Privates Notes for "Some Background on Inequality"

> James Heckman University of Chicago University College Dublin

INET Summer School July 2012 This draft, July 6, 2012

- These lectures are about inequality
- The subject is vast. To address it adequately would require more than a few hours.
- My focus is more narrow
- It is about inequality in the skills, abilities and motivations embodied in individuals, and how they affect inequality in a number of dimensions.
- The subject is still vast.



















Income Mobility Over Generations Intergenerational Correlations y_{g+1} = α + β y_g +U_g Income of Child Income of Parent β = .65 in US, .45–.57 in UK, .14 in Sweden Mobility higher in Nordic countries where income distribution is compressed.

- Its fitting that I address the topic of inequality in the Marshall Lectures.
- Marshall had a passionate interest in inequality.

I have devoted myself for the last twenty-five years to the problem of poverty, and very little of my work has been devoted to any inquiry which does not bear upon that.

— Alfred Marshall (Report to Royal Commission on the Aged Poor, 1893)

- Marshall analyzed how markets priced skills, studied the role of human capital in creating earnings capacity, and the role of the family (especially the mother) in creating human skills.
- The most valuable of all capital is that invested in human beings; and of that capital the most precious part is the result of the care and influence of the mother.

– Alfred Marshall (1890, paragraph VI.IV.11)

• He emphasized the development of "character" — personality traits, motivation, sociability and conscientiousness — as a way to elevate the poor out of poverty and promote their attachment to the larger society.

The human will, guided by careful thought, can so modify circumstances as largely to modify character; and thus to bring about new conditions of life still more favourable to character; and therefore to the economic, as well as the moral, well-being of the masses of the people.

— Alfred Marshall (1907)

- He, and many other Victorians, thought that it was possible to build "character" and "morals" through education and by way of example in families and institutions.
- This emphasis on morals and character—what some describe as personality traits—was not always well received by his successors.
- He was thought to be prudish.

• For example, describing Marshall, Schumpeter wrote

He had no objection to commonplaces about human values and loved to preach the Gospel of the Noble Life ... I confess that few things are so irritating to me as is the preaching of mid-Victorian morality, seasoned by Benthamism, the preaching from a schema of middle-class values that knows no glamour or passion.

— Schumpeter, AER, 1941

- There are many open questions concerning which features of environments are most important for fostering human development:
 - 1. Some deny that parents do much
 - (a) Judith Rich Harris as picked up by *Freakonomics*
 - (b) "Peers not parents matter"
 - (c) Misinterpretation of behavioral genetics
 - (d) Confuses parental attributes with parenting
 - 2. Much modern research establishes that mothers and parents matter, as Marshall thought, but through what channels? Can society improve mothering? Supplement it? Substitute for it?
 - 3. We better understand what adversity in environments means.
 - 4. The correct measure of disadvantage is not income *per se*.
 - 5. The scarce resource is parenting or mothering; encouragement and attachment. Exactly as Marshall wrote.

- A rough, but useful, categorization of human traits is:
 - i. Cognitive Traits (Ability to solve abstract problems)
 - ii. Noncognitive Traits (personality traits)
 - The term encompasses "character," as Marshall (and others) have used the term.
 - iii. Health (physical and mental)
- These traits, their effects and their origins are usually discussed separately from each other.
- I will discuss all three and their interrelationships.

Capabilities and Their Evolution

- My work is related to, but distinct from, the capabilities discussed in the "capability approach to economics" by Amartya Sen, Martha Nussbaum and others.
- It is less inclusive in that I focus on traits located in individuals that govern behavior. Not so much interested in the political aspects of their work.
- It is more general in that I consider the evolution of capabilities over the life cycle whereas the Sen–Nussbaum analysis has not addressed the origins of capability formation except only recently (Nussbaum 2011) and in response to the work being presented in these lectures.

Recent Studies In The Economics of Human Development Establish That:

- 1. A core low-dimensional set of capabilities along with the incentives in situations explain a variety of diverse socioeconomic outcomes.
- 2. Cognitive and personality ("noncognitive") capabilities are both important causal determinants of achievement.
- 3. Early biological factors including nutrition also play an important role in explaining adult health and a variety of other outcomes (e.g., education, wages).
- 4. Capabilities evolve over the life cycle as a consequence of investment.

5. Define a capability vector at age t

$$\theta_t = (\underbrace{\theta_{C,t}}_{\text{Cognitive Noncognitive}}, \underbrace{\theta_{N,t}}_{\text{Noncognitive}}, \underbrace{\theta_{H,t}}_{\text{Health}})$$

Each subvector can be a vector.

6. Outcome j at time t, $Y_{j,t}$ depends on capabilities θ_t and effort $e_{j,t}$ as well as social context variables $\theta_{t,P}$:

$$Y_{j,t} = \phi_{j,t} \left(\theta_t, e_{j,t}, \theta_{t,P} \right) \qquad j = 1, \dots, J$$
$$t = 1, \dots, T$$

Effort in j at time t, $e_{j,t}$, depends on rewards and endowments.

$$e_{j,t} = \eta_{j,t} \left(\underbrace{R_{j,t}}_{\text{Rewards to effort}}, \underbrace{\theta_t}_{\text{Capabilities}}, \underbrace{\theta_{t,P}}_{\text{Context and background}}\right)$$

 Technology of Capability Formation (Cunha and Heckman, 2007, and Heckman, 2007).

$$\begin{aligned} \theta_{t+1} &= f_t(\underbrace{\theta_t}_{\text{self}}, \underbrace{I_t}_{\text{investment}}, \underbrace{\theta_{t,P}}_{\text{background}}) \\ \text{productivity} & (\text{including}_{\text{education}}) \end{aligned}$$

8. This framework has been applied to analyze a variety of data sets on a variety of outcomes.

9. A variety of data sources show critical periods in early life for cognitive skills and sensitive periods for noncognitive skills later through adolescence. (Cunha, Heckman and Schennach, 2010) Strong evidence of synergies:

$$\frac{\partial \theta_{t+1}}{\partial \theta_t} \ge 0$$

Complementarity:

$$\frac{\partial^2 \theta_{t+1}}{\partial \theta_t \partial I'_t} \ge 0$$

Productivity of Investment:

$$\frac{\partial \theta_{t+1}}{\partial I_t} \geq 0$$



10. Gaps in capabilities open up early; they persist at later ages.Little malleability for cognition after the first decade of life.Noncognitive—personality—traits are more malleable.



The Evolution of Cognitive and Personality Skills

- Schooling after the second grade plays only a minor role in alleviating or creating these gaps.
- Measures of schooling quality (teacher/pupil ratios and teacher salaries) that receive so much attention in public forums play only minor roles in creating or eliminating the gaps after the first few years of schooling.
- Schooling quality and school resources have relatively small effects on ability deficits and only marginally account for any divergence by age across children from different socioeconomic groups in test scores.



• Gaps emerge in health. They *diverge* with age.

Health and income for children and adults, U.S. National Health Interview Survey 1986-1995. From Case, A., Lubotsky, D. & Paxson, C. (2002), American Economic Review, Vol. 92, 1308-1334.



- Gaps in health by family income also widen with age in Canada and in the UK where there is national health insurance coverage.
- Not as steep as in the U.S. but there is still a powerful influence of family.

- Many early childhood interventions operate primarily through enhancing noncognitive capabilities. (Heckman, 2000; Cunha, Heckman, Lochner and Masterov, 2006; Heckman, Malofeeva, Pinto, Savelyev, 2008)
- 12. Adolescent remediation is ineffective especially for cognitive deficits.



- Evidence on the early emergence of gaps leaves open the question of which aspects of families are responsible for producing these gaps.
- Is it due to genes?
- Family environments?
- Parenting and family investment decisions?
- The evidence from the intervention studies suggests an important role for investments and family environments in determining adult capacities above and beyond genes, and also in interactions with the genes.
- Parental attachment is a powerful predictor of adult success.

Today's Lecture

- In my lecture today, I want to discuss "character" or in modern parlance "personality."
- How can economists think about it? Is it just time preference? Risk preference? Something new?
- How predictive are these personality traits? Do they have causal status?
- In my lecture tomorrow, I will discuss the evolution of capabilities, policies to foster capabilities and what recent evidence suggests is optimal policy.