ธนาคารแห่งประเทศไทย
Bank of Thailand

ทำอย่างไร คนไทยจึงจะแข่งขันได้ในโลกศตวรรษที่ 21

Human capital policy: Building a competitive workforce for 21st century Thailand

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How competitive is our labor force?

IMD 2006 – Our Labor is competitive but there are problems with our education system

	Overall Rank	Labor Market	Costs (US$/hr)	Labor Product	Skilled Labor	Educa-tion	Univ edu.(%)
India	29	1	0.6	3.5	3	59	10
Hong Kong	2	2	5.5	28.8	22	24	37
Singapore	3	3	7.6	26.6	9	13	49
Malaysia	23	4	2.3	12.9	20	30	18
China	19	5	0.8	5.4	53	51	-
Thailand	32	6	0.9	7.0	37	48	18
Taiwan	18	10	6.2	25.2	16	19	43
Philippines	49	15	0.7	5.5	19	57	17
Japan	17	31	21.5	32.4	18	23	52
Indonesia	60	32	0.3	3.8	55	61	5
Korea	38	43	10.9	17.8	47	42	47

Source: IMD (2006)

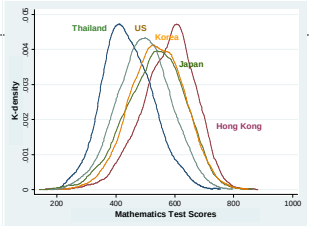
Moreover, our students' test scores are low compared with other countries around the world

PISA Students' Test Scores

PISA 2003	Literacy	Math	Science
Korea	534	542	538
HK	510	550	539
OECD Avg	494	500	500
Thailand	420	417	429
Indonesia	382	360	395
Ranking	**38/43**	**39/43**	**39/43**

Source: OECD, PISA (2003)

Distribution of PISA Test Scores (Math)



Outline of the presentation

I. The current labor force of Thailand

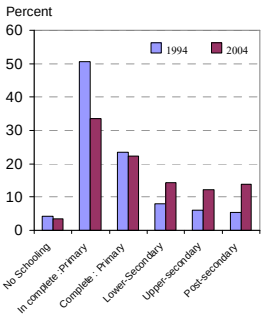
II. Human capital formation process in Thailand: Its context and its shortcomings

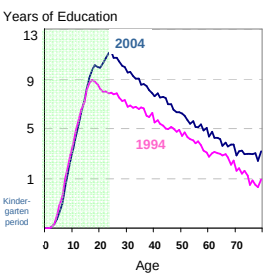
III. General principles to guide skill formation policy

IV. Human capital policy for 21st century Thailand

Our labor force quality improved between 1994/2004

In 2004, 59.4% of our labor had education less than secondary school. Only 13.9 percent had education more than post secondary school.

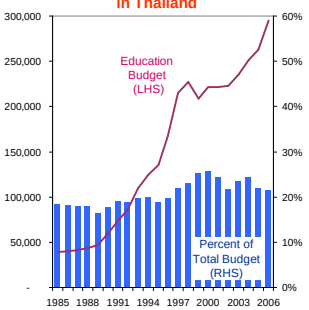




Source: Labor Force Survey and Socio-economic Survey, NSO

The improvement is partly the result of the emphases we place on education

Education Budget in Thailand



Source: Ministry of Education

Total Public Expenditure on Education 2004

Country	% of GDP
Malaysia	8.0
Israel	7.3
USA	5.9
Hong Kong	4.7
Korea	4.6
Thailand	4.0
Japan	3.7
Singapore	3.7
India	3.3
Philippines	3.0
China	2.1
Indonesia	0.9

Sources: UNESCO, UIS (Data for 2004)

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II. Human capital accumulation process in Thailand: its context and its shortcomings

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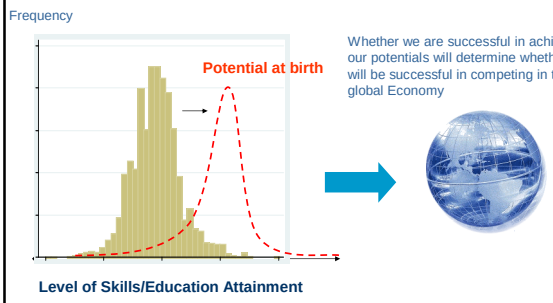
The human accumulation process



Whether we are successful in achieving our potentials will determine whether we will be successful in competing in the global Economy

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Main components of the human accumulation process and areas of shortcomings

Skill / Educ. Attainment = F (Individual, Family, School & Corporate inputs, Environment)

Input Providers	Environment	Outcomes
• Family • School • Corporate	• Education System • Education Budget Allocation • Incentive System • Fin. Constraint	• Level of Education • Quality of Education • Readiness for Further Studying • Skill Matching with Market Demand

Our concern

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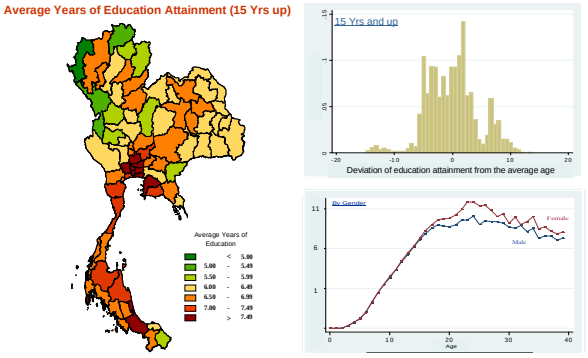
Concern 1: Inequality of education



Source: Ministry of Education and SES (2004)

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Analyzing inequality of education attainment based on socio-economic survey

Education Attainment = F (Individual, Family, School & Corporate inputs, Environment)

Family Characteristics

- Household Income
- Household head's education level
- Household expenditures
- Household wealth
- Household socio-economic status
- Household head's marital status
- Household expenditures
- Household main occupation
- Household size
- Household location

Family Members

- Household Head
- Spouse
- Offspring
- Grandchildren
- Parents, grandparents
- Brothers, sisters, relatives

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Regression analysis: Education attainment level (20 yrs up)

Family characteristics

Variables	Coefficient
HH's education (yrs)	0.133***
HH Income (log)	0.284***
Household wealth	2.421***
Poorest quartile	-3.153***
Second quartile	-2.333***
Third quartile	-1.240***
Widows	-0.705***
Divorces	-0.745***
Family Size	-0.343***

Family Location

Variables	Coefficient
Non-Municipal Area	-0.575***
Northeast Region	-1.268***
North	-0.755***
Central	-0.713***
South	-0.583***
Avg yrs of education in the villages	0.179***

Family Profession

Variables	Coefficient
Farm worker	-4.831***
Farm (rent)	-3.849***
Farm (own)	-3.524***
Construction worker	-3.790***
Service worker	-2.509***

Number of observation: 10,360
R2 = 0.402

Parents' income level and education and the education attainment of offspring (15 yrs up)

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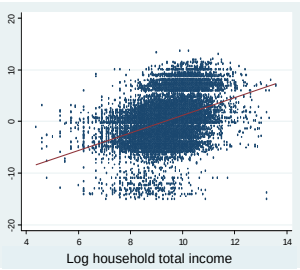
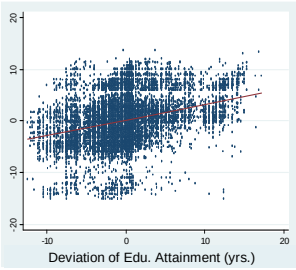
Deviation of yrs of schooling of offspring versus Household total income (Log)



Deviation of Years of Schooling of Offspring and Household Head



Source: SES (2004)

The beginning of the inequality in the education attainment

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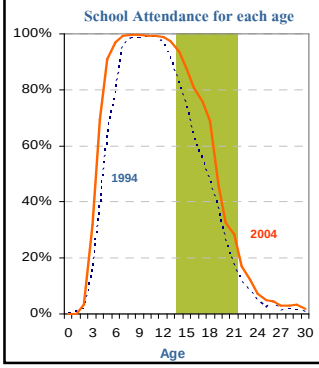

Why do some people decide to leave school earlier than others?

Source:SES (2004)

Education Attainment By HH Income Quartiles

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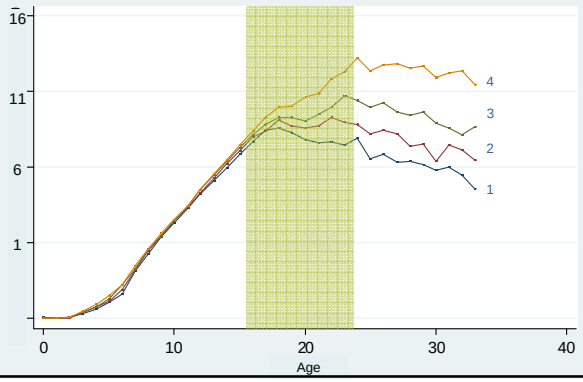

Logistic Regression: Education attainment level (15-21 yrs)

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Family Characteristics	Variables	Coefficient
	HH's education (yrs)	0.031***
	Household wealth	0.288***
	Poorest quartile	-0.043***
	Second quartile	-0.008
	Third quartile	-0.005***
	Widows	-0.046***
	Divorces	-0.002
	Family Size	-0.017***

Family Location	Variables	Coefficient
	Non-Municipal Area	-0.031***
	Northeast Region	-0.097***
	Central	-0.079***
	South	-0.066***
	North	-0.018***
	Avg yrs of education in the villages	0.010***

Family Profession	Variables	Coefficient
	Farm worker	-0.202***
	Farm (rent)	-0.080***
	Farm (own)	-0.056***
	Construction Worker	-0.220***
	Service worker	-0.159***
	Pensioners	0.087***

Number of observation: 11,903
R2 = 0.3109

Direct and indirect costs of education

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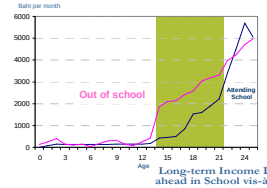
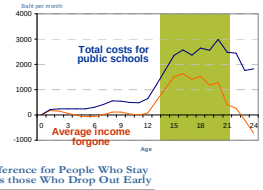
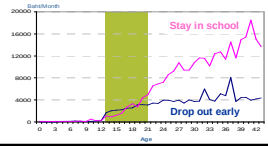
Average Total Income Earned by Each Offspring



Average Income Foregone and Total (Direct plus Indirect) Costs of Attending Public Schools



Long-term Income Difference for People Who Stay ahead in School vis-à-vis those Who Drop Out Early



Source: SES (2004)

Concern 2 : Quality of education - 2006 O-Net shows wide disparity in education quality

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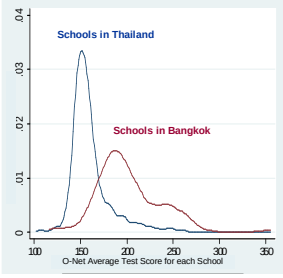
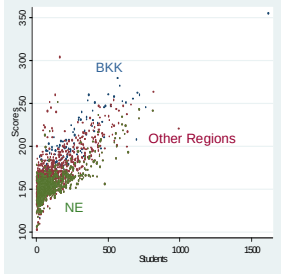
Distribution of Average School Scores



By School Sizes and Regions



Test Scores = F (Individual, Family, School & Corporate inputs, Environment)

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Why is there such wide disparity in school quality?

	Variables	Coefficient
Family Characteristics	Par. Education G12	0.63
	Par. Education Univ.	22.98***
	P. Working Fulltime	6.674***
	Large Family	16.40***
	Home Resource	14.82**
	More than 100 books	8.36**
	More than 200 books	19.56***
Student Char.	Male	7.39***
	Grade 10	18.46***
	Hrs. Spent on HW	1.51***
	Kindergarten <1 Yr.	4.56
	Kindergarten >1 Yr.	13.57***

	Variables	Coefficient
School Characteristics	School size	0.015***
	Stu./teacher ratio	-1.23***
	Math teacher quality	19.63***
	School Resources	-11.52*
	Compare result with other Schools	9.00***
	Access teacher by student's test	8.13**
	Access teacher by external inspector	6.15***
	Public school	17.98***
	Village	-43.02***
	Small town	-40.08***
	Town	-27.15***
	City	-24.73***

Number of observation: 4,442; R2 = 0.3552

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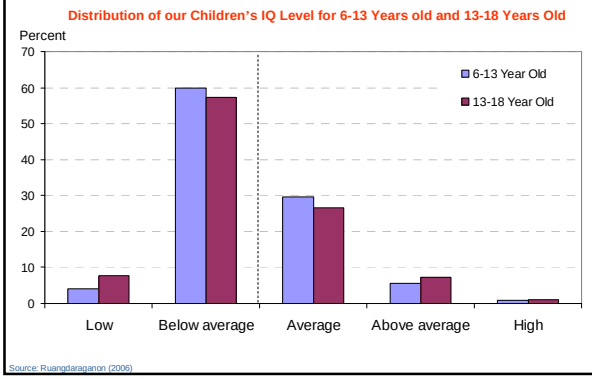
Concern 3: Readiness for schools



Source: Ruangdaraganon (2006)

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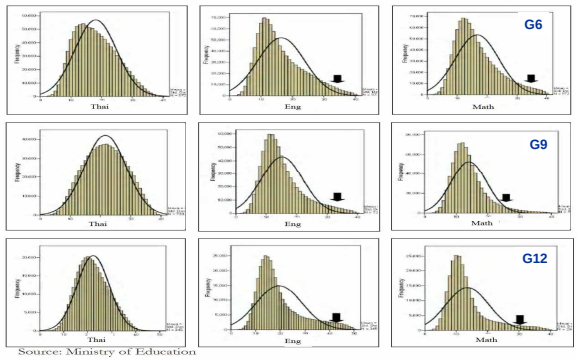
Readiness for further studying

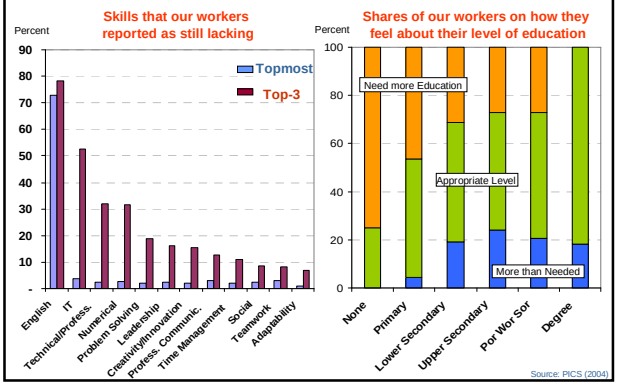
Figure 15: Result of 2003 General Achievement Test for Grade 6, 9, and 12



Source: Ministry of Education

22

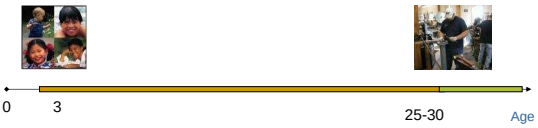
Concern 4: Skills mismatch – our labor still does not have skills that required by markets



Source: PICS (2004)

23

Summary of the shortcomings and what is next?



Main problems in each stage of human capital formation

Pre-schooling
- School - readiness
- Lead to Poor Foundation for Subsequent Education

Compulsory Educ.
- Uneven and Substandard Education

High Schools
- Inequality of Education Attainment
- Transition to upper secondary education

Degrees
- Inadequate responsiveness to market demand

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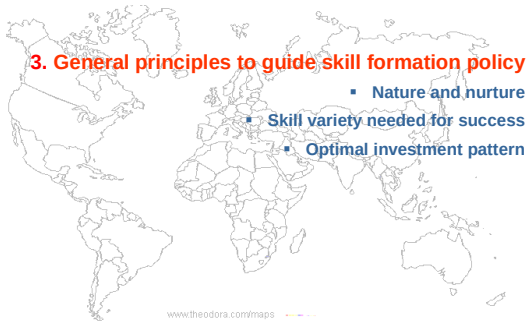


3. General principles to guide skill formation policy

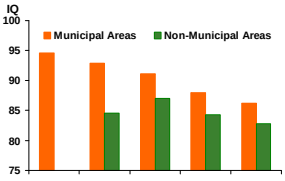
- Nature and nurture
- Skill variety needed for success
- Optimal investment pattern

25
Genes and environment interact to form skills. Home life is critical to cognitive development in poor children

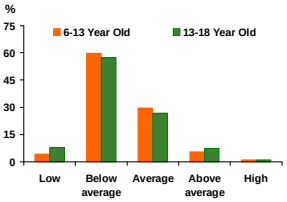

Skill providers: Family, school, workplace


0 3 25-30
IQ-normal

IQ of Thai children at ages 6-13

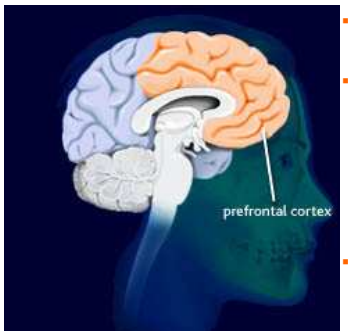


Distribution of IQ scores



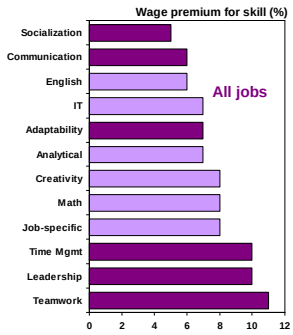
Source: Ruangdaraganon et al. (2006)

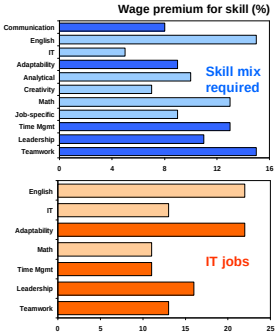
26
Skills are multiple. There are sensitive and critical stages of skill formation over the life cycle



- "Pure" cognitive skill (IQ) changes from birth; sets around ages 8-10
- Non-cognitive traits more malleable until later
  - Associated with prefrontal cortex
    - Grows again just before puberty
    - Controls impulses, reasoning, judgment in teenagers
- Brain capable of growth after adolescence

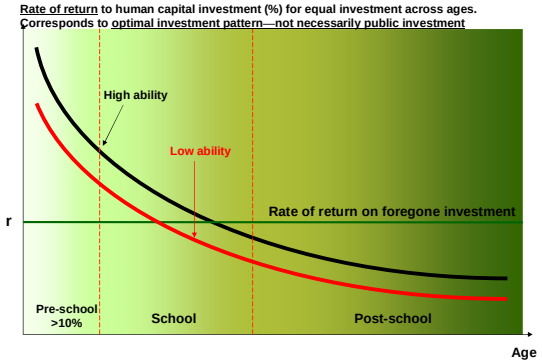
27
Cognitive and non-cognitive skills contribute equally to labor market and social success



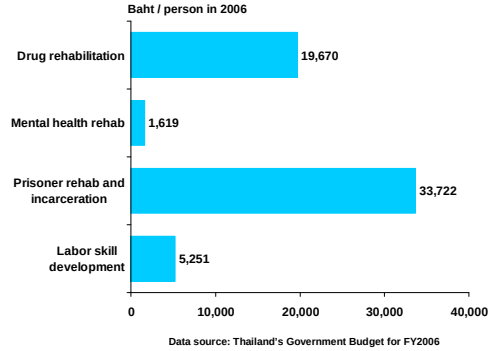


Source: Ahuja, Chuenchoksan and Pootrakool (2006)

28
Skills acquired early promotes later acquisition and raises productivity of investment at later stages



29
Late remedy of early deficiency is costly. Reversal incomplete.



Data source: Thailand's Government Budget for FY2006

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Key points for policy focus

1. Return to skills positive at all ages
   - Life-long learning investment; depends on ability
2. Return peaks when young and declines with age
   - Efficient public investment focuses on the young
   - Public spending per head should decline with age
3. Poor environment overwhelms genetic capacities
   - Equitable public spending focuses on the disadvantaged
4. Target public spending on needy young: Efficient and equitable

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4. Human capital policy for 21st century Thailand

- Challenges recap
- A new arrangement
- From birth to workplace: Tackling the challenges
- Proposed policy framework

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Challenges: Inputs and process. Major challenges are outside Bangkok

1. Students
   - Parents
2. Teachers and administrators
3. School resources
4. Labor market-school disconnect

1. School-readiness & transition
   - Ability to care for children
2. Teacher quality and management skills
3. More of what? And how to deploy them?
4. Further interaction

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Solution theme: Systematic incentive revamping It takes the whole society

1. New uni-directional, forceful and focused incentives to education and training providers and receivers
2. Focus public, NGO and charity resources on the disadvantaged
   - Overwhelming priority to the young
   - Attach low-skilled olds and disabled to society through subsidy
3. Enable and motivate low-income parents to care; and monitor schools

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1. Students: The early childhood years Enable disadvantaged parents to care for children

- Policy goal: Ensure young children are school-ready
  - Healthy, rested, well-nourished
  - Able to communicate thoughts (cognitive)
  - Curious, enthusiastic, attentive
- Focus on parents' health during and post-pregnancy
- Child-rearing skills
  - Use existing local health infrastructure
- Sufficient nutritious food for parents and children
  - Food coupons for pre-schoolers (to parents)
- Personal development—job search assistance, higher expectation in child's education
  - Local schools help with parents' education

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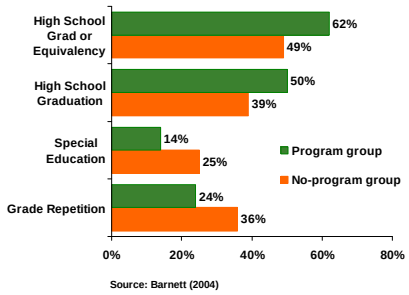
Below-normal IQ children: Three exemplary studies

- *Perry Preschool*—a half-day program on a small scale in Michigan public schools
  True Experiment, n=123, follow-up to age 27
- *Abecedarian* educational child care—a full-day year-round program in North Carolina
  True Experiment, n=111, follow-up to age 21
- *Chicago-Child Parent Centers (CPC)*—a half-day program on a large scale in Chicago public schools
  Quasi-Experimental, n=1286, follow-up to age 18-21

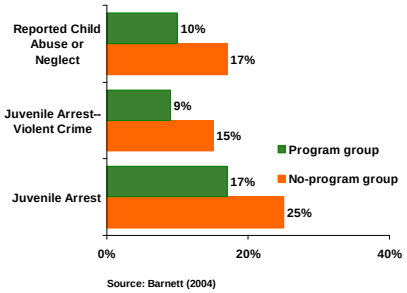
36

CPC academic benefits: Programs do not improve IQ over time, but improves non-cognitive skills



Source: Barnett (2004)

37 CPC social benefits. Benefits largely in crime reduction



Source: Barnett (2004)

38 Students: 1. Motivated but poor and 2. Lack school readiness—intervention must come early

- Policy goal: Enable them to realize potential
- Merit-based scholarships to disadvantaged students
  - Better motivation and self-esteem
  - For study in private or public Thai school of choice
  - Education-related expenses plus partial wages foregone (upper secondary)
- Schools to provide nutritious lunch and meal supplements
- Consequential national standardized exams for every grade
  - Core competencies and social-skill (e.g. teamwork) tests
- Remedial education for weak pupils in Primary; enable catching up
  - May help later transition into upper secondary

39 2. Teachers and administrators

- Policy goal: Enable them to contribute to students' progress
  - Personal development and government help
- Merit-pay for administrators and teachers plus hardship
  - Performance = Students' national test scores & improvement
  - Extra training as reward (for effort and outcome)
  - Punish low performers vigorously
- Support teachers with teaching material and basic training

40 Policy on school competition

- Rank schools nationally along students' scores
- Schools to manage own resources, teachers and salaries; accountable to local board
- Merge small rural schools
- Limit public schools where private provision is affordable
- Promote school's curriculum to augment national one
  - Pay for inventiveness
  - Idea-variety and flexibility
- Diffuse efficient business models and pedagogy
  - Private sector involvement with tax benefit

41 School resources: What works? Teaching material and learning method. In-school random experiments (3-year follow up)

"A child's friend"	Computer-Assisted Learning
▪ Remedial education ▪ Pull-out program ▪ Taught by trained local woman ▪ Meets 2 hours daily (class time) ▪ Basic literacy and numeracy	▪ Math education ▪ Taught by 5-day trained local ▪ 2 kids/2 computer hours/week ▪ Children learn independently
▪ Effect: Weak children's scores up 0.6-1 s.d. – Effect persists 1 year so far – No class-size effect on peer	▪ Effect: Raise treated school's math score by 0.4 s.d.
▪ Cost: Low	▪ Cost: Low

Source: Banerjee, Cole, Duflo, and Linden (2005) for India; Glewwe, Kremer and Moulin (2000) for Kenya

42 4. Vocational and higher education: From apprentice to master. More self-reliance.

- Goal: Reduce skill mismatch and rely less on public investment (go together)
- Apprenticeship programs
  - Breaks work-learning barriers
  - Firms to compete for best future workers
  - Students to compete for best jobs
- Promote flexibility in curriculum to reduce skill mismatch
  - More responsive to student demand (i.e. market demand)
- Students rely on more private funding and loans
  - Market provides high premium for diplomas/degrees
- Universities rely on corporate and alumni funds
  - Physical capital investment, scholarships and educators' grants

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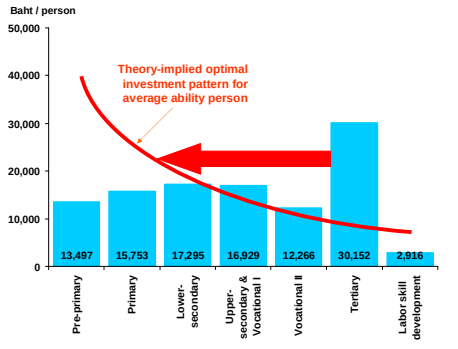
Government treats college-goers as high ability (received better *earlier* investment than most). Gradual shift efficient & equitable.

Government *human capital* investment spending per person FY2006



Data source: Thailand's Government Budget for FY2006; Education Statistics 2548.

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The Three Pillars of Human Capital Policy Framework

- **Pillar 1 (Competition): Encourage competition in all sectors, all levels**
  - Education providers, receivers use resources and technology efficiently to compete on merit, based on clear rules.
- **Pillar 2 (Access): Focus public spending, NGO and private charity resources on the needy**
  - Overwhelming priority to the young
  - Attach disabled or low-skilled old citizens to society through subsidy
- **Pillar 3 (Family): Enable and motivate parents to care for children's health and education until later stages.**