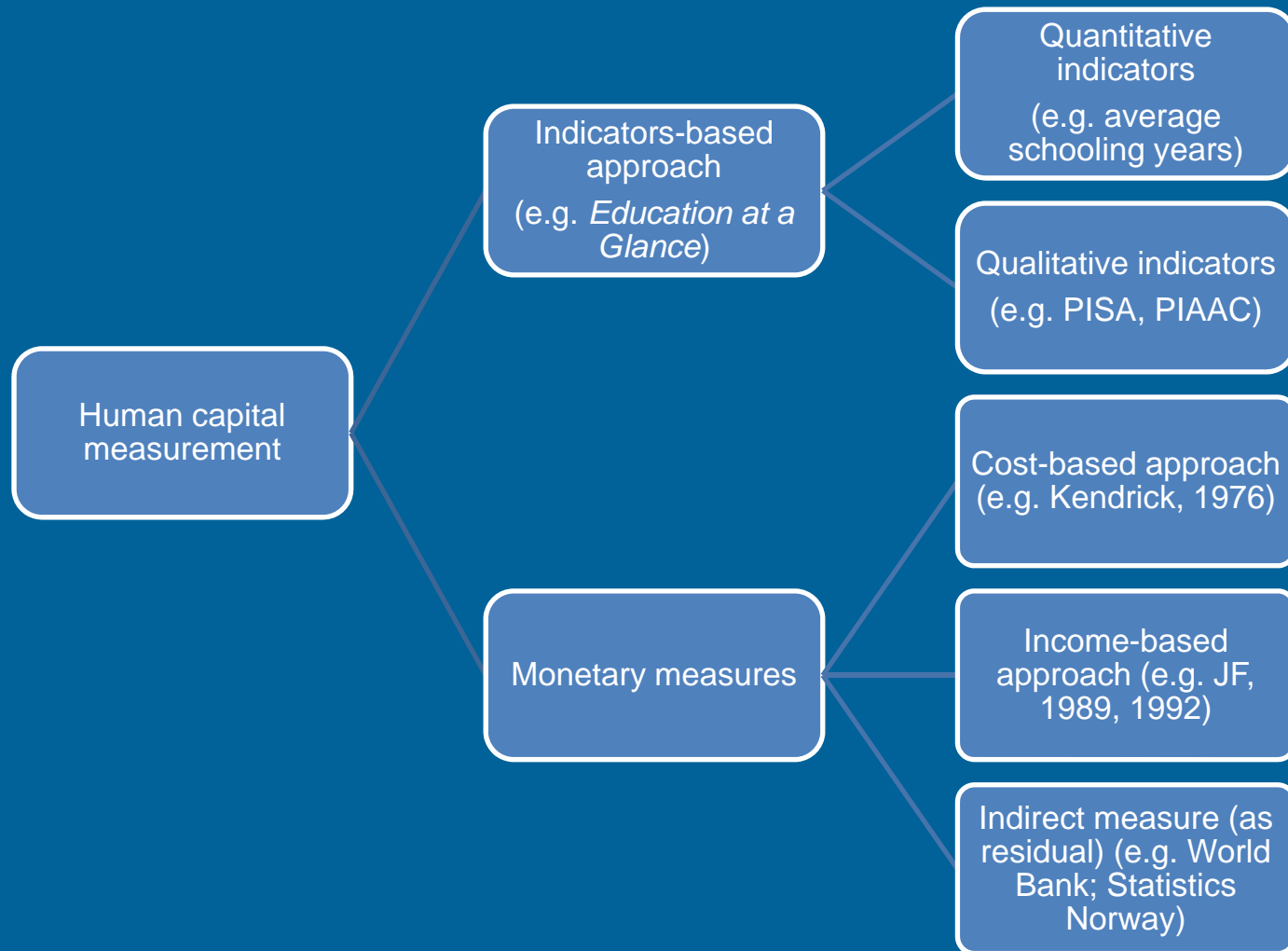


Background

- Recognition of the importance of human beings as part of national wealth has a long history in economics profession.
- Useful for measurement of
 - Sustainability
 - Productivity
 - Output of educational services
 - Household accounts
- OECD definition: “the knowledge, skills, competencies and attributes embodied in individuals that facilitate the creation of personal, social and economic well-being” (OECD, 2001).



1. Background: measurement approaches





1. Background: OECD initiative

- Present initiative: income based-concept following Jorgenson and Fraumeni (1989, 1992)
- OECD project, harmonised approach, launch at Turin workshop 2009
- International consortium: 18 countries (Australia, Canada, Denmark, France, Israel, Italy, Japan, Korea, Mexico, Netherlands, New Zealand, Norway, Poland, Romania, Russia, Spain, UK, and US), and 2 IOs (Eurostat and the ILO).



2. Methodology: lifetime income approach

- The lifetime income approach, (Jorgenson and Fraumeni 1989, 1992a, 1992b), measures the value of the total stock of human capital as the total discounted present value of the expected future labour lifetime incomes.
- Consistent with economic theory and accounting principles.
- OECD: only individual economic benefits generated through market activities.
- Focus on working age population (15 to 64).

2. Methodology: estimation of the stock value

- ‘work-only (41-64)’ population: lifetime income = current labour income (adjusted by employment rate) + lifetime income in next year (adjusted by survival rate, income growth rate and discount rate).
- ‘study-and-work (15-40)’ population: lifetime income = current labour income + expected value of the outcomes of two courses of action
 - continue his/her work by holding the same educational level
 - enter school and after completion of study enter labour market.
- Estimation method: backwards recursion by using cross-sectional information to predict future earnings.

2. Methodology: construction of the volume index

- Identity: $Value = Price \times Volume$
- Temporal volume index is constructed as Tornqvist index:
 - = weighted sum of the growth rates of the number of individuals across different categories of the population (such as age, gender and educational attainment)
 - Weights = shares in the nominal value of human capital.
- No corresponding spatial index
- Cross-country comparisons based on PPPs for private consumption



3. Database: five datasets for each country

- Survival rates
- Educational attainment.
- Employment rates.
- School enrolment rates.
- Annual earnings.

4. Empirical results: simplified assumptions on exogenous parameters

- Real discount rate is assumed to be 4% for all countries.
- Real income growth rate based on OECD *Medium-term Baseline*, is real 'wages and salaries per employee for the total economy' over the period 1960-2017 (see Table 1).

Table 1. Annual real income growth rates used in human capital estimation (%)

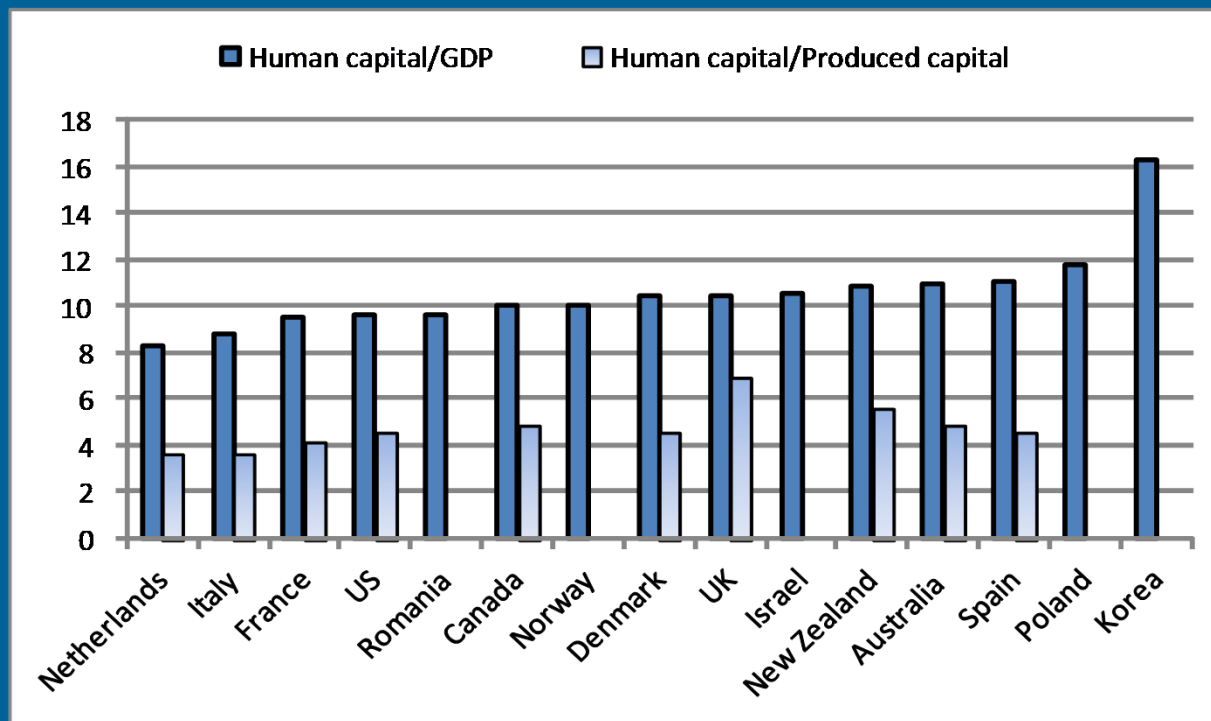
Australia	Canada	Denmark	France	Italy	Korea	Netherlands	New Zealand	Norway	Poland	Spain	UK	US
1.59	1.39	2.09	2.18	2.29	3.98	1.23	0.77	1.82	3.04	2.78	2.14	1.30

4. Empirical results

- Human capital measures by:
 - Age
 - Gender
 - Educational attainment
 - Country

4. In general: values of human capital are significant

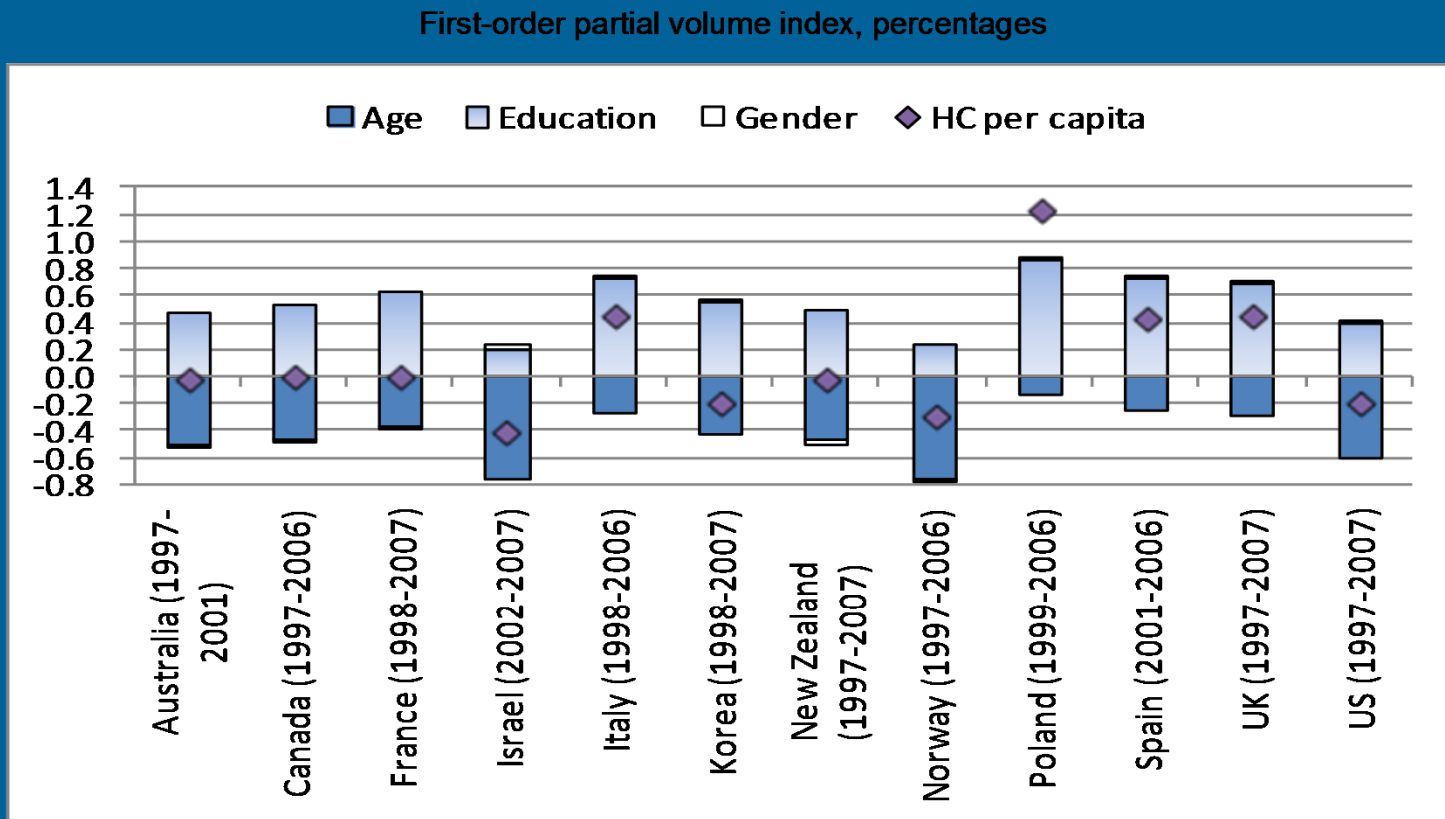
Figure 3. Ratios of human and physical capital to GDP, 2006



Note: Estimates for Australia refer to 2001, those for Denmark to 2002.

4. Empirical results: decomposition analysis of HC growth – age, education, gender contributions

Figure 12. Decomposition of average annual growth of human capital volumes per capita due to age, gender and educational attainment



Note: For many countries, the contribution from gender is too small to be discernable in the figure.



5. Summing up

- OECD Human Capital Project has set out to measure human capital across countries and over time.
- An OECD database has been constructed – data will be made accessible.
- The results show the feasibility of applying the lifetime income approach to measuring human capital for comparative analysis although international comparisons have required some simplifying assumptions.



Summing up

- Most of our estimates are in line with those reported in several national studies.
- The shift of population composition between men and women had little effect on the change of human capital per capita for all countries.
- Major drivers of human capital per capita are higher levels of education (positive contribution) and ageing of the population (negative contribution).
- The estimates of the value of human capital are sensitive to the choice of the real income growth and discount rate.
- But within-country distribution of human capital and the trend of human capital volume are less sensitive.



Future work (subject to funding)

- Improve statistical information (e.g. by using information from other sources to improve current data on school enrolment rates, by improving the comparability of educational categories, by better understanding the nature of the earnings concept used in the OECD database).
- Additional countries and years.
- Periodic updates.



Future work (subject to funding)

- Human capital and household accounts
- Human capital and education accounts
- Examine how results on adults' competencies from PIAAC can be used for the human capital project so as to produce “quality-adjusted” estimates or to account for skills development on the job
- Integrating human capital measures with other measures of capital to derive broad measures of wealth
- Policy links



Thank you!