

TC Document

I. Basic Information for TC

▪ Country/Region:	Regional
▪ TC Name:	Classmates, Resources, and the Market of Teachers: Lessons from Latin America and South Korea
▪ TC Number:	RG-T2764
▪ Team Leader/Members:	Team Leader: Matias Busso (RES). Team members: Mariana Alfonso (EDU), Julian Cristia (RES), Veronica Frisancho (RES), Aglae Parra (RES), Taos Aliouat (LEG)
▪ Taxonomy:	Research and Dissemination
▪ Date of TC Abstract authorization:	April 10, 2017
▪ Beneficiary:	All members countries
▪ Executing Agency and contact name:	IDB
▪ Donors providing funding (amount and Fund's name):	Korean Poverty Reduction Fund (KPR)
▪ IDB Funding Requested:	US\$600,000
▪ Local counterpart funding, if any:	US\$0
▪ Disbursement period:	36 months
▪ Required start date:	June 01, 2017
▪ Types of consultants:	Firms and Individual Consultants
▪ Prepared by Unit:	RES/RES
▪ Unit of Disbursement Responsibility:	RES/RES
▪ TC Included in Country Strategy (y/n):	No
▪ TC included in CPD (y/n):	No
▪ Alignment to the Institutional Strategy 2010-2020:	Social Inclusion and Equality

II. Objectives and Justification of the TC

- 2.1 The remarkable economic growth episodes in East Asia - Japan, South Korea, Taiwan, Hong Kong and Singapore in the 1970s and 1980s, and China in the 1990s and 2000s – would not have happened without adequate skills of workers and education systems providing such skills (Hanushek and Kimko, 2000). Considering the importance of education for growth, it is not surprising that improving student learning is high in the list of priorities of policymakers in Latin America. Although enrollment and graduation rates in primary and secondary have experienced important progress (Bassi, Busso, & Muñoz, 2013), academic performance is still poor in most countries in the region.
- 2.2 The share of GDP currently spent in the region is approaching that of developed countries (DIA, 2017). Moreover, the current macroeconomic situation will soon force countries to reduce the growth on spending in education. Given this, finding low cost and high impact interventions is important to continuing building skills. In addition, there is both at the Bank and in the region, growing interest in understanding how to structure the teacher career in order to attract better teachers and to provide proper incentives for teachers.
- 2.3 Against this background, governments in the region should try to take advantage of the success of other countries in the education arena. A particularly relevant example is that of South Korea (Korea in what follows), for two reasons. First, the Korean education system has been steadily raising its quality standards. Second, Korea has undergone several reforms in education policy related to school choice,

class grouping, and teacher selection at the basic and upper secondary levels which are topics that policy makers in the region have only recently started to consider. The evidence provided by these reforms, all undertaken in the same setting, can provide important lessons.

- 2.4 The goal of this regional Technical Cooperation (TC) is to foster knowledge to provide guidelines to policy makers to improve learning in the region. This TC proposes to conduct a series of case studies both in Latin American and the Caribbean and Korea, to then be able to provide a relevant and timely comparative analysis of the effects that different assignment systems of teachers and students to schools and classrooms have on student academic performance and future trajectory. The research generated under this TC will thus be an important input in the design of cost-effective policies and will be helpful to provide technical guidance on the scalability of cost-effective pilots in the region as well as to identify future opportunities for Bank intervention in the education sector.
- 2.5 The TC will fund several new research initiatives, which are natural extensions of previous work that the team has been doing in the past three years. Component 1 will fund activities related to a project that studies how school and class allocation mechanisms, two very low cost policies, and its effects on student's learning in Mexico (Busso and Frisncho, 2017). Component 2 will fund activities related to the impact analysis of the effects of the reform of the teaching careers in Peru (Alfonso, Busso and Ñopo, 2016), in Colombia and other countries in the region that have introduced changes to the structure of teachers' career (e.g. Mexico). Component 3 will fund a small pilot in Peru that will test the impact of cost-effective policies identified a priori in the DIA 2017 (Busso et al. 2017).
- 2.6 The returns of this investment for the three Ministries of Education involved and for the Bank are very important both in terms of knowledge and in terms of the policy dialogue and policy changes that can be developed based on this TC's results. These research questions are, however, relevant for policy makers in other countries in the region as well. All countries use some allocation mechanism of students to schools and classrooms (be that based on geography or on exams), several countries in the region are considering changing the teacher careers or introduce different types of incentives, and most countries should find relevant any cost-effective policies put at their disposal (especially if they are very low cost and very high impact). Empirical research occurs by definition in a particular country and setting. However, results can be usually generalized to other settings. This can be done not only by the relevance of the research questions but also by the use of statistical methods that provide results for different sub-populations. A final benefit of the project is that it will also help to foster the IDB as a leader in the production of evidence on cost-effective interventions.
- 2.7 The evidence is produced in conjunction with EDU Specialists and therefore we expect that it will inform future Bank operations.
- 2.8 The objectives and activities included in this TC are closely linked to the goals of the Sector Framework Document of Education and Early Childhood Development¹, as well as the Strategy on Social Policy for Equity and Productivity² and in particular

¹ See <http://www.iadb.org/en/sector/education/sector-framework,18217.html>

² See <http://www.iadb.org/en/about-us/strategies,6185.html>

one of their priorities (improving school quality). The results from this TC will guide the design of operations aimed at assisting countries to achieve better education quality through school and class assignment mechanisms, schemes of teacher compensation, and cost-effective use of school and class resources.

III. Description of activities/components and budget

- 3.1 Component 1. Improving learning via students' allocation to schools and classes in Mexico and Korea.** This component will evaluate the learning effectiveness of alternative strategies used in the region to allocate students to schools (by neighborhood of residence or by mechanism designs (e.g. Boston mechanism). It will also evaluate strategies to allocate students to classrooms (e.g. tracking).
- 3.2 School assignment in Mexico.** This section analyzes the centralized allocation mechanisms that Mexico City relies upon to assign students to middle schools and high schools. The research team has an agreement with the Secretary of Public Education (SEP) to access rich administrative records on students allocated to middle schools between 1995 and 2015 and students allocated to high schools between 2000 and 2015.
 - a. Activity 1: The TC will fund a consultant to gather and compile administrative information and put together a dataset for estimation purposes. The data will be used to study students' choices and placement outcomes.
 - b. Activity 2: The TC will fund consultant to analyze the data and build measures of misallocation of talent across schools, justified envy, and other standard measures in this literature.
- 3.3 Classroom assignment in Mexico.** This component builds on a randomized control trial that was implemented in two academic years, 2014-2015 and 2015-2016, in 180 schools in Mexico City. This extension will analyze if the positive effects (0.15-0.2 of a standard deviation) of peers on academic achievement found after one year are long lasting. Also, this component is to explore the scalability of the project and to support the SEP to find effective complementary interventions that can close the gap between low-achieving and higher achiever students.
 - c. Activity 3: The TC will fund data collection of students and teachers. Using an instrument developed by the SEP, the research team intends to collect data that measures academic performance among the two intervention cohorts at the end of the 2016-2017 academic year to measure the impact of different class assignment models two and three years after the intervention was implemented. The TC will also fund collection of data on teaching practices using Classroom Assessment Scoring System.
 - d. Activity 4: The TC will fund the implementation of a new intervention. The third round of the experiment in 2017-2018 will be fully implemented by the Ministry of Education in Mexico, under the research team's guidance.
- 3.4 School and classroom assignment in Korea.** This component will analyze the performance of Korean assignment mechanisms and document how several countries in the region may benefit from introducing similar allocation systems or reforming the ones currently in place.

- e. Activity 5. A Korean research assistant will be hired to collaborate in this study to better link the Korean experience to the allocation systems in place in the region. RES will host the stay of a Korean visiting scholar for 12 months.
- 3.5 **Component 2. Improving learning by changing the market of teachers.** Countries such as Peru, Colombia, and Mexico have implemented reforms on several arenas of the teaching career, ranging from entry mechanisms, promotion systems, and compensation schemes. This component will fund activities that aim at assessing the effects of such reforms.
- 3.6 **Incentives to attract better teachers in Peru.** This section builds on a randomized control trial implemented during 2015 in 240 secondary schools in Lima. The intervention consisted of developing a set of videos to disseminate an information campaign in high schools. It was designed to increase the pool of talented graduates who choose to enter higher education programs in Education. Both the intervention and the baseline data collection were done in coordination with the Ministry of Education.
 - a. Activity 1: Information campaign, effects on reform. The TC will fund the analysis and report of the baseline data
 - b. Activity 2: The TC will fund the follow-up data collection required to measure the effects of the intervention.
- 3.7 **Incentives to attract better teachers in Latin America.** This component will study the effects of reforms to teacher careers using available administrative data. Several countries, including Peru, Colombia and Mexico have implemented reforms introduced meritocratic systems of entry and promotion for new public teachers and increased wages and bonuses. In principle, the reforms generate two margins of adjustment: choosing to work in a private versus public schools due to change in wages, and sorting of teachers across schools of different types (e.g. rural vs., urban) due to a change in the allocation mechanisms of teachers to schools. This component will also fund a research agenda that uses similar data and methods to study the reform to the teacher career in Mexico and Peru.
- 3.8 In the case of Colombia, for instance, the reform to the teacher career became into effect in 2005. RES has administrative data (coverage dates in parenthesis) on 8 million individuals that contain the universe of test scores of high school graduates (2000-2015), teachers in public and private schools (2000-2015) and their applications and entry exams to the public sector (2005-2015), higher education graduates (2006-2015), and other formal workers in Colombia (2010-2015).
 - c. Activity 3. This TC will fund a consultant to investigate the general equilibrium effects of better teachers in a structural model. The goal is to assess: (1) the effect of the reform in the market of teachers in terms of selection into the private sector and wages in the private and public sector (2) the effects of the reform on students in private schools, and (3) the teacher selection choices across schools. This exercise will allow us to simulate different teacher selection and promotion schemes and provide evidence-based policy recommendations.
- 3.9 **Better mechanisms to attract better teachers in Korea.** The pecuniary and non-pecuniary benefits enjoyed by teachers in Korea have led to the introduction of highly competitive selection systems.

- d. Activity 4: To examine the Korean system and provide a review of its practices as a case study to guide Latin American and Caribbean countries that are implementing related teacher reforms.

3.10 Component 3. Improving learning by reallocating school resources in Peru.

The Development in the Americas IDB flagship report 2017 identified several interventions that can generate large increases in learning at a very low cost. First, specializing teachers in grades seems a low-cost strategy that can produce important learning benefits (Ost 2014) through the development of grade-specific skills. Second, providing a small budget directly to teachers to purchase materials has also shown to be highly cost effective (Das et al. 2011). Third, existing evidence suggests that providing lesson plans to teachers can help to improve guiding instructional activities in a simple way (Leme et al 2012). Fourth, non-monetary incentives to students seems to be highly cost-effective. Finally, programs that provide technology resources and guide its use during after-school sessions have shown important effects at low cost especially when the guidance provided includes setting the subject to be targeted, the software to be used and the schedule of use (Arias Ortiz and Cristia 2014). This component of the TC will fund a “proof of concept” of this package of interventions for a set of low-performing, public schools in Lima, Peru.

- a. Activity 1: The TC will fund a pilot conducted in a limited number of schools to fine-tune the features and the set of interventions to be implemented. This activity will also fund the collection of student level data.

3.11 Component 4. Dissemination. This component will finance the dissemination of results from the studies financed by this TC.

- a. Activity 1: The TC will fund a website that incorporates all the materials of the experiments (intervention materials, data, and questionnaires), research papers, and policy briefs, in a website
- b. Activity 2: The TC will fund the organization and logistics of seminars, conferences, and roundtables government officials to present the results of the interventions, discuss any potential improvements and adjustments, and summarize lessons learned that will be important for scale up.

3.12 RES will be responsible of all the activities listed in the result matrix. Staff at RES has ample experience implementing and monitoring randomized control trials, collecting data in the region, and have published numerous research articles in peer-reviewed journals. This expertise is extremely valuable in the execution of the TC, especially regarding the supervision of the work of individual consultants and firms hired to execute the planned activities in the different components.

3.13 The team leader jointly with team members will directly monitor the submission of deliverables and track that these products are delivered according to the planned timeline for the project.

3.14 The team, that includes specialists from RES/RES and SCL/EDU, will closely monitor all activities. In addition, the research team will periodically inform the SCL/EDU country specialists in Colombia, Mexico and Peru about activities and progress made in relation with this TC. RES specialists will produce an annual report for the Chief Economist to provide him with information about the progress of this TC (including contracts, research results, and dissemination). These reports will be uploaded to EZSHARE.

- 3.15 The Ministries of Education involved in the project will assist the research team in arranging and coordinating meetings, seminars, and/or workshops with government officials and policymakers to disseminate the results. The team members from RES will work in close coordination with the firms and consultants working in the field under this TC. Also, they will supervise the performance of the visiting scholar invited to spend 12 months in RES. The Project Team will be responsible for preparing a Completion Report within six months from the date of completion of the operation and for sending an electronic copy of that report, or three printed copies thereof to RE2/FSS.

Indicative Budget (US\$)

Activity/ Component	Description	IDB (KPR)	Counterpart Funding	Total Funding
Component 1				
Activity 1	Compile database with middle school and high school student records	5,000	0	5,000
Activity 2	Analyze data and develop measures of misallocation of talent	10,000	0	10,000
Activity 3	Data collection to analyze medium term impact of class assignment intervention	140,000	0	140,000
Activity 4	Scale up and complement class assignment intervention	40,000	0	40,000
Activity 5	Host Korean visiting scholar in RES	60,000	0	60,000
Component 2				
Activity 1	Analysis of data and preparation of baseline report	30,000	0	30,000
Activity 2	Data collection to measure impact of the intervention in Peru	70,000	0	70,000
Activity 3	Develop structural model and conduct simulations	50,000	0	50,000
Activity 4	Prepare Korean case study for the selection of teachers (by Korean visiting scholar)	50,000	0	50,000
Component 3				
Activity 1	Develop and implement pilot and data collection	80,000	0	80,000
Component 4				
Activity 1	Develop website	20,000	0	20,000
Activity 2	Organize meetings with governments and present results at seminars	45,000	0	45,000
Total		600,000	0	600,000

IV. Executing agency and execution structure

- 4.1 The executing agency for this proposed TC will be the IDB. The IDB will be able to coordinate activities among the different partners involved in data collection processes and other research activities while creating synergies and facilitating the dialogue.
- 4.2 The Bank has obtained a letter of support from the Mexican, the Peruvian and the Colombian Ministries of Education, the countries in which we plan to do field or data work. The research team will seek advice and coordinate with SCL/EDU Specialists in COF the request of additional letters of non-objection from the listed countries.
- 4.3 The Bank will contract individual consultants and consulting firms in accordance with current Bank procurement policies and procedures (AM-650 for individual consultants and GN-2765-1 for consulting firms) and will follow the operations

guidelines for the selection and contracting of consulting firms in Bank-Executed Operational Work OP-1155-4.

V. Major issues

- 5.1 The main risks in the successful and timely execution of the project are lack of availability of quality information as well as lack of qualified consultants that might be able to perform the analysis and work required for the study. To address and minimize these risks, advances have been made in the identification of information sources and pool of candidates that might perform the required tasks. Moreover, local involvement and support have been secured.
- 5.2 Given the ambitious goal of this project, it requires a quality team of researchers who have rigorous world-class research and policy experience. First, the team members have vast experience implementing and monitoring randomized control trials, doing data collection in the region, and have published numerous research articles in peer-reviewed journals. Second, the project team has collaborated with scholars from Sogang University in Seoul in developing part of this project.
- 5.3 All publications will follow the Bank's Publication Protocol. All reports, manuals, studies, plans, drawings, data, databases, software and any other material prepared by or worked upon by consultants for the Bank under this technical cooperation (the "Works") are the sole and exclusive property of the Bank. As such the Bank has exclusive title, rights and interest in all such Works including the right of dissemination, reproduction and publication, which may carry out pursuant to the Creative Commons IGO 3.0 licenses, in accordance with Bank regulations AM-331.
- 5.4 The proposed project is expected not to have any social risks. In addition, all the randomized control trials will have Institutional Review Board (to guarantee minimal ethical risks when dealing with human subjects) approval before starting and throughout their executions.

VI. Exceptions to Bank policy

- 6.1 There are no exceptions to any Bank Policy

VII. Environmental and Social Strategy

- 7.1 The proposed project will not create environmental or social risks. According to the Environment and Safeguards Compliance Policy ([OP-703](#)) this operation is classified as "C".

Required Annexes:

- Annex I: [Results Matrix](#)
- Annex II: [Procurement Plan](#)
- Annex III: [Terms of References](#)