Research policy – Juliette Perche

Financial support to rural disadvantaged schools in Thailand and improvement in student achievement

1. Context and Motivations

Even though Thailand dedicate one of the world biggest proportion of its budget to education, at a public and private level, once again its score in the last OECD's PISA tests have been really poor, compared to other developing countries. In 2010 per-pupil education expenditure was around 23,41% of yearly per capita income (Quality Learning Foundation). However, PISA 2012 tests results revealed that Thailand was significantly below OECD average with a mean score of 427, while Viet Nam is well over the average with a mean score of 511.

OECD's 2013 outlook on Thailand's economy underlines two main challenges to address in the Thai educational system: a lack of quality and deepening disparities of access and achievement. While Thailand has succeeded in increasing the national schooling amount in its labor force, the income gap between the succeeding students – going up to college – and the less educated ones has widened (Lathapipat Dilaka 2011).

In 2009 the 15 years free education policy was implemented and should strongly cope with some inequalities of access to education. However, other costs remain, and the quality differential between rural and urban schools keeps students from poor rural areas in a low education achievement. Indeed the Office for National Education Standards and Quality Assessment (ONESQA) 2008 study revealed that 3243 schools over 15,515 did not reach the minimal quality requirement. These schools are mainly concentrated in poor and remote areas, and particularly small size schools. This dramatic differential has been estimated to mostly rely on family and non-tangible school characteristics. (Lounkaew 2013). These characteristics would account for 45-48 percent of the achievement gap.

Teaching quality has been observed as a very important factor in improving general education quality (Hanushek 2003), and the Thai government has been trying to go in this way through the 5 years plan for a "New Breed of teacher Project" that still have to show its results. But how to cope with the other, non-tangible, school characteristics? The very fact that it is unobserved support the idea that each school should be able to manage its own budget with its characteristics. Still, even though autonomy in personal management has been proved to participate in an increase in learning outcomes (Arcia Patrinos 2013), autonomy may lead to mismanagement and corruption in some cases. Thus an observation on how small rural schools would manage a support fund may answer these doubts.

Relying on the idea that input-based policies have been failing to decrease achievement gap (Hanushek 2003). And that bottom-up policies is the best way for a policy to fit the local environment. I would like to test and observe compared outcomes between a bottom-up autonomy support and a top-down conducive support to poor rural schools in Thailand. Since the challenges are quite different than those observed in the United States by Eric A. Hanushek, because Thailand encounters a great level of corruption and general lower teacher and student level.

The overall goal of focusing on reducing inequalities in educational achievements lies on the assumption that an unequal distribution of education tends to have a negative impact on per capita income in most countries. Thus supporting an increase in education quality in remote and disadvantaged areas is expected to participate to an increase in human capital and productivity at the country-level. Moreover it should participate to rural region development by offering new opportunities to the pupils form poor families.

2. Policy Intervention

The intervention is aiming to evaluate the impact of different kind of financial support to rural disadvantaged schools in Thailand in term of educational achievement and pupil's skills, would consist in four periods. It should be funded by government organization like the Quality Learning Foundation with help from international organization.

1. Choosing the population.
   Among the 3243 schools that did not reach the minimum quality level in ONESQA 2008 study, 1/3 will be send a proposition for 5 years financial support without any requirements, 1/3 will be send a proposition for 5 years financial with requirements and directives, 1/3 will be leftover. Each group is randomly created.
   For each group we will receive positive or negative answers, or no answer, from the school heads. From these answers we will have two groups of positive answers – one for each proposition – of schools willing to participate to the program they were proposed. In each of these two groups we will pick randomly 100 schools to be subject to the policy. In order to have only willing schools to participate to the program. Another hundred schools will be picked up in the leftover group in order to create the control group.

2. Evaluating education achievement in each group beforehand
   Every school in each of the three groups will have to pass a test before policy implementation in order to evaluate school performance. The test shall be a PISA-like test in math, literacy and science, adapted to each grade level.

3. Policy implementation
   Each school in the two treatment groups will be given each year a fund of 500,000 + 10,000x(number of students) baht per year which is calculated from a minimum fixed cost for each school to achieve the requirements proposed in the second group and an amount which depends on the number of students (for example the number of computers, number of teacher assistants…).

   3 groups :
   - Bottom-up financial support: autonomous management of fund
     In order to create incentive for the school's heads to come up with bottom-up reform that would foster an increase in the school achievement, the only requirement asked to this group would be to have committee that would managed the fund. Teachers, school administrative officers and pupils'

parents should elect five persons that would form it. Each reform and resource allocation from the fund should be both approved by the school president and the committee.
Except this requirement, the school is allowed to do anything with the money.
The only checking of what has been done will at the end of the 5 years program.

- Top-down financial support: inductive support with proposed reform to achieve
  These schools will receive the same money but should achieve the goals imposed by the research team. A minimum requirement in school transportation, computer availability, Teacher assistant in Thai language or in IT technologies, free book supply, number of teachers per student, level of education of teachers is defined, and each school should reach this minimum requirement at the end of the 5 years. Each year the research team will come to check and evaluate what has been done with the money and what is left to be done.
  The minimum requirement will be set as this[1] :
  - 1 computer available per 10 students
  - 1 Teacher Assistant with knowledge in IT per 100 students
  - 1 Teacher Assistant in Thai Language for close-to-border schools, with tutoring class provided
  - Minimum learning materials : board per class, books per student
  - Providing suitable and free transportation to the school, a bus going to most remote areas at least 2 times a day each school day.
  - Teacher quality: hiring at least to high skilled teacher

  Depending on the pre-policy characteristics each school will have to focus on different aspects of this requirement, the goal is to have the same resources after the 5 years.
  The research team should be both a controlling and helping schools to achieve their goals by giving them advices and contacts – for finding the right teacher assistants for example.

- Control group

4. <u>Evaluating afterwards.</u>
   After 5 years every reform implemented by each school will be registered, through a report by the committee in the first treatment group, and by the research team every year report in the second treatment group.
   The same test as the pre-policy period will be run in each school.

[1] All of these goals relies on reference studies on ways to improvement educational achievements, see in references. (access to quality education and poverty reduction in Thailand, Phasina Thangchuang)

3. Research question and hypothesis

- Are these schools in need of financial support and will this one help improving their quality? Does the inequality of educational achievement between rural and urban areas relies on a lack of resources ?
  Hypothesis: both treatment groups should do better than the control group.

- Are bottom-up reforms more efficient than top-down support for these schools?
  Hypothesis: Bottom-up support is expected to have greater outcomes, except if corruption and management problems appear to be significant.

- Does the mean level of education (not only of the students) impact the ability for the rural schools to develop themselves?
  Hypothesis: The first group should present wide variations between schools. Rural areas schools development relies on other factors than the mean level of education.

- What is the incremental impact of giving an autonomously managed financial support compared to directed managed financial support in term of school quality and pupil achievement?

4. Research Design and Methodology

This research is an impact evaluation and the design will be a randomized control experiment. We will estimate the impact of the financial supply on school characteristics in a first stage and then introducing this variable in a typical econometric specification of education production function.

We will rely both on ONESQA data on school achievements in Thailand and PISA 2009 test results.
Then we will proceed to population definition through a randomization process for each group, as defined upper. The common characteristic of the whole school population is their low score in ONESQA 2008 study implying their low quality-level. We will end up with three randomized groups; a control group, a treatment group subject to direct financial support, and another treatment group subject to supervised financial support. Each group will count 100 schools.

<u>Data Collection</u>
Data will be collected from three main sources: the standardized PISA-like test adapted to each grade level of the 300 schools tested, and two kinds of reports: committee reports for the first group that will concentrate what changes have been done in each school and how, and research team yearly observation reports for the second group.

Evaluation

	Treatment 1	Control	Difference
Pre	$E(Y_{pre}/T=1)$	$E(Y_{pre}/T=0)$	
Post	$E(Y_{post}/T=1)$	$E(Y_{post}/T=0)$	
Difference			DD1

DD1 impact of the financial support when autonomously managed

	Treatment 2	Control	Difference
Pre	$E(Y_{pre}/T=1)$	$E(Y_{pre}/T=0)$	
Post	$E(Y_{post}/T=1)$	$E(Y_{post}/T=0)$	
			DD2

DD2 Impact of the financial support through imposed change in school characteristics

Test the statistical significance of the difference between DD1 and DD1.

The outcome Y will be school's test scores, which will be the mean score for comparison. It can also be observed as per grade score, and per subject score (literacy, math and science).

The typical econometric specification of education production function is:
$Y_{it} = ß_0 + ß_1HH + ß_2Student + ß_3School\ characteristic$

What interest us in this equation: Impact of the policy on school characteristic $ß_3$
We could thus use the impact of the policy on school characteristics, $ß_3$ as an instrument variable.
$ß_3$ = size + region specific effect + school level(T) + student per teacher + computer per student + shortage of learning materials + unobservable characteristics.

5. Expected outcomes and potential challenges

The policy aims at estimating the best way to financially support disadvantaged schools in remote and border areas of Thailand. The outcomes are expected to support the idea that autonomy can benefit these schools which encounter very specific problems by allowing support to be adapted to these problems. However it will be very interesting to estimate to what extend the corruption and mismanagement may lessen the benefit of autonomy. In other words the estimation of rural schools' ability to manage themselves is essential regarding the new trend of policies supporting autonomy.
Moreover the diversity of reform and changes observed in successful schools in the first group may bring new accurate ideas that could be exported in the less successful schools.
In the end the general goal of such policy would be to create a status for disadvantaged schools in Thailand that would guarantee them a supplementary support in order to cope with their difficulties. The policy should give some first previews of how should

this support be given and what should it contain. The policy would gain by being compared with in-kind support, but for a matter of precision in the comparison, an in-kind trial is left to other studies[2].

Potential Challenges

What is estimated here is not the impact of each change in the schools, thus the comparison between the two groups may be criticized since there will be a great variation of outcome in the first group. However the data collected should enable further studies on what has been done in each school and what has been efficient in improving school scores.
Coming out with the most objective and accurate test will also be a strong challenge. Thus relying on PISA to design the test should guarantee some reliability to the test. Even though it is debatable, as PISA is also criticized.
Moreover one could argue that we encounter a self-selection bias from the fact that the treatment groups are formed with schools that chose to participate to the program may have common characteristics that differ from the control group. However the difference-in-difference should cope with a part of this problem, and since we randomize from a large sample of school that encounter a common problem of educational achievement we may get a reliable result.
The problem may rise for one particular region though; the three southern regions are encountering issues that go far beyond education and inequalities. It should thus be subject to a particular observation.

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