1. Introduction to part I

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Is there a relationship between the quantity of schooling and economic development and growth? How can human capital be measured? Can policy on education change the rate of development or are there exogenous pressures that stop growth? These are the sorts of questions addressed by the three chapters written by eminent economists in Part I of this Handbook.

In Chapter 2 Eric Hanushek and Ludger Woessmann express some nagging doubts about the policy of raising the school level of the population in developing countries in the belief that this will raise economic wellbeing. This brings into question the whole Education for All initiative and the associated Millennium Development Goals. Issues exist around the inability for some countries to support and provide an effective education programme which might stimulate student outcomes (as illustrated by other chapters in this Handbook). Hanushek and Woessmann highlight other problems with this strategy. However, the main concern here, and the focus of this chapter, is the appropriate measurement of human capital, where much focus has been on the quantity rather than the quality of schooling. The evidence points to the importance of the cognitive skills of a population in order to stimulate economic growth. The chapter starts with a review of research on economic growth, followed by a demonstration that what is needed are a better measurement of human capital in order to understand economic growth rates and the consideration of cognitive skills when modelling cross-country differences in growth. One of the main conclusions is that the effect cognitive skills have on economic growth dwarfs the association between quantity of education and growth. When including cognitive skills in a model to explain GDP per capita, the years of schooling become in the whole insignificant. As Hanushek and Woessmann put it, ‘in sum, the evidence suggests that what students know as depicted in tests of cognitive skills is substantially more important for economic growth than the mere quantity of schooling’. Human capital, when appropriately measured by including tests of cognitive skills, is the dominant pre-requisite of economic growth.

Stephen Heyneman and Jonathan Stern look at the general trends of education and development that have occurred over the last 70 years. They do this by discussing micro and macro issues. They highlight, as do
Handushek and Woessmann in Chapter 2, the measurement of the impact of education on development. In addition they look at what kind of education is worthy of investment and how policy can become distorted when seemingly choices are required for budget allocation. Heyneman and Stern also consider whether international assessments are an accurate or healthy measure from a micro perspective. Individual students and schools become the focus, looking at several issues including classroom language, privatization and gender and what these trends mean for the future of development and education. Heyneman and Stern agree that 'models that neglect to include measures of education quality can only explain a small fraction of change in economic productivity'. In the 1960s ‘manpower’ forecasting became the method to determine which type of education should receive investment. Every education project between 1962 and 1980 in the World Bank was justified through ‘manpower’ planning. However, manpower forecasting created distortions, neglecting important areas, and focused on too few employment possibilities. Following on from this, economic rates of return were used to look at possible over investment or where new resources could be allocated in education. But again distortions occurred regarding development priorities in the education sector. The chapter then goes on to look at ‘international large scale assessments’ and comparisons. Heyneman and Stern believe these tests are of ‘extraordinary’ value in assessing education systems, but they provide only a ‘snapshot’ in time and might be ‘dangerous’ if results determined education policy. Moving onto micro issues, firstly the medium of instruction in schools is scrutinized, summing up current research literature. The final word on this is where demand from parents is for mother tongue instruction then it should be provided. Secondly, regarding privatization, again the literature is reviewed, and in conclusion Heyneman and Stern believe that the low cost private school sector is expanding and reducing the pressure on an overburdened public school sector. According to the authors there could be natural limits to what can be expected from the state to effectively deliver public education, owing to the diversity of preferences. Finally, regarding gender many questions are asked, but the shift in the gender gap from female to male is regarded as one of the most interesting and significant aspects of development.

Unlocking the secrets of economic growth and material progress has been the ‘holy grail’ of economic research since Adam Smith in 1776. Increasingly the role of human capital and its accumulation is seen as a determinant of any long-term economic performance. Brian Snowdon’s chapter reviews the theoretical, empirical and policy issues relating to human capital and its association to economic growth and development. Development, Snowdon goes on to define as a process of expanding real
freedoms and the removal of ‘unfreedoms’ including poverty, malnutrition, social deprivation, poor health and education, discrimination and policy tyranny. Having defined ‘development’, Snowdon looks at ‘narrow’ and ‘broad’ definitions of human capital. However, what is more difficult is determining what and how to measure human capital when considering its effects. As with Hanushek and Woessmann and Heyneman and Stern in the previous chapters, Snowdon points out that using years of schooling as a proxy measure for human capital accumulation is problematic and that looking at cognitive skills seems more meaningful. Turning to the micro level, Snowdon investigates the impact of education on an individual’s earning potential and the social rate of return to investment in education. Following on, he looks at economic growth and the accumulation of knowledge from a macroeconomic perspective. The warning is that positive impacts will depend on important pre-requisites in the economy – the presence of inclusive social, political and economic institutions that encourage the allocation of a nation’s skills towards productive activities and entrepreneurship. Taking each in turn, Snowdon considers through seminal works, economic research and the literature how human capital can be affected by and possibly has a two-way synergy with health, education, technophysical evolution and migration. Economic growth in neoclassical economics has typically been measured using the original ‘Solow model’, which, however, excludes human capital. Snowdon illustrates and compares this model with the augmented one where human capital has been included. Other types of models are discussed including the endogenous growth model, a unified theory of economic growth and a model of dynamic comparable advantage. To summarize, Snowdon believes that in his chapter he has illustrated that ‘those countries with high and rising levels of human capital have a much better chance of success than others, and there is overwhelming evidence that sustainable economic growth and development into the twenty-first century will depend crucially on the continued accumulation of human capital’.