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# Financing tertiary education in Southeast Asia Countries

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**Abstract**
While Asia is a model for fast growth, low- and middle-income countries in the region still face the problems of maintaining growth and improving income. Tertiary education plays an important role in attaining these targets because it provides the necessary skills and research to apply new technologies. Therefore, tertiary education can become a driver of growth. Solid financing is of crucial importance for a well-functioning education system, but low and middle-income education systems in Southeast Asia have not achieved high results yet. Public financing will still go to education institutions whether or not they address public goods such as externalities, research or equity concerns. At the same time, public funding in education can address the disconnects. The paper will give a general overview of financing needs, followed by overview of funding strategies that emphasize on the role and efficiency of public financing and strategies to attract additional resources.

**Keywords:** growth, financing, additional, emphasize

## 1. Introduction
Many of the outcome gaps and related disconnects and constraints are related to funding. In this paper, survey data in a sample of low- and middle-income Southeast Asian countries show how costly it would be to achieve better outcomes and due to high costs, it is important to identify priority areas for funding. The objective of the survey is to provide a comprehensive estimate of financing needs if countries want to boost the quality and quantity of funding without taking into account the current budget constraints. Countries often face the trade-off between quality and quantity when financing education. It is very costly to achieve both the quantity and quality without greater efficiency in expenditures, a strong sense of priorities and private financing leverage.

### 1.1 Simulation Model
By applying demographic-based model where coverage targets and quality improvement policy are independent variables, it is possible to estimate education expenditures needed for achieving these targets. When implementing these simulations, Education Policy and Strategy Simulation Model by the United Nations Educational, Scientific and Cultural Organization Policy will be used to estimate financing needs of countries in the region.
With the simulation model [7], it is possible to estimate both the building costs and the recurrent costs in periods. The total cost is calculated according to the following formula:

$$C_d^r = RC_d^r + I_d^t$$

Where:
t : year
d : level of education
$C_d^r$ : Total costs
$R_{C_d^r}$ : Total recurrent costs
$I_d^t$ : Investment

**Recurrent costs**

$$RC_d^t = CT_d^t + CM_d^t + CA_d^t + CO_d^t$$

$$CT_d^t = \sum_{i=1}^{n} \sum_{J+1}^{k} T_{dij}^t W_{dij},$$

$$CM_d^t = E_d^t \text{ x } CMPS_d$$

$$CA_d^t = E_d^t \text{ x } CAPS_d$$

$$CO_d^t = E_d^t \text{ x } COPS_d$$

Where:
$C^{T_d^t}$ : Teacher costs
$C^{M_d^t}$ : Costs of materials
$C^{A_d^t}$ : Administrative costs
$C^{O_d^t}$ : Other costs
$T_{dij}^t$ : Teachers by category i và step j
$W_{dij}$ : Salaries by category i và step j
$CMPS_d$ : Per student cost for materials
$CAPS_d$ : Per student administrative costs
$COPS_d$ : Per student other costs

**Building (capital) costs**

$$I_d^t = C \text{ BPS x } [E_d^t - (1\text{-a}) \text{ x} E_d^{t-1}]$$

Where:
$CBPS_d$ : Per student building costs
$E_d^t$ : Enrollment rate
A : Replacement rate of buildings

Student / teacher ratio and student / classroom ratio are maintained to save costs. The study will present the results

of the model where coverage targets and quality improvement policy are dependent variables in two countries: Vietnam, a country with low tertiary gross enrollment ratios and the Philippines, a country with high tertiary gross enrollment ratios.

Vietnam's simulations suggest that there should be a sharp increase in tertiary expenditure to expand coverage and improve quality. Interventions to improve faculty qualification, increase spending on salary, management, staff training costs, central management costs, curriculum development, monitoring and evaluation will all result in larger financing gaps over current public expenditure.

In order to expand access and improve the quality, Vietnam needs to mobilize significant additional resources, mainly recurrent expenditure (about four fifths for salary, followed by faculty quanlification upgrading and administration). Per student expenditure will also have to increase from US $ 1500 to about US $ 4000 in the next 10 years. If public expenditure in 2010 remains unchanged, these projections suggest a large financing gap. By 2020, tertiary expenditure per student as a share of GDP per capita will need to be 3-4 times higher than the current level (Table 1).

**Table 1:** Gap between projected per student expenditure needed and current level in Vietnam and the Philippines % GDP per capita

| Year | Tertiary expenditure in 2010 (a) | | Projected tertiary expenditure (b) | | Gap (b-a) | |
|---|---|---|---|---|---|---|
| | Vietnam | The Philippines | Viet nam | The Philippines | Viet nam | The Philippines |
| 2011 | 61.7 | 11.6 | 151.8 | 303.1 | 90.1 | 291.5 |
| 2013 | 61.7 | 11.6 | 186.9 | 359.6 | 125.2 | 125.2 |
| 2015 | 61.7 | 11.6 | 236.3 | 430.7 | 174.6 | 174.6 |
| 2017 | 61.7 | 11.6 | 321.2 | 536.4 | 259.5 | 259.5 |
| 2019 | 61.7 | 11.6 | 579.8 | 633.6 | 518.1 | 341.1 |

***Source*:** Author's calculations based on the simulation model of tertiary education financing

The Philippines' financing simulation model also forecast a large and increasing recurrent expenditure needed. This model predicts that expenditure per student needs to increase from nearly $ 6,000 per student to about $ 10,000 per student. More than 95% of this expenditure is recurrent, of which salary accounts for the largest share (over 88% of recurrent expenditures), followed by administrative costs and costs for upgrading faculty qualification. As with Vietnam, these figures indicate that the expenditure needed is several times greater than the current level in the Philippines. If 2010 per student expenditure levels are maintained as a share of GDP per capital, the financing gap between needs and budgetary outlays is projected to reach about 300 per cent of GDP per capita in the next decade (Table 1).

These estimates for the Philippines and Vietnam are several times greater than the current levels of the two countries and similar situation is projected for most other countries in the region. Generally, estimates are made by taking into account particular contexts and are in line with the current levels of tertiary expenditure of neighboring and other middle income countries. Tertiary expenditure per student is more than US $ 12,000 in Japan, US $ 10,000 in Brazil, and US $ 7,000 in Chile. The United States spend $ 24,370 on tertiary education per student per year and the average spending of Organization for Economic Cooperation and Development (OECD) is US $ 11,512 per student [5].

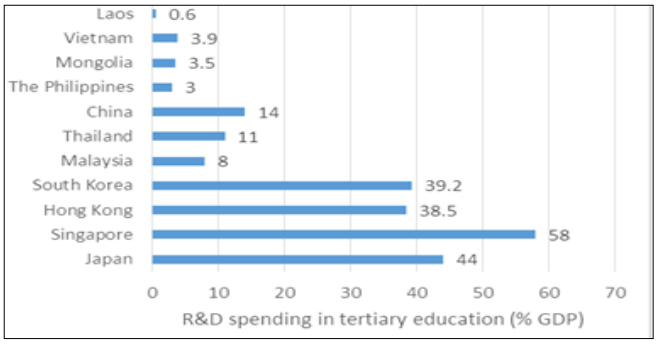
### 1.2 Financing priorities

It is very difficult for all countries to achieve their spending targets in the short and medium term, and this should not be the norm costs for higher education in all low income Southeast Asian countries. Medium. That suggests the need to carefully select the targets and financing activities.

It is clear that not every country needs to increase coverage targets in the short and medium term. Increasing coverage targets will be costly, leading to an increase in the tradeoff between quantity and quality. It is difficult to reduce student / faculty ratios across the board, suggesting that the differientation between the higher education system at colleges and vocational training institutions required by the labor market in some countries will only be able to be reached step by step. Upgrading faculty qualification can only be achieved selectively, so only a few schools will really upgrade research capacity.

### Research funding

The intimate relationship between journals and tertiary research expenditures shows the benefits of tertiary education research. Low and middle-income Southeast Asian countries spend less than high-income countries on tertiary research. This also implies that low- and middle-income countries have a lack of priority for tertiary research financing, low spending on research and development, and a low allocation of these funds to tertiary education. They also spend less than other low- and middle-income countries outside the region.




***Source*:** Ed Stats Database; UIS Data Center (UNESCO Institute for Statistics)

**Fig 1:** Research and development spending in tertiary education in as a share of GDP, latest available year in selected Asian countries

Cost-constraints for poor and disadvantaged groups and country responses targets.

Given the tremendous demand for education and tight public funding, most countries in the region are beginning to rely more on student fees to finance their institution.

Rich and poor countries operate within limited financial means and institutional capacity using a mix of funding to finance higher education, including: tuition fees, state subsidies, and other sources.

The costs of higher education (tuition and associated living expenses) will discourage talented students from pursuing higher education due to cash constraint. Financial aid can reduce that constraint.

The variables that influence the decisions to pursue a tertiary education include three main barriers: benefit – cost barrier, cash -constraint barrier and debt-aversion barrier [2, 8]. While these barriers will be influenced by many other variables, financial aid in the form of assistance programs,

scholarships or loans will at least address some of these constraints. Some Southeast Asian countries have a financial aid policy to help students overcome the cost constraints. These constraints need to be fully assessed. But there is no data available to calculate this "net cost" because very few household surveys have such information on scholarship programs. Secondary quantitative information can be used to estimate the likely true costs.

To address these issues, Vietnam has a credit policy for students with Decision 157/2007 / QD-TTg (with a maximum loan of VND800,000 / month / student), and in line with the actual conditions the Government regularly adjusts the lending rate (Decision No. 751 / QD-TTg dated 30/05/2017 with a new loan of 1.500.000 VND / month / student). In addition, Vietnam also encourages tuition fee exemption for poor students along with supporting and improving credit programs. The cost recovery mechanism has accelerated the share of tuition fee in total revenues of tertiary institutions.

**Indonesia:** Private spending, mainly tuition and fees accounts for the majority of financing in higher education. In 2009, per student spending on tertiary education is about $ 2200 in public institutions, compared with around $ 1,200 in private institutions. Financing a tertiary education student can cost up to a third of annual income. In order to stimulate disadvantaged student's demand, the government has promulgated full and partial scholarship but only for student who are enrolled. Schemes of scholarships that provide financial support to high school leavers who want to pursue higher education but have financial constraints are very rare. In addition, the financial support for students enrolled in university can only meet 3% of the total cost, while under national law, students must cover up to 33% of tertiary education cost [11]. Only 20% of the students in the poorest quintile are eligible for the scholarship because of the strict selection criteria (merit-based scholarship). In general, scholarships cover only 5.6% of the total number of students [3].

**Thailand:** The poorest households spend $ 112 per month on tertiary education, accounting for about 60 percent of their total income compared to wealthiest households where higher education expenditures represent less than one percent of income. Thailand has increased access to higher education through student credit programs. Thailand has also applied scholarship mechanisms to improve access to higher education for the poor, such as the one district scholarship program and scholarships for low-income students, but the coverage is still very limited. The Thai student program for poor students has increased participants. To help low-income students, the loans of the State must be repaid within 15 years at the interest rate of 1%. The results are satisfactory and have increased the enrollment rate in the tertiary education of the poorest significantly. These results may be improved by better targeting. There is also evidence that universities have expanded loans to ineligible applicants to increase enrollment.

Through studying investment priority in higher education in some countries, there are some issues that need to be addressed:

Firstly, countries need to consider applying situation-based scholarship as the merit-based scholarship does not increase coverage.

Secondly, comprehensive support packages such as tuition fees reduction for disadvantaged students, need-based scholarships, and student loans are more effective in increasing coverage targets than step by step model.

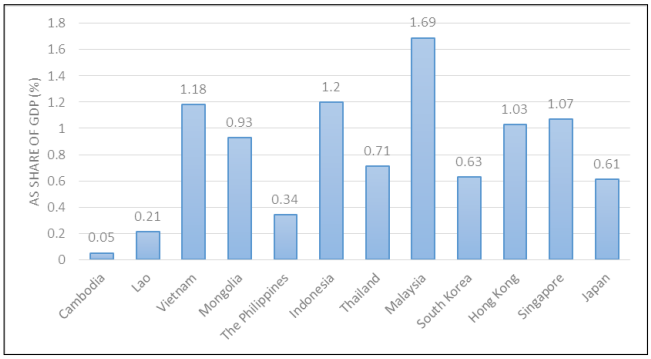
Thirdly, the efficiency of policies varies significantly among countries, depending on the policy design and implementation. Scholarships and credits are more effective when helping students cover a significant proportion of the tuition and at least part of living expenses. With a good selection process, the application of policies across many schools and areas is more effective than in only some selective schools and areas.

## 2. Some suggestions and financing solutions for priorities

Countries should assess the possibility of allocating more public investment to higher education, and more importantly, financing key activities. This will help higher education institutions address the disconnects- providing students with better skills and attracting more talented students to pursue higher education as well as enhance the capacity of research institutions. The scarcity of state resources requires more efficient resource allocation and result-based allocation. To maximize the mobilization of public funds, it is necessary to attract more private capital and overcome market failures through student loan. With the integrated financing framework, private funding will not only supplement public funding in some activities, but also focus on extending and diversifying the system (identifying some national priorities, such as increasing enrollment rates or financing in training service sectors) through public and private institutions.

### 2.1 Strengthening and prioritizing public expenditure

The share of public expenditure in Southeast Asia varies considerably and is not always lower than that in high-income Southeast Asian countries. Tertiary xpenditure as a share of GDP in Laos, Cambodia and the Philippines is the lowest while that is higher in Vietnam, Indonesia and especially Malaysia. The share of expenditure also has a significant disparity among high income Southeast Asian countries.




***Source*:** EdStats Database; UIS Data Center (UNESCO Institute for Statistics)

**Fig 2:** Public expenditure on tertiray education as a share in GDP in recent years

These are the results of national policy to distribute tight budget for public expenditure on education at diffterent level. The share of public expenditure on tertiary education per student in GDP per capita in Southeast Asia is lower than that in countries outside Southeast Asia and middle-income countries in other regions such as Brazil, India, and

Mexico, except for Malayia [5].
Given the need for competition, it is important to prioritize public spending and improve the efficiency of allocating and using public funds. Low- and middle-income South-East Asian countries need to increase public spending on research in higher education. There are no optimal standards, but low income countries clearly do not have the same level of displacement or even scope to boost research as other countries. In broad terms, investing in research can also support the development of future researchers for the university and the private sector.

**2.2 Increase the efficiency of public expenditure**
Competitive funding mechanism by promoting the field of excellence in research and teaching will allocate resources more selectively. Higher education institutions submit proposals for fund support with a development plan, including key performance indicators. The funds will then be used to invest in purchasing equipment, upgrading facilities, staffing and professional development. One of the advantages of a competitive pricing model is that it reduces the incentive to use increased enrollment rates to maintain financial viability while encouraging faculty to devote more time to teaching and researching, improve the quality of the system. Then tuition fees may be used for supplementary investment. In order to improve the relevance and capacity of research, funding can be provided for programs or courses that are linked to the needs of the labor market.
One of the most effective tools to ensure the accountability of institutions is the state's funding right. In theory, the government may cut or reduce the budget for institutions which do not comply with the rules or achieve the goals. But reducing the funding of public universities, especially original budget allocation is very difficult. One solution is to apply a variety of financial mechanisms other than the base fund to increase effiency. In addition to the above mentioned competitive funding, some of other mechanisms can also improve performance:

**Performance contracts:** The Government signs legally binding agreements with institutions to set mutual performance-based objectives

- Performance set aside: A proportion of public funds is set aside to allocate, based on some performance results
- Payment for results: Output or outcome indicators are used to build all or part of the funding formula.

**2.3 Mobilizing private funding and developing student loans**
**Variable fees**
Variable fees are determined by institutions and have some advantages over the fixed fees. Variable fees increase the amount of funding in the higher education system through open mechanisms, increased competition among institutions, improved quality and suitability, and efficiency in the use of funds [1]. And similar to the transfer of income to targeted income groups, this mechanism is likely to be fairer than other models of income generation, especially if the rates are set at a higher level for those who can afford them and combined with redistributive policies to help poor students pay the fees [1].
In most variable fee mechanisms, the government often sets a ceiling fee (for public schools) and requires most students to have at least some contribution to their education though exempting poor qualified students from fee based on circumstances and equity will ensure that they are not excluded or have to study in low-cost and low quality institutions. Another solution is to ask students to pay at least part of fee as a motivation for high learning outcomes. Each government may stipulate variable fee mechanisms and the setting of ceiling fee must ensure access, equity and cost recovery.
Strengthening the linkages between schools and enterprises or attracting private-sector resources are other options for mobilizing private funding. Singapore has raised significant funds for tertiary research through its counterpart fund. While the government often invests a large share of public funding in higher education, the government still encourages private participation. Since 1991, the Government of Singapore has begun promoting volunteerism for research universities at a 3: 1 ratio. Private donations also receive double tax rebates.

**Income contigent loans**
More and more governments are aware that income contigent loans are more effective for access. The repayment of loans depends on the source of the borrower's future income: low-income people pay less, people with low lifetime-income are exempted from the full repayment of principal. This loan mechanism protects students from very high risks and can improve efficiency (risk prevention) and access.
Student loan mechanisms sometimes have financial risks. These programs may vary in purpose and organizational structure, source of funds, coverage, loan allocation and debt collection methods. The conditions of a loan in most state-funded loans are "softer" than those of conventional commercial loan. This is a student subsidy in the sense that the borrower does not have to repay the full amount of the loan received thanks to the below market interest rate, the periods when the interest is not levied on outstanding debts (both during study period and in grace period after graduation), and repayments do not account for inflation.
There are a number of steps which can be taken to improve the financial viability and creditworthiness of credit program. The government may reduce the level of subsidy (hidden subsidies). Governments can also improve the efficiency of the mechanism by lowering administrative costs or the government can reduce the loss of loan capital due to the risk of insolvency.
In summary, for most Southeast Asian countries, combining tuition, scholarship and loan mechanisms will improve the equity and access to higher education. While tuition is a form of cost recovery, it is necessary to ensure equity for the poor and vulnerable social groups. Scholarship programs have a clear advantage in terms of high living cost and low incomes of some disadvantaged groups. But relatively high levels of university education and cost savings will make the loan mechanism particularly attractive. Low and middle-income countries in Southeast Asia have not achieved the necessary skills and research efficiencies. Many of the disconnects are related to funding. Each country has its own difficulties and priorities, but all countries face a number of common imperatives. Countries should make effective choices in deciding targeted groups and priorities and it is important to have investment strategies for priorities.

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