

Education Policies in Developing Countries: Three Ideas to Explore

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Main Objective

The main objective is to present three ideas that are at the center of the policy domain in education in developing countries:

- Production of “socio-emotional” skills at educational institutions, and the complementarity between school and family behavior
- Heterogeneity within the classroom, and the need for differentiated pedagogy
- Misalignment of incentives within the education systems, and the role of direct incentives to families and students



Idea I: Production of socio-emotional skills

We need a clear(er) framework for the formation of socio-emotional skills at schools

- It is important to differentiate and define different skills, and to have a dynamic model of how these skills develop
 - Separation between early skills (executive function) and skills formed later (cognitive and socio-emotional skills)
 - Separation of three periods:
 - -9 months to 5 years;
 - 6 yrs to 10 yrs
 - 11 yrs to 17 yrs
 - The first and last periods are moments of important changes in the brain
- The complementarity and substitutability between household and school behavior and actions are critical, and we need a better understanding of these relationships



Idea II: Heterogeneity of skills and differentiated pedagogy in the classroom

A challenging problem for teachers: receiving a highly heterogeneous classroom

- The majority of the new enrollment in developing countries comes from low-income and vulnerable households
- Teachers have a strong incentive to concentrate effort either on the students that are less costly to teach or on the median of the distribution, not on the new entering population
- Teachers are not capable of doing differentiated pedagogy
 - They are not trained in it
 - The typical organization of the school don't allow for it



Idea III: Incentives' structure and the quality of education

Some researchers point out that lack of proper incentives are at the root of the quality problem. Other researchers argue that the problem lies in the lack of proper tools for teachers

- Incentives –properly designed– may not change students achievement without the right pedagogy or content
- The structuring of teacher incentive programs in developing countries suffers from the lack of the right kind of data
- The bulk of policy interventions try to change the behavior of the current “stock” of teachers, when the most important investment is in the “flow” of future teachers
- A promising approach is to change the behavior of the family, and induce strong complementarity with schools



SOCIO-EMOTIONAL SKILLS



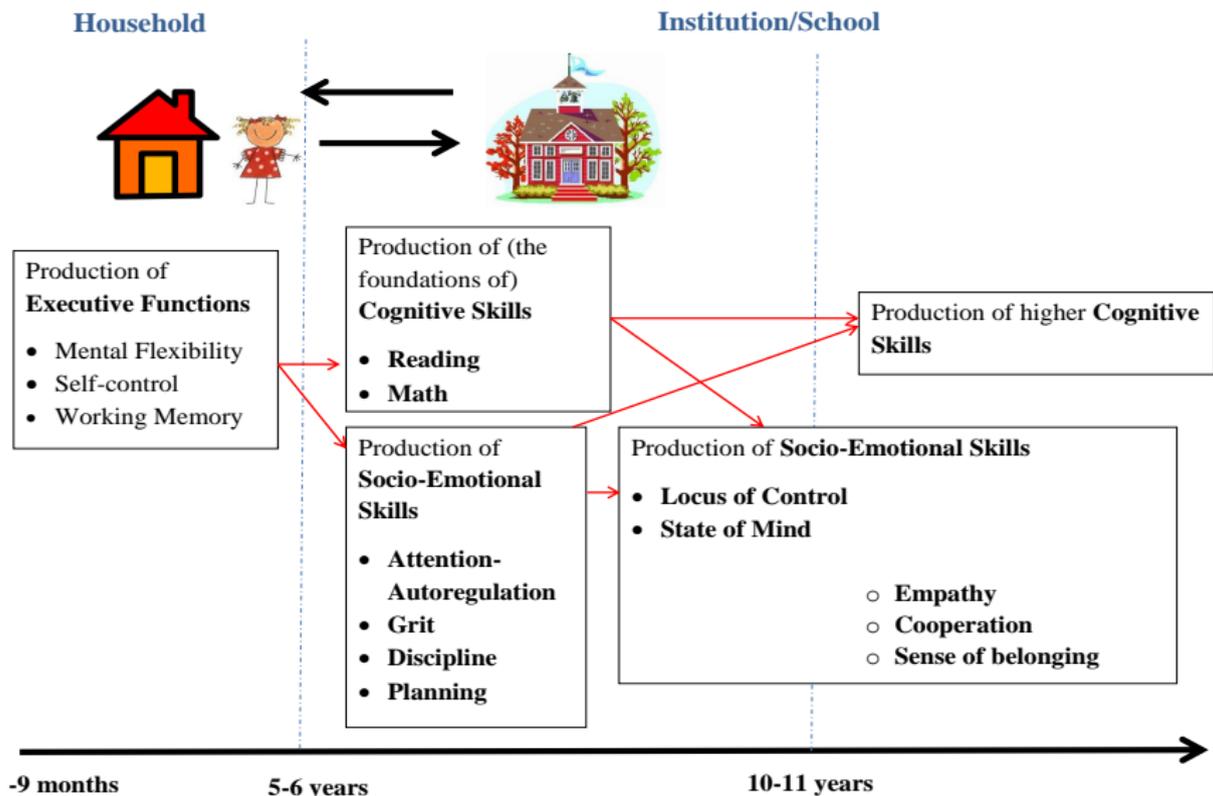
Production of socio-emotional skills

Schools produce a large range of skills: cognitive and socio-emotional skills

- Research has shown that socio-emotional skills can explain an important amount of labor outcomes (Heckman)
- Most people can acquire these skills
- A child's environment determines both cognitive and socio-emotional skills
 - Differences early on results in striking differences in skills
- We lack a unifying framework organizing and defining these skills



Some elements for a framework



Institutions and family, production and interactions

- Any intervention that shapes executive function early on will have large returns in cognitive and socio-emotional skills
 - A source of variation in executive function and other skills is home environment
 - Environment varies strongly with income and situation of the household
 - Interventions at the family level or availability of high quality child centers are critical
- It is not clear *how* schools produce these skills
 - Do school climate and culture foster socio-emotional skills?
 - Research shows that teachers promoting cognitive skills are not necessarily the teachers promoting socio-emotional skills (Jackson 2012; Blazar y Kraft, 2015)
 - Even if institutions are not producing cognitive skills, they may produce relevant socio-emotional skills (Deming, 2009; Barrera-Osorio et al, 2016).
- Areas for exploration: the interaction between household and institutions in the production of socio-emotional skills



HETEROGENEITY



The problem of heterogeneity

- Classrooms vary in students heterogeneity, both in cognitive and socio-emotional skills
- It is more costly, in terms of actions and time, to reach students with low levels of skills
- The curricula and materials at the national level are better suited for students with higher skills endowment
- There is a correlation between these skills and home environment
- Several education systems leave behind students from low-income and vulnerable households (Banerjee and Duflo, 2012)



Indirect evidence

- Provision of textbooks induced teachers to concentrate effort on the high-performing students (Glewwe et al., 2009)
- Explicit policies that target students by skill level: remedial education (Banerjee et al, 2007); computers that adapt to skills (Banerjee et al 2007); tracking (Duflo, et al 2007)
 - Potential mechanism for the (positive) impact: induce adaptation of teacher's pedagogy to each level of students' skills
 - These policies create an exogenous variation in the heterogeneity of the classroom, with the hope of trigger an adaptation of the teacher
- Another approach: to change directly teachers' tools (pedagogy and content) to induce differentiated pedagogy



The macro perspective of the problem: the increase in enrollment

Enrollment has been increasing in developing countries

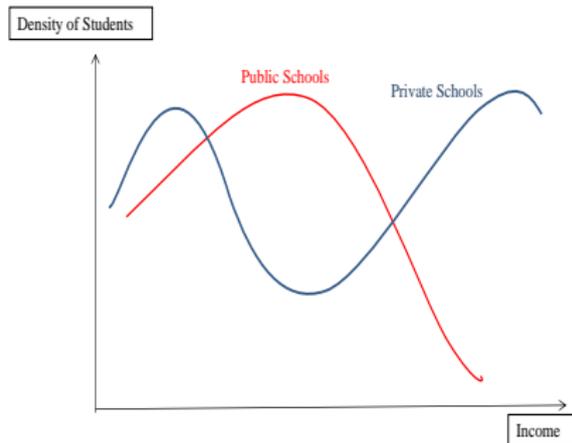
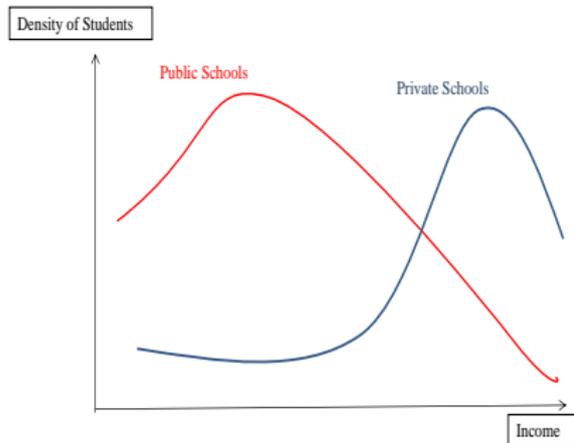
- Several policies have increase enrollment (for instance, Conditional Cash Transfers), specially from low-income and vulnerable populations (“new enrollment”)
- Several authors have hypothesizes that this, in part, explains the low performance in achievement in developing countries
- The hypothesis of heterogeneity is different: the problem is not low-performing individuals entering the system; the problem is the increase in classroom’s heterogeneity, and teachers’ inability to adapt pedagogy



A macro perspective: two different systems

In this discussion, it is important to introduce the private sector

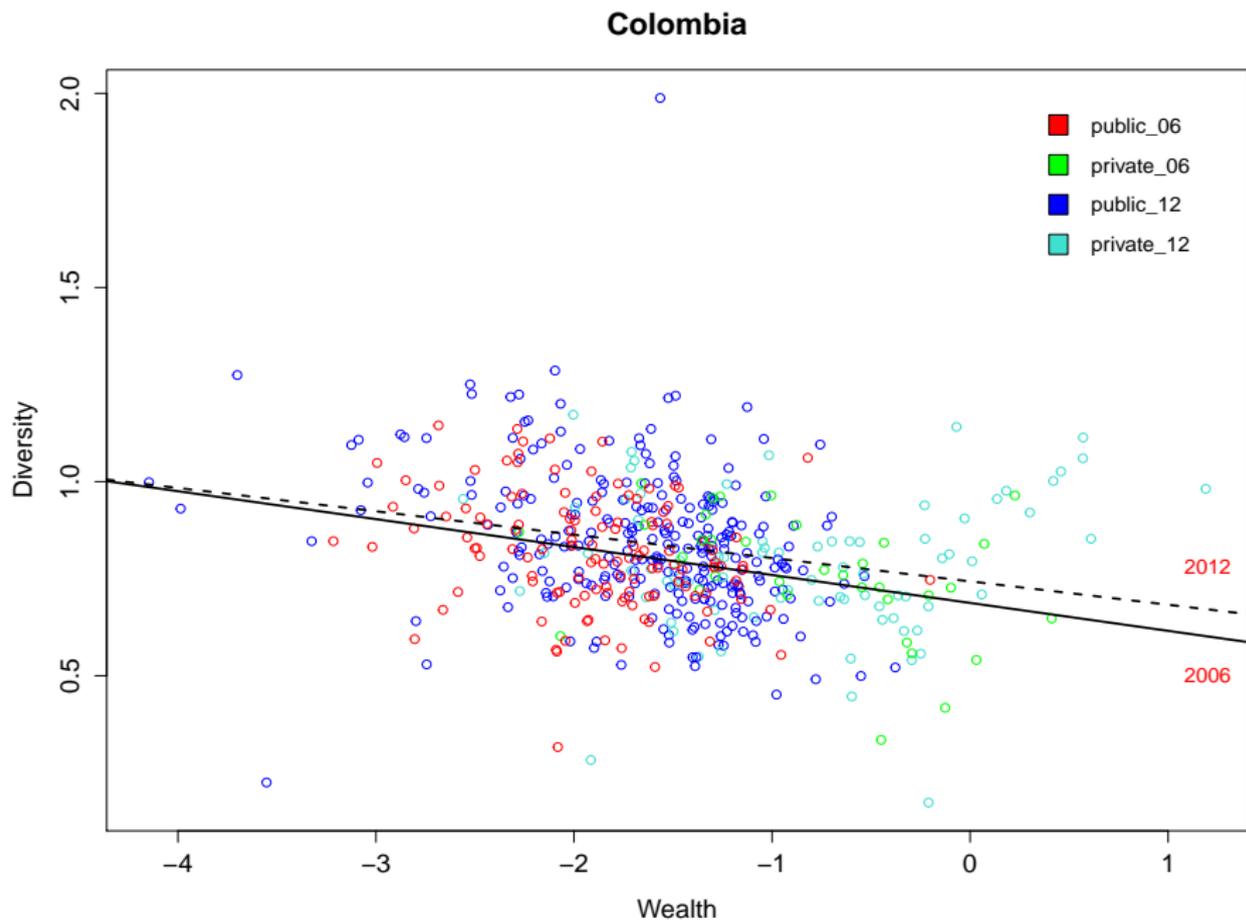
- Figure at the left: segregation of the systems between public and private schools
- Figure at the right: system in which private schools are serving individuals from both low- and high-income households

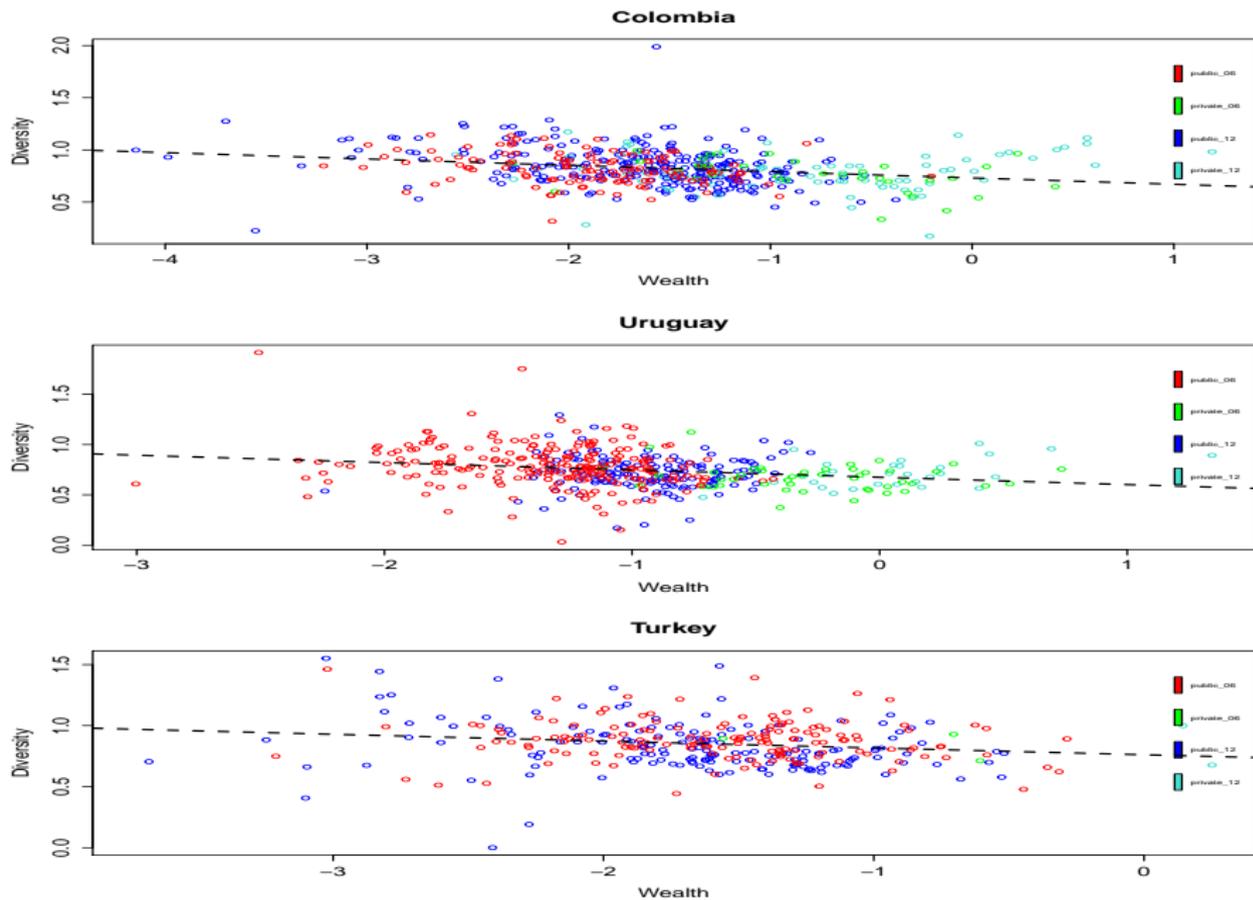


These two scenarios pose micro challenges

- Teachers in developing countries receive increasingly heterogeneous classes, even in the case of perfect segregation
- Public schools receive increasingly students from the left of the income distribution, with lower endowment of socio-emotional skills and stimulation at home
- With heterogeneity, teachers have several options:
 - Teach to the mean
 - Teach to the high performing students (less costly) [“Negative differentiable instruction”]
 - Teach to the low performing students (more costly)
 - Differentiated pedagogy: target each individual level and capacity of learning (highly costly)







Research agenda

- Investigate level of heterogeneity in classrooms, for both public and private schools
- Investigate differential skills (cognitive and socio-emotional) at school entry (kindergarten / grade 1)
- Research in changes in pedagogy of teachers when they face a more homogeneous –or heterogeneous– population
 - Classroom observation with high quality instruments (such as CLASS, Pianta, U. of Virginia)
- Research flexible educational models that incorporate explicit mechanism to tackle heterogeneity
 - In the model Escuela Nueva (Colombia), students in each classroom work in groups and at their own pace
 - Teachers (with clear guidance books and lecture scripts) are facilitators
 - Early evaluations show positive results; I am evaluating a model in Vietnam with the World Bank



INCENTIVES



The problem of incentives

- One perspective: Systems are failing in the delivery of quality of education because of the misalignment between the incentive structure and the final objective of education of producing students' learning and socio-emotional skills
 - Example: teacher retention and promotion (and the attached payment) are based on seniority and not on students' results
- Another perspective: Systems don't deliver quality of education because the lack of proper pedagogy and content in teachers
 - Teacher training should provide both content and pedagogy
 - There is evidence in Latin America that this is not happening (Bruns and Luque, 2015)



Evidence from teacher incentive programs in Developing Countries

- Several pilot programs, run by researchers, test the idea of attaching payment of teachers to students' achievement and find that
 - Incentive actually change behavior and may induce better students' outcomes (Kenya: Glewwe et al 2010; India: Muralidharan et al 2011; China: Loyalka et al, 2016)
 - Incentives may change behavior in unintended ways (teaching to the test, Kenya; dishonest behavior, Mexico, Behrman et al, 2015)
- Response depends on the nature of the problem and the capacity to respond
 - If the problem is teacher absenteeism, then there is a large margin to respond
 - If the problem is content and pedagogy, then teachers can respond easily
- Another approach is to change the tools of teachers in order to change the benefit/cost of certain actions



From a proven concept to policy

- Above evidence comes from experiments in which researchers control key design issues;
- All of them use specially tailored tests, applied at a baseline (beginning of year) and follow-ups and they reward *changes* based on tests following each student
- A fundamental problem for policy is that the vast majority of assessments in developing countries are cohort and (specific) grade based
- In this context, teacher incentives attached to students achievement have very low power: cohort variation and dynamic variation diminish substantially any incentive
- For example, the government led program implemented in Pakistan, which uses changes in the subnational test for consecutive grade 5 cohorts, produced zero effects on test scores (Barrera-Osorio & Raju, 2016)



Stock of current teachers versus flow of new teachers

- It is difficult to implement programs aimed at current teachers (the *stock* of current teachers) and to elicit a suitable change in pedagogy
- However, the most important change for the future of education pertains the *flow* of new teachers
- For flow of new teachers, the relevant changes are
 - Type of individuals admitted to teacher training,
 - The training they are receiving (content and pedagogy),
 - Retention (once they enter the system)
 - Professional development



Demand intervention as educational policy

Given the difficulties to change in the short term the stock of current teachers, a promising venue to change education is via demand interventions

- Policies that bring students to schools: Conditional Cash Transfers and Information about returns and quality of schools
 - A mechanism by which Conditional Cash Transfers may have impact on student achievement is by increasing the mental space (or mental bandwidth) of students
- Demand interventions that change student achievement: Scholarships
 - Evidence from Kenya (Kremer et al, 2009) and Cambodia (Barrera-Osorio & Filmer, 2015)
 - The Cambodia experiment shows that type of targeting is highly relevant
- Early child intervention at child centers (or family interventions) that can change executive function and socio-emotional skills of students, before they enter the system



Demand intervention as educational policy (cont)

- All in all, demand interventions can be effective in bringing the students to school, inducing higher achievement (and effort), and changing socio-emotional skills
- The critical area is the interaction between the households and institutions
 - Some research has shown that, when policies provide inputs to schools, households may substitute away educational investments, rendering the policy neutral
 - Can families be induced to interact more with schools, and elicit a positive reaction of the institution to changes in family behavior?



CONCLUSION



Conclusion

- It is critical to study the microeconomics of education: to look inside the “black box” means to investigate inside the classroom, and understand the strategies that teachers undertake to differentiated pedagogy
- Developing countries are bringing new students to the system, and the heterogeneity in skills within classrooms is increasing
- A major challenge in developing countries is to change teachers and the system so that they can actually adapt pedagogy to different skills
- Potentially policies that change behavior of the household can be effective if they leverage their complementarity with the education system

