

## Future Human Capital in Southeast Asia

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### Introduction

A training workshop on past and future demographic trends by level of education in the countries of South-East Asia" was held in Bangkok at the College of Population Studies in October 2003. The intent of the workshop was two fold: First, teach the sixteen participants the technique of population projections by levels of education and apply the methodology to their own country, and second, take the opportunity of having demographers from six southeast Asian countries to reflect upon the future of their country in terms of education and human capital, compare countries 'experience and derive a prospective picture for the region. This workshop was a follow up of a similar workshop held in October 2002 at the same venue. Participants came from six Southeast Asian countries: Indonesia, Malaysia, Philippines, Singapore, Thailand and Vietnam.

### Methodology

The participants were grouped by country. During the first week, the participants refined and finalized their work on the projections of education and human capital in their respective country, using PopEd multi-state population projection software. The first task is to estimate the base-year parameters. Indeed this is the most difficult and time-consuming task, as well as the most important for the internal accuracy of population projections in general, and in particular by levels of educational attainment. The participants had to compile from latest census data available (around 2000) the population by age, sex and four levels of education, namely no education, primary education, secondary education and tertiary education. The main difficulties in estimating the population come from (a) aggregating the census education categories to the four above mentioned categories and (b) from the decomposition of 5-year age groups categories to 1-year age group category, which is required by the PopEd software.

Then, the participants were asked to estimate fertility and mortality for the base year. Fertility also had to be differentiated by levels of education, which was done based on the census or fertility surveys conducted in the country. In a same way as for population, the fertility was changed from 5-year to 1-year age categories with the help of the Gamma function. The fertility levels had often to be adjusted once combined with the female population by age and education categories. Because of the scarcity of data on the topic, it was decided not have any mortality differentials by education: one mortality schedule was applied to all education categories. Some participants had brought with them the life table provided by their statistical institutes, but most of them had only measures of life expectancy for male and female population. Participants were taught to use different procedures in MORTPACK to derive age specific mortality rates in 1-year age group to be fitted in the PopEd model. It was commonly decided not to use any migration data since the information is vary scared on the topic.

The next task consisted in estimating the transition rates between education categories for the base year. The transition entails the movements of population from one category to the next, in a hierarchical way: (a) from no education to primary education, (b) from primary education to secondary education and, (c) from secondary

education to tertiary education. We assumed that these transitions would happen exclusively during schooling age that is between ages 5 and 24. The estimation of this variable was based on information on enrolment and educational attainment of the population in the younger age groups.

The second week focused on scenario definition and implementation. We decided upon three main scenarios to be implemented during the projection period (2000-2050):

- i. Constant scenario where fertility and education transition remain constant at base-year level and only life expectancy increases (gain of 2-years per decade). This hypothetical scenario is mostly useful for two reasons: (1) as mentioned before to locate the possible mistakes in the starting year and (2) to show the improvements in terms of education that would occur if the enrolment levels were kept as they are in the starting year, mostly showing the translation of recent increases in levels of enrolment into improvements of the level of educational attainment of the working age population.
- ii. Convergence scenario: the fertility levels and education transition of all six countries will converge to the same level by 2030 and remain there until 2050. For this scenario, it was assumed that fertility will go down to 1.8 in all education categories and that the transition rates would reach by 2030 that of Singapore in 2000 (who has the highest levels of enrolment of the region in 2000).
- iii. National scenarios: participants were left free to implement scenarios they felt would be interesting for the particular settings of their country. Mostly, participants implemented the official scenarios of their country for population and the development plan for education. Because the projection period is longer than most planning exercise they extended it to 2030 and mostly kept the assumption constant until 2050. The number of national scenarios varied by country: Some participants implemented only one scenario (Vietnam or Malaysia) while others replicated the classic projection format with three different scenarios --depending mainly on varying fertility assumptions-- of low, medium, and high population variant.

## Results

Participants were then asked to write up their work and describe the results obtained. Each country report will become one chapter of a future book provisionally titled *People, education and human capital in Southeast Asia*. The paper will present in short the main country results. It will also include results and comparative analysis on the future of education and human capital in South East Asia, which is on the top of the political agenda in all of these countries. In general the projections show that a larger proportion of the working population is expected to have higher levels of educational attainment, especially at the tertiary level, which should ease the shortage of skilled workers in most Southeast Asian countries. The implications of a high-skilled well-populated Southeast Asian region could be of importance for the economic and demographic shape of the ageing declining population of Europe.

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