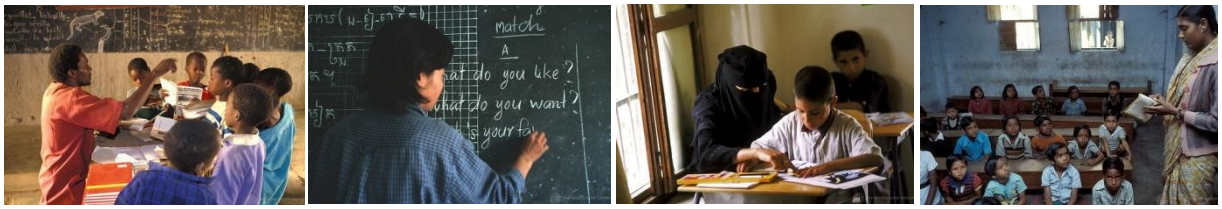
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Systems Approach
for Better
Education Results

What matters most in teacher policies?

A framework for building a more effective teaching profession

(Updated July 11, 2012)

The World Bank
Human Development Network

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ABBREVIATIONS

DECRG	Development Economics Research Group
EPE	Editorial Projects in Education (Research Center)
HDNED	Education Unit, Human Development Department, The World Bank
INCA	International Review of Curriculum and Assessment Frameworks
ISCED	International Standard Classification of Education
MNSHD	Human Development Department, Middle East and North Africa Region, The World Bank
MNSHE	Education Unit, Human Development Department, Middle East and North Africa Region, The World Bank
NASDTEC	National Association of State Directors of Teacher Education and Certification, United States
NBPTS	National Board for Professional Teacher Standards, United States
NCLB	No Child Left Behind (U.S. education initiative)
NFER	National Foundation for Educational Research, UK
PRMPS	Public Sector Team, Poverty Reduction and Management Department, The World Bank
QCA	Qualifications and Curriculum Authority, UK
OECD	Organization for Economic Cooperation and Development
PISA	Program for International Student Achievement
SABER	Systems Approach for Better Education Results
SIMCE	Sistema de Medición de la Calidad de la Educación
TALIS	Teaching and Learning International Survey, OECD
TDA	Training and Development Agency for Schools, UK
UIS	UNESCO Institute for Statistics
UNESCO	United Nations Educational, Scientific and Cultural Organization

INTRODUCTION

Over the past decade, both developed and developing countries have become growingly concerned with how to raise the effectiveness of their teachers. This interest seems to have been sparked by a series of factors:

- *Student achievement has been found to correlate with economic and social progress*. A few influential studies have found that countries with higher student achievement in international exams have higher rates of economic growth (Hanushek & Woessmann 2007, 2009; Pritchett & Viarengo 2009). Others have found that countries with better educated students have more consolidated democracies (Barro 1999; Campante & Glaeser 2009; Glaeser, Ponzetto & Shleifer 2007). This research has convinced many of the importance of paying attention to students' learning outcomes and the quality of education, in addition to the more traditional approach based on education access and educational attainment.

- *International assessments have provided increasingly comprehensive information on student learning and how it varies across education systems.* A considerable number of countries at various income levels have participated in international student achievement tests. These studies have allowed education systems across the world to compare the achievement of their students with that of their peers in other systems, and in many cases, to realize that their students are under-performing by world standards.

- *Recent studies have shown teacher effectiveness is a key predictor of student learning*. A number of studies have found that teacher effectiveness is the most important school-based predictor of student learning and that several consecutive years of outstanding teaching can offset the learning deficits of disadvantaged students (Hanushek & Rivkin 2010; Hanushek, Kain, O'Brien & Rivkin 2005; Rockoff 2004; Sanders & Rivers 1996). This growing empirical literature has led many to focus on the potential of teacher policies to improve student learning.

The growing focus on the need to strengthen the teaching profession to ensure better education results has encountered the problem that evidence on the policies that raise teaching quality is scattered, incomplete and, in some cases, presents contradictory findings. First, insufficient evidence exists on the impacts of many teacher policies. For example, while many studies have sought to identify the ideal requirements to enter the teaching profession, research has found that the observable characteristics of teaching candidates (e.g., years of education, experience or certification status) account for a very small share of variations in their effectiveness on the job (Godhaber 2002; Kane, Rockoff, & Staiger 2006; Rivkin, Hanushek & Kain 2005). Second, the impact of many reforms depends on specific features of their design. For example, while many evaluations of merit pay programs in low- and middle-income countries have found that they can produce positive gains in student achievement (Duflo, Hanna & Ryan 2008; Glewwe, Ilias & Kremer 2010; Lavy 2002, 2009; Muralidharan & Sundararaman 2009; Rau & Contreras 2009), others have cautioned that the method used to evaluate teacher performance, the level at which incentives are awarded (i.e., individual or group), the size of the incentives and how well they are tied to the behaviors they seek to elicit highly influence the impact of these merit pay programs (Ahn & Vigdor 2010; Bacolod, DiNardo & Jacobson 2009; Ballou 2001; Eberts 2002; Murnane & Cohen 1986; Podgursky, & Springer 2008). Third, the same policies can have different results in different contexts. While rigorous impact evaluations may provide insights into the effects of a specific teacher policy in a given context, the same policy may have different effects in another context, as it interacts with a different set of contextual factors and other teacher policies in place in an education system. For example, while alternative pathways into teaching such as Teach for America have been found to have limited impact on student achievement in the United States (Boyd, Grossman, Lankford, Loeb & Wyckoff 2006; Boyd, Hammerness, Lankford, Loeb, Ronfeldt & Wyckoff 2009; Darling-Hammond, Holtzman, Gatlin,

& Vazquez Hellig 2005; Decker, Mayer & Glazerman 2004; Hannaway & Taylor 2007), a recent study of a similar initiative in Latin America raises the issue of whether alternative pathways into teaching could have an impact in raising student learning depending on their design features and interaction with the context (Alfonso, Santiago & Bassi 2010). Finally, teacher policies, like other education policies, interact in expected and unexpected ways. For example, a recent study in Kenya found that, while lowering student-teacher ratios did not improve student learning, combining class size reductions with ability tracking led to significant improvements in student learning (Duflo, Dupas & Kremer 2007).

This paper provides a framework for analyzing teacher policies in education systems around the world in order to support informed education policy decisions. It provides a lens through which governments, World Bank staff, and other interested parties can focus the attention on what the relevant dimensions regarding teacher policies are, what teacher policies seem to matter most to improve student learning, and how to think about prioritization among competing policy options for teacher policy reform.

The framework has been developed by SABER-Teachers –a work program within the Human Development Network's Education Sector of the World Bank– following a thorough review of the evidence base on teacher policies, as well as an analysis of the policies put in place by high-performing education systems. SABER-Teachers is part of the SABER initiative (Systems Approach for Better Education Results) which aims to help the World Bank and its development partners identify actionable priorities for strengthening education systems and equipping children and youth with knowledge and skills for life. The SABER-Teachers initiative aims to collect, analyze, synthesize, and disseminate comprehensive information on teacher policies across countries around the world (see Annex 1). The ultimate objective is to develop a knowledge bank through which interested stakeholders can access information regarding what education systems around the world do in terms of teacher policies, as well as assessments of the extent to which these systems put in place teacher policies that are known, based on the available evidence, to be related to improved student achievement.

The focus of the paper is the description of the conceptual framework to analyze and assess teacher policies, as well as a review of the evidence base that supports it. As such, the paper does not go into details regarding the processes and products of the SABER-Teachers program. Readers interested in knowing more about the methodology followed by the SABER-Teachers program to collect and analyze data on teacher policies around the world should consult the companion Background Papers, as well as the website of the initiative (see Annex 1).

The document is organized as follows. Section 1 provides an overview of the general approach, main components and objectives of the framework, as well as an explanation of the evidence base that supported its development. Section 2 focuses on the first component of the framework, and describes the categories that are relevant to produce a comprehensive descriptive account of the teacher policies that are in place in a given education system. Section 3, in turn, focuses on policy guidance. It reviews those policies that, based on the available evidence to date, are known to matter most to improve student outcomes. It describes in detail the evidence supporting each of these policies, as well as the ways in which high performing education systems combine them to ensure outstanding student outcomes. The document concludes presenting an account of how the framework is expected to evolve as new evidence on teacher policies becomes available.

1. A FRAMEWORK FOR ANALYZING TEACHER POLICIES

How can we analyze teacher policies?

Given the robust evidence of the strong impact of teachers on student learning and the scattered and incomplete nature of the evidence on the impact of teacher policies on the quality of the teaching and learning process, the SABER-Teachers framework aims to provide a comprehensive, evidence-based approach for understanding and assessing teacher policies. It provides insights into what the relevant dimensions regarding teacher policies are, what teacher policies seem to matter most to improve student learning, and how to prioritize among different options for teacher policy reform. **The framework has two main components serving two complementary purposes**:

1. **Policy mapping**: *The SABER-Teachers framework identifies a number of teacher policy dimensions that are central to producing a comprehensive descriptive account of the policies education systems put in place to manage their teacher force*. Governments regularly set policies to regulate issues such as the requirements for entering and remaining in the teaching profession, teacher initial education and teacher professional development, recruitment and employment, compensation, retirement rules, monitoring and evaluation of teaching quality, among others. The content of these regulations varies greatly across education systems, in such a way that teacher policies may look very different from one education system to another. For example, while education systems such as Finland or Ontario, Canada, require that all entering teachers have at least a university degree, in other systems having a secondary school diploma may be enough to become a teacher. This component of the framework aims to provide a set of categories through which to map the policies a given education system puts in place to manage its teaching force. It provides a lens to develop a knowledge base that answers the question, from a descriptive point of view: *what do education systems do in terms of teacher policies?*

2. **Policy guidance:** *The SABER-Teachers framework highlights those policies that matter most for building an effective teacher policy system based on the available research evidence, and provides an approach to assess whether those policies are in place in a given education system*. The research evidence to date has identified several policies that are associated with improved student outcomes. However, there are still many other teacher policies on which there is no conclusive information vis-à-vis their potential to foster better student achievement. For example, while we know that having at least a minimum level of supported classroom experience is important to ensure that novice teachers can perform well in their job, there is less conclusive evidence on the relationship between unionization and education quality. From the pool of all possible teacher policy dimensions, this component of the framework identifies those policies that, based on the available research evidence to date, are most closely aligned with improved student performance, and provides a method for assessing the extent to which a given education system has in place teacher policies that may lead to improved education outcomes. It does so by identifying 8 Teacher Policy Goals, and their corresponding policy levers, that is, specific actions governments can take to achieve those goals.

   In addition, this component of the framework provides guidance on how to prioritize among competing policy options. Assessing the extent to which an education system has in place teacher policies that are known, based on the evidence to date, to be associated with good student outcomes is a first step in

defining a route for improvement. However, such diagnostics do not offer a sense of which reforms should be prioritized. In fact, high-performing education systems achieve good education results using different combinations of teacher policies. Some systems may focus the bulk of their policy efforts on building the capacity of their teacher force through strong teacher initial education and teacher professional development programs, and give teachers ample autonomy to make decisions regarding instruction. Other education systems, instead, place a greater policy emphasis on managing in detail various aspects of teachers' work, focusing on evaluating teachers and providing incentives targeted to elicit specific behaviors. This component of the framework identifies and describes ways in which high-performing education systems have dealt with the issue of prioritization. Thus, the policy guidance component of the framework provides a lens to answer two related questions: 1. *To what extent are education systems doing what we know matters most in teacher policy?* and 2. *How can we prioritize among different policy options for teacher policy reform?*

Together, the two components of the framework provide a comprehensive approach to map the teacher policies put in place by an education system, assess their relative strengths and weaknesses, and prioritize policy options that may help the system on the road to improvement. It is important to stress that both components of the framework are necessary to achieve this aim. While the evidence to date enables to identify a set of teacher policies that are related to student achievement (the 8 Teacher Policy Goals and their levers), these policies interact with other policies whose impact on student achievement has not yet been established, but are part nevertheless of the teacher policies sub-system of an education system, and need to be taken into account when deciding among policy options. For example, there is a large body of evidence that shows that matching teachers' skills with students' needs is crucial to ensure learning conditions for all children that will lead to improved student outcomes. This causal link led to the inclusion of this issue in the 8 Teacher Policy Goals. Comparatively, the evidence on the relationship between the strength and characteristics of teacher organizations and student learning is less conclusive, and this is why policies related to teacher organizations have not been included in the 8 Teacher Policy Goals. However, collecting information on teacher organizations (the Policy Mapping component of the framework) is still necessary for several reasons. First, as educational research continues to develop, we may in the future be able to causally analyze the relationship between teacher organizations and student outcomes, and thus an area that was formerly not considered within the 8 Teacher policy Goals may be included as a result of new research developments. Second, policies on which there is weak or no evidence on their relationship with student achievement are still part of the teacher policy system of a given country, and do interact with other policies that have been found to impact student achievement. Hence, it is important to document these policies so as to inform policy options. In our example, while there is no evidence linking teacher organizations and student achievement, there is evidence that suggests that the strength of teacher organizations may affect the capacity of an education system to make sure that the best teachers are in those schools that need them the most but are less desirable to work in. An education system deciding to improve teacher effectiveness by improving the ways in which it makes sure that teachers' skills match students' needs will be well advised to consider policies, such as those related to teacher organizations, that interact with its desire policy focus, albeit their effect on student outcomes has not yet been established. Finally, policy mapping is also an end in itself. Collecting detailed information on the ways in which education systems organize their teacher policies serves the purpose of expanding a much needed knowledge base that can promote best-practice sharing across countries.

A focus on policy design

The main focus of the SABER-Teachers framework is on policy design, rather than on policy implementation. While focusing on policy frameworks is important, such focus cannot capture everything that happens in an education system. Policies "on the ground", that is, policies as they are actually implemented, may differ quite substantially from policies as they were originally designed, and in fact they often do so. Policies may be implemented in ways different to the envisioned ones as a result of the political economy of the reform process, whereby powerful groups may succeed in shifting the focus of the policy in ways that are more advantageous to their interest. Or policies as actually implemented may differ from policies "on paper" as a result of lack of capacity (financial or human resources, but also expertise) of the organizations in charge of implementing them. Furthermore, policy implementation may depart from policy design due to the interaction with specific contextual factors. For example, while an education system may intend to attract a pool of talented applicants to become teachers through a specific set of policies, the attractiveness of the teaching profession does not depend solely on those policies, but also on the general conditions in the labor market that make teaching more or less desirable a profession relative to other professions. Finally, there are many processes that shape education outcomes that develop in a bottom-up manner, that is, without being the direct results of specific policies.

Despite these caveats, mapping and analyzing the design of education policies is important for a number of reasons:

First, policy frameworks provide a sense of what is possible in an education system. Policies clarify the expectations of a system (the goals it aims to) as well as its theory of action (the specific actions and associated conditions that are deemed necessary to achieve a determined set of goals). Any activity that takes place within the system does so within the boundaries set by the policy framework, which may promote certain types of activities and prevent others. Thus, understanding the limits that policies may pose to the pool of possible options to improve educational practices is a first step towards systemic improvement.

Second, the analysis of policy frameworks allows for a better understanding of where to focus improvement efforts. The analysis of the internal consistency of a specific policy framework allows assessing the likelihood that it will achieve the expected outcomes, and help direct policy interventions where they are most necessary. For example, an education system may decide that the most effective way to improve learning and teaching is to have a set of performance-based incentives for teachers. However, for such a policy to function properly, other policies need to be present, such as having mechanisms to assess teacher performance and student learning, and a salary scale that makes performance-based incentives relevant. Assessing the internal consistency of the theory of action of a system may thus help direct policy efforts towards those areas where the system needs greater consistency in order to improve the likelihood of achieving its goals.

Finally, the analysis of policy frameworks may support a more thorough understanding of implementation gaps. In order to understand why a certain policy is not producing the expected results, it is important to be able to assess whether this is due to a fault in the implementation process, to a mismatch between a policy and its context, or to a lack of internal consistency within the policy. While the analysis of policy frameworks does not allow carefully assessing all these options, it does provide a solid starting point for assessing the latter.

Certainly, the analysis and assessment of policy frameworks needs to be complemented with information that describes the actual configuration of teacher policies on the ground. For this reason, it is expected that as more systematic data on policy implementation becomes available, it will be possible to better assess the relationships between policy design and policy in practice (see Section 4 below).

Evidence base supporting the framework

The SABER-Teachers framework was developed in an iterative process by the SABER-Teachers team in consultation with experts on teacher policy, representatives from various international organizations, government officials of multiple countries, and World Bank colleagues over a period of three years that began in February 2009.

Policy mapping: To develop the underlying conceptual framework for the initiative, the SABER-Teachers team first focused on the policy mapping component of the framework. The team reviewed existing efforts that characterize and compare teacher policies in different parts of the world. This review looked into the objectives of each of these initiatives, the teacher-related issues and topics they covered, and their methodology and data collection procedures (see Section 2 and Annex 2). This review served the purpose of identifying teacher policy dimensions on which to collect data in each education system to create a comprehensive review of the teacher policies that any given education system puts in place at a given moment in time. This comprehensive set of teacher policy dimensions for data collection served to inform the development of questionnaires and a methodology to collect information across education systems. To date, SABER-Teachers has already collected information or is currently doing so in 65 education systems in 44 countries.

Policy guidance: In parallel to the identification of teacher policy dimensions for policy mapping, the SABER-Teachers framework draws attention to those policies that are known to matter most for improving student learning based on the available research evidence to date. This component of the framework was developed using evidence from various sources (see Section 3 and Annex 3):

- **Causal analyses**. First, the team conducted a thorough literature review on the causal effect of teacher policies on student achievement. This review of the evidence base on teacher policies prioritized those studies whose methodology allows them to distinguish the effects of interventions from other factors that may confound those effects, rather than merely identifying associations between policies and outcomes. That is, the studies reviewed allow for making inferences about the fact that it is the specific intervention under study, and not other factors, what causes the improvement in student outcomes. Importantly, the review was focused on studies assessing the impact of teacher policies on student learning, as measured by standardized tests. It goes without saying that student learning as measured by standardized tests is not the only outcome of a well-functioning education system. In fact, research has documented the impact that education has on key outcomes such as citizenship or crime (see, for example, Deming 2011). Nevertheless, the SABER-Teachers focus on learning was motivated by the increasing interest among governments of both developed and developing countries in education policies that raise student achievement and by an emerging body of evidence that links learning to other desirable outcomes, such as higher wages and economic growth (Hanushek & Woessmann 2007).

- **Correlational analyses and case studies.** While being able to distinguish the causal effect of specific policies is crucial to identify those policies that have proven to work to improve student outcomes in specific settings, it is also important to think broadly about the nature of the evidence that is relevant for system-wide policies. The findings derived from impact evaluations tend to be circumscribed to the specific circumstances under which the program implementation takes place. Take for example a performance-based compensation scheme that is implemented in a representative randomly-selected sample of schools. The results from this impact evaluation can be safely extrapolated to other schools or

even similar contexts, but only to a limited extent. While they may provide causal evidence on what happens when such a program is implemented in a sub-set of schools, the results cannot be directly extrapolated to a system-wide conclusion, that is, they say little regarding what would happen if the same performance-based scheme were to be applied systemically to *all* schools in a country and there were no schools left without it, which is in fact what most education systems do when they implement system-wide policies. Causal analyses are much harder to perform in the case of system-wide policies. For this reason, the SABER-Teachers team also reviewed, in addition to the rigorous causal analyses mentioned earlier, other studies that provide information on the way high-performing education systems organize their teacher policies. Although these studies are weaker in terms of making causal inferences about what works, they complement causal analyses in that they provide information on how successful systems deal with various policy options regarding teacher policy, and provide the system-wide perspective that is lacking in the case of impact evaluations. In particular, this type of studies provides valuable information on the ways in which high-performing education systems combine various teacher policies to achieve good education results.

- **International teacher policy data.** The third source of evidence used in the development of the SABER-Teachers framework came, initially, from teacher policy data available from OECD, Eurydice, and UNESCO. More recently, data collected by the SABER-Teachers project has been valuable to inform the development of our analytical framework. As mentioned earlier, SABER-Teachers has collected detailed information on teacher policies across a large number of systems. Because some of these systems have high performance in international assessments of student achievement, data from these systems has been employed to identify patterns in teacher policies across top-performing systems.

Thus, the SABER-Teachers framework aims to build on the most up-to-date empirical evidence on what policies matter most for improving teacher effectiveness and education outcomes. At the same time, the framework is designed to evolve over time, as research on teacher effectiveness continues to become both more prevalent and more rigorous, and as SABER-Teachers produces a global comparative database on teachers policies across countries, which will also help to improve our collective understanding of teacher policies and their impact on student outcomes.

2. POLICY MAPPING: WHAT ARE THE MAIN DIMENSIONS OF TEACHER POLICIES?

Education systems across the world vary greatly in the content of the regulations they put in place to organize issues such as who is allowed to teach and what qualifications they are expected to have, under what conditions they will be teaching, how their work will be monitored, rewarded, and supported, among many others. Understanding the ways in which each education system regulates these issues is crucial to inform policy options. Thus, developing a comprehensive description of the policies an education system puts in place to manage its teaching force is a necessary first step to assess the strength of these policies and their potential to improve education quality in a given system.

This component of the SABER-Teachers framework aims to provide a set of categories through which to map the policies a given education system puts in place to regulate who and how will be teaching its students. It aims to develop a knowledge base that answers the question, from a descriptive point of view: *what do education systems do in terms of teacher policies?* To develop this set of categories, the SABER-Teachers team reviewed previous efforts that characterize and compare teacher policies in different parts of the world.[1] This review focused mainly on how these initiatives looked into the issue of who and how are expected to teach in most education systems. The purpose was to build on these previous initiatives to create a comprehensive set of categories that would be useful to describe in detail all relevant aspects related to teacher policies in an education system (see annex 2 for a description of previous initiatives). The review of these initiatives enabled the team to identify key dimensions that are central to producing a comprehensive description of the ways in which education systems regulate their teaching force. These dimensions are: 1. Requirements for entering and remaining in the teaching profession, 2. Initial teacher preparation, 3. Recruitment and employment, 4. Teacher workloads and autonomy, 5. Professional development, 6. Compensation: salary and non-salary benefits, 7. Retirement rules and benefits, 8. Monitoring and evaluation of teacher quality, 9. Teacher representation and voice, and 10. School leadership. In addition to these dimensions, information on the general characteristics of a country's education system (number of schools and students, demographic characteristics of the teaching force, among others) is also necessary to contextualize and facilitate comparison of teacher policies across countries.

Requirements for entering and remaining in the teaching profession

All countries have some set of statutory requirements to enter the teaching profession; some also have requirements to remain in it. Several factors may affect what is required of teachers, including concerns about the quality of teaching; political influence of teacher organizations; fiscal policies; interest in building the social status of the profession; and others. In general, one can expect that the stricter the requirements, the higher the minimum level of quality, but also the smaller the size of the teaching force. Analyzing the requirements to enter and remain in the teaching profession provides useful information for understanding the quality of teaching and the existence of teacher shortages or excesses in a given country. Documenting these requirements requires addressing the following issues:

Who regulates the In most countries, governments have historically regulated the quality of teaching by

[1] The review included the OECD Teaching and Learning International Survey (TALIS); Eurydice's four-volume, multiyear publication comparing teacher policies across Europe, published between 2002 and 2004; the International Review of Curriculum and Assessment Frameworks (INCA) database for European countries; Education Week's *Quality Counts 2008*, which has a module on teacher policies in the United States; and a paper by Susanna Loeb and Luke Miller (2006) that documents and compares the teacher policies across all states in the United States.

requirements for entering and remaining in the teaching profession?

determining statutory standards or requirements that must be met by any individual aspiring to become a public school teacher. There is a trade-off involved in how these requirements are determined. Nationally determined requirements may lead to more homogeneity in the quality of teaching across geographic regions, easier transfer or mobility of teachers across different jurisdictions, and smoother regulation of the supply of teachers. Conversely, requirements that are determined at more decentralized levels, such as subnational or local governments, are more likely to reflect local labor market conditions, the local needs for specific types of qualifications, and tacit agreement about what constitutes quality teaching in a particular jurisdiction. Moreover, in some developed countries, governments have recently delegated the responsibility to set statutory requirements to a non-governmental body that is representative of individuals who belong to the teaching profession. These self-regulatory bodies also exist for the practice of medicine and law in several countries.

What are the requirements for becoming a public school teacher?

The type and number of requirements to become a public school teacher help explain the quality of the teaching force and the existence of teacher shortages or an excess supply of teachers. Some countries only have educational requirements, while others also have requirements regarding pre-service practical experience in the classroom, emotional and social competencies, or motivation to become a teacher. Among countries with explicit educational requirements, there is significant variation: some require teacher entrants to have completed only secondary education, others require a four-year tertiary education degree, and yet others require a post-graduate degree. The type and number of requirements also give a sense of the extent to which the quality of teaching is monitored relatively more at the entry point or more over the course of teachers' careers.

Are there requirements that must be fulfilled on a continuing basis to remain in the teaching profession?

To understand the composition and quality of the teaching force, it is important to know not only the requirements for entering the profession, but also the requirements (if any) for remaining in the profession. The latter may vary widely—from none at all, to participation in professional development activities, to satisfactory performance in an external evaluation of teaching performance, to name just a few examples. Existing requirements may affect teachers' motivation to remain in the profession, the profile of those who do remain, and perhaps also the skills and knowledge available to them.

Initial teacher preparation

The formal education and practical training that individuals must complete to become public school teachers affect the skills and knowledge that they bring to the classroom. In addition, formal education and practical training policies may affect the social status of the profession and the motivation and decision to become a teacher in the first place. Documenting these policies requires addressing the following issues:

Who regulates initial teacher education programs?

Regulations may be enacted by national, subnational, or local government authorities. On one hand, these regulations can contribute to assuring the quality of teacher education programs, promoting consistency between them, and aligning teacher preparation to the changing needs of a society and its economy. On the other hand, regulations may become outdated and difficult to reform, be too complicated to monitor and enforce, or hinder the

provision of teacher education programs in the first place. Public regulation of initial teacher education programs varies greatly from one country to another, with some states playing a prominent role, and others playing a limited one.

What are the education routes available to those who wish to become teachers?

The way in which teacher education programs are structured—in particular, the point in time when an individual needs to make the decision to become a teacher—reflects the degree of flexibility of the profession's entrance requirements. Possible models of initial teacher education may be classified into three categories. The *concurrent model* is one in which an individual makes the decision to become a teacher at the time of applying to an education program; subject knowledge and pedagogic skills are taught relatively simultaneously. The *consecutive model* is one in which an individual does not need to make the decision to become a teacher at the time of applying to an education program; subject knowledge is taught first, usually leading to a tertiary education degree in a subject and/or discipline, with the option to continue studying to acquire pedagogic skills and become a teacher. *Alternative models*, which include those that do not fit into the concurrent or consecutive models, seek to attract talented individuals (usually professionals in other disciplines) into teaching. These models typically entail a shorter period of teacher-specific education and training, during which individuals develop the qualifications required to become a teacher. In determining the education routes available to people who want to become teachers, policy makers face a trade-off between providing flexibility for the most talented individuals to enter the teaching profession, while at the same time ensuring minimal inequality in the qualifications held by teachers.

How selective are teacher education programs?

The selectivity of initial teacher education programs affects the decision to become a teacher. Governments can regulate the admission criteria of providers of initial teacher education, but in doing so they face a trade-off. Very selective criteria can contribute to recruiting the most talented individuals into teaching and raise the social status of the profession. However, less selective criteria help build a socioculturally diverse pool of teachers, prevent teacher shortages, and facilitate access to the teaching profession, which in many countries may serve as a mechanism for social mobility. It is important to understand how countries balance the need to attract a sufficient and diverse pool of applicants to teacher education programs against the need to attract the most talented individuals and ensure the quality of teaching.

What educational qualification does a teacher education program confer?

It is important to document the level of qualification obtained upon graduation from a teacher education program, as this may affect the status of the teaching profession and, in turn, its attractiveness. The level of qualification acquired is related to the length of the program and its relative emphasis on theoretical vis-à-vis practical and professional knowledge.

To what extent does initial teacher preparation include practical experience?

In some countries, individuals need to undertake a period of practical experience in the classroom in order to become fully qualified to teach. This practical experience may be part of teacher education programs, or it may be something that teachers must complete in addition to a teacher education degree. Where practical experience is part of teacher education programs, the institutions in charge of providing such education are likely to organize classroom placements for their students; thus facilitating their completion of all

requirements. Practical experience itself may indicate what a student can expect as a teacher and therefore affect his or her decision to enter the profession, as well as the motivation of beginning teachers.

Recruitment and employment

The profile and effectiveness of those who enter and remain in the teaching profession is affected by existing policies and processes designed to attract and recruit individuals into teaching. Recruitment and employment rules in the teaching profession provide incentives for teachers to promote the learning of all students and affect the allocation of teaching talent across students, schools, and school districts. The quality of teaching is also affected by dismissal policies—these affect an education system's ability to remove ineffective teachers from the classroom and the job stability (and therefore attractiveness) of the teaching profession. Moreover, recruitment, promotion, distribution, and dismissal policies affect not only the quality of teaching, but also the ability of an education system to prevent or manage teacher shortages in certain geographic areas or subjects. Documenting these policies requires an understanding of the following issues:

Who hires teachers and who dismisses them? Who decides on the distribution of teachers across public schools?

Formal authority to hire and dismiss teachers can lie with the central government, state government, local government, or directly with schools. This variation in who (or what institution or level of government) has formal authority to hire and dismiss teachers can affect the characteristics of those who decide to enter and remain in the teaching profession. Similarly, decisions related to where a teacher will work—teacher allocation—also have important effects on both the pool of teacher entrants and those who remain in the profession.

What incentives exist for teachers to work at hard-to-staff schools, teach critical shortage subjects, and take on leadership roles?

Attracting talented teachers to hard-to-staff schools—including, in some countries, schools in rural areas or crowded urban slums—is a challenge for most countries. In addition, shortages of teachers who can teach certain subjects, such as mathematics or science, exist in many countries. A key question is to what extent incentives exist to ease these shortages and to compensate teachers for taking on these difficult tasks, or for giving up better-paying opportunities. When incentives are inadequate, often the least effective teachers end up serving the neediest populations, thus increasing existing inequalities in educational opportunities.

What is the age profile of the teaching force?

Many countries have rigid barriers to entering the teaching profession and no mandatory retirement age, resulting in teaching forces that are much older than the median age of the general population. The age profile of the teaching force can therefore serve as a rough indicator of the mobility and flexibility of the teaching profession.

What is the employment status and job stability of teachers?

Education systems have various employment mechanisms for teachers, ranging from the civil service to temporary contracts. These different employment or contract types can have implications for a teacher's job security and ability to supplement his or her wages with other activities. Job stability and outside options can in turn impact the quality of teaching and the attractiveness of the teaching profession.

Teachers' workload and autonomy

A clear definition of an employee's tasks and responsibilities, compatibility between these and the amount of time that the employee is expected to work, consistency between required tasks and responsibilities and the employee's educational and professional background, and the extent to which the work environment constitutes a source of stress or support are all important determinants of job performance and motivation. Documenting the workload, duties, autonomy, and general conditions of the work environment of teachers can contribute to understanding their performance and motivation. To do so, it is important to address the following issues:

How much time are teachers expected to work?

In many countries, there is a generalized perception that teachers work fewer hours than do other professionals. This perception is frequently based on the fact that teachers' working time has been defined historically as only the amount of time spent in the classroom. This definition does not account for the amount of time spent at school but outside the classroom, the time dedicated to professional development, or the time used to plan lessons and grade assignments. In some countries, this misconception about teachers' working time may have decreased their social recognition. It is important to identify which countries have adjusted the contractual definition of teachers' working time to include the amount of time spent working outside the classroom. More broadly, it is important to understand how much time teachers are expected to work, since this is likely to affect their motivation, level of stress, and social recognition.

What tasks are teachers expected to carry out?

Teachers are usually not expected only to teach in classrooms. Typically, they hold other responsibilities, including supervision of students during breaks or after school, standing in for absent teachers, or providing support to beginning teachers. In some countries, they are also increasingly being required to assume responsibility for administrative or managerial tasks, as well as participate in school improvement activities. Motivation and performance may be affected by a mismatch between the tasks that teachers are expected to complete and the amount of time that they are expected to work; or between the type of tasks that they are assigned and the education and training that they have received. Understanding teacher motivation and performance thus requires understanding what tasks they are expected to carry out and whether they have the time and skills to do so.

How much autonomy do teachers have?

Awarding teachers a certain level of autonomy to carry out the tasks they are assigned is desirable for several reasons. Autonomy allows teachers to use their creativity, to innovate, to feel a sense of ownership for their work and thus be more motivated, and it enables teachers to adapt their teaching methods in order to better address the particular needs of each individual student. At the same time, autonomy needs to be accompanied by appropriate support (e.g., professional development) and resources that enable teachers to put their ideas into practice. Understanding how much autonomy is awarded to teachers, and relating this autonomy to the level of support and resources that they can access, may contribute to understanding teacher motivation and performance.

How do school conditions affect

Teacher workloads are not only determined by the stipulations made in their contracts and the autonomy and support that they receive, but also by the conditions of the school where they work. For instance, the amount of time required to grade assignments will

teacher workloads? depend on the pupil-teacher ratio, while the time needed to plan lessons will depend, among other things, on the availability of teaching materials. The basic infrastructure, hygiene, and sanitation conditions of a school can also affect teachers' perceived workloads by affecting the level of stress encountered at work. Looking at school conditions is therefore important in order to understand teachers' level of stress and their overall workloads.

Professional development

Professional development and on-the-job support for teachers are an essential component of teacher policies. These policies affect the skills and knowledge available to teachers, their motivation to remain in the teaching profession, and the profile of those who decide to stay. To document professional development policies, it is important to address the following issues:

Who provides and funds professional development? The organization of professional development activities may vary from one country to another. In particular, the provision and funding of professional development, as well as the way its contents are determined, may be more or less decentralized and more or less privatized. Decentralization and privatization of the provision of professional development may foster competition between the institutions that provide these activities, which may improve the quality of services available and the match between local needs and services offered. However, for quality assurance purposes, a decentralized system may be more difficult to monitor. Also, decentralized funding of professional development may leave teachers in the poorest regions at a disadvantage. Finally, when the contents of professional development are determined in a more decentralized manner, these contents may better address the specific needs of teachers, but doing so may hinder the central government's ability to take advantage of professional development activities to advance national education aims and policies.

What professional development rules and policies apply to public school teachers? Participation in professional development activities depends, among other things, on: (i) the conditions to access these activities and (ii) the incentives for doing so. Where participation is compulsory, teachers may be more focused on fulfilling requirements than taking advantage of opportunities for professional development. Alternatively, where participation is voluntary, teachers may sense that their professional development is not a priority for education policy makers. The provision of incentives for professional development (e.g., salary increases, promotions, reduction in teaching time) may foster participation, but for the wrong reasons. Where incentives are not available and participation is voluntary, participation may be too low, especially in countries where teachers work for many hours.

What forms of support are specifically available to beginning teachers? The learning curve during the first years of teaching is particularly steep. Having support to confront this learning curve in a gradual but steady manner is important to build new teachers' self-confidence, help them cope with the demands of the profession, and reduce drop-outs.

Compensation: Salary and non-salary benefits

Compensation, which includes both salary and non-salary benefits, is an important determinant of the attractiveness of the teaching profession, and it likely affects teacher motivation and performance. In some cases, compensation policies may also motivate teachers to improve their knowledge or skills, thus further contributing to improve their performance. To understand existing compensation policies in a given country, it is important to address the following issues:

Who determines teacher salaries?

The level at which teacher salaries are determined reveals the extent of the authority of different levels of government. Higher levels of government are usually better able to achieve more equitable distribution of resources; however, local levels of government, given sufficient capacity, are usually able to respond more quickly and effectively to local differences and local changes. If control over salaries is too far removed from a school, as is likely in a centralized structure, there is less room for tailoring salaries and incentives to fit a given context. At the same time, if the level is too close to individual teachers, as is sometimes seen in decentralized structures, it may be less equitable because it relies more on the diverse capacity of local actors. In addition, the level at which teacher salaries are determined can affect the level at which teacher unions are organized and their ability to affect the teacher workforce. Finally, the level is likely to affect the resources available for teacher salaries. Each different level is also likely to differ in its ability to raise revenues to increase teacher compensation.

What are the salary and non-salary rules that determine a teacher's level of compensation?

A high-quality education system is determined by its ability to recruit and retain high-quality teachers. A large body of literature suggests that teacher compensation is an important determinant of whether an individual chooses to go into teaching as a profession. This makes it important to have data on the criteria used to determine a teacher's level of compensation. Specifically, the rules determining a teacher's level of compensation help us understand the attractiveness of teaching as a career and the relative attractiveness of different types of teaching jobs; the potential tradeoffs of attracting new teachers and retaining experienced teachers; the effects of salary structures on teachers' continuous improvement of their knowledge, skills, and qualifications; the ease of mobility across teaching jobs; and the effectiveness of different teacher accountability mechanisms.

Are there sanctions for teacher absenteeism?

The literature suggests that teacher absenteeism can adversely affect student learning through multiple channels, including disruption of teaching activity and student absences. Several countries suffer from high levels of teacher absenteeism, which likely has a greater impact on low-income students. This makes it important to understand the sanctions against teacher absenteeism that exist in different countries, as it will identify the sanctions that are most effective in reducing it.

What is the fiscal burden of teacher compensation?

An estimate of the fiscal burden of teacher compensation is important for at least two reasons. First, education spending relative to total state resources tells us both the resources available for improving compensation and the current interest in using national resources to support education. Second, spending on salaries relative to other education expenses signals the extent of additional resources available for teachers and the current

interest in spending available funds on teachers versus other potential education expenditures.

Retirement rules and benefits

Retirement benefits may be an important determinant of the attractiveness of the teaching profession, and they are likely to affect the profile of those who decide to enter and remain in the profession. Retirement policies also affect the age profile of the teaching force because they affect the incentives for retiring earlier or later in a teacher's career. The following key issues need to be addressed in order to understand the retirement rules and benefits that apply to teachers:

Who determines teachers' retirement benefits?

The formal authority to define retirement benefits can influence the ability to retain teachers. In many countries, teachers' retirement benefits are established in a teacher statute or civil service law and thus tend to be difficult to change.

What is the scope and structure of retirement benefits?

Retirement benefits are likely to play an important role in retaining teachers. These benefits can represent a meaningful portion of teachers' total compensation. An attractive retirement package is one way of keeping highly qualified individuals in teaching, assuming that they have alternative opportunities. For instance, a retirement package with a defined policy for employer contribution is likely to make teaching more attractive as a profession than one where there is no contribution by the employer. Further, if there are constraints on the extent to which retirement benefits are transferable across schools, one might expect to see lower teacher turnover. Similarly, retirement structures that provide rewards conditional on meeting certain work requirements may keep teachers in the classroom longer, for good or for bad, or may essentially force retirement of teachers who would prefer to continue to teach.

What is the age structure of the teaching force?

The age structure of the teaching force reveals the proportion of teachers likely to retire over the next few years. This is important from a fiscal perspective as well as from a school and classroom stability perspective. From a fiscal perspective, countries will need to know whether they have sufficient financial provisions to pay retirement benefits. From a school and classroom stability perspective, countries need to make provisions to attract, recruit, and retain new teachers into the teaching force. If a large number of teachers are expected to retire in the near future, then a country must train and equip new and existing teachers in a manner that ensures a smooth transition.

What are the fiscal provisions for pension payments and retirement plans?

The source of funds available to a government to fund retirement payments is an important indicator of its potential to improve the provisions of retirement plans. It is also an indicator of the credibility of these plans. Both factors are likely to influence the decision of individuals who are considering a teaching career. For instance, if a government plans to make teacher retirement payments from tax revenues invested in a previous period, then depending on the investment instrument and the economic scenario, the returns on the investment could fluctuate. Even if current investment outcomes are likely quite different from those that will prevail when a new teacher retires, the knowledge that teacher retirement benefits are funded through investments in risky (or safe) instruments is likely

to influence an individual's decision to enter teaching.

Monitoring and evaluation of teacher quality

A teacher's on-the-job effectiveness ultimately matters more than his or her formal qualifications. Performance evaluations may provide valuable information about a teacher's strengths and weaknesses, which can help improve his or her work. In addition, evaluations can inform how a school or external authority manages an individual teacher—from providing additional support to low-performing teachers, to sanctioning teachers who repeatedly exhibit low performance, to rewarding high-performing teachers. The consequences of performance evaluations, as well as the criteria used to assess teachers, and the sources of information used to judge their performance against these criteria affect the legitimacy, relevancy, and impact of an evaluation system. To document existing evaluation policies, it is important to address the following issues:

Are public school teachers evaluated on a regular basis? Teacher performance evaluations are not regularly implemented in every country, a practice that can hinder their legitimacy, relevance, and impact. As a starting point, it is important to document whether teachers are evaluated on a regular basis.

Who evaluates teachers' performance? Teachers may be evaluated by a school and/or external authority. School authorities may include the school principal, a lead academic teacher, or a group of peer teachers. External evaluations may be conducted by a national, subnational, or local educational authority. It is important to document the number and type of performance evaluations to which teachers are subject. Evaluations may provide useful information for improving job performance, but can also be a source of stress. It is also important to document the government authority level(s) that evaluate teachers and analyze the consistency between these levels and those that decide on a teacher's professional development, promotion, dismissal, etc.

What criteria are used to assess teachers' performance? The criteria used to determine teachers' performance may center on the teaching process, on the outcomes of teaching, on compliance with a set of education policies, or on a combination of any of these. Some teacher performance evaluation systems take into account differences in the contexts in which teachers work, student achievement as a measure of teacher effectiveness, or other measures of quality, such as student rapport, for example. Knowing how countries deal with these questions, and how they evaluate teachers contributes to a better understanding of what is needed for an effective performance evaluation system. In addition, documenting which criteria are used to evaluate teachers in a specific country facilitates the analysis of the consistency between these criteria and the objectives of an evaluation.

How is information gathered to assess teachers' performance? To make a judgment about a teacher's performance, an evaluation may collect information from different sources, including self-evaluations, peer evaluations, the school principal, students, and parents. Information may also be collected through classroom observations. Documenting the level of teacher involvement in the evaluation process may help us understand the legitimacy of performance evaluations in a given country. Similarly, documenting differing levels of student and parent involvement across countries may enhance our understanding of the link between performance evaluations and teacher accountability.

What are the results of teacher performance evaluations used for?	The impact of any evaluation is related to its statutory consequences. If incentives are aligned with the accomplishment of required standards, an evaluation would reward good teachers and support or punish ineffective ones. Consequences may include, for example, increasing the salary of good teachers; reassigning good teachers to students with greater learning difficulties; providing additional professional development and support to low-performing teachers; or removing low-performing teachers from the classroom.

Teacher representation and voice

In many countries, teacher unions or other organizations that represent teachers' interests hold sufficient power to affect education policies in general and teacher policies in particular. Understanding collective bargaining in education and its impact on the day-to-day life of schools is critical to design and implement reforms that will successfully raise student achievement. To understand the role played by teacher unions, and how teacher organizations can participate in the education debate, it is important to address the following issues:

What labor rights do teachers enjoy?	Are teachers allowed to associate? Are they allowed to strike? Do they have the right to set their employment conditions outside of agreements negotiated by unions?
At what level does collective bargaining for the teaching profession occur?	The level at which collective bargaining takes place affects the relative power of teacher unions vis-à-vis teachers' employers. Other things being equal, teacher unions are likely to be more powerful when collective bargaining takes place at the national level than at the subnational or local level.
What issues are subject to collective bargaining? Who is affected by the outcomes of negotiations?	Collective bargaining may affect a few or many aspects of teachers' working conditions. Documenting the issues that are subject to collective bargaining, and the number of teachers who are affected by the outcomes of these negotiations, is important to understand the institutional setup in which teachers' working conditions are decided, and the extent to which governments have room to foster teacher quality within and outside collective bargaining agreements.
What power do teacher organizations have to affect education policies in general?	Teacher organizations may influence not only teachers' working conditions, but also important education policy decisions about the curriculum, length of compulsory education, classroom size, school finances and organization, etc. It is critical to learn how teacher organizations can be incorporated into the decision-making process to support not only policies that seek to increase the provision of education services, but also those that seek to improve the quality of education in general, and of teaching in particular.

School leadership

Teacher policies are important determinants of the quality of teaching. However, for both political and economic reasons, it is often difficult to introduce reforms that directly affect teacher quality. Another approach is to promote good teaching through school principals. To document the policies that affect school principals (or school leaders), it is important to address the following issues:

What is the recruitment and	The requirements for becoming a principal are important indicators of what a school system expects principals to accomplish. Requirements can be of various kinds, such as a

employment process for school principals?	minimum number of years of professional teaching experience or a minimum number of years of administrative experience. An emphasis on teaching experience, for instance, suggests that principals are expected to be curricular leaders and provide guidance on teaching. Teaching experience might also make it easier for principals to understand teachers' needs and motivations. Finally, requiring teaching experience for principals also offers a career path for existing teachers. An emphasis on administrative experience, on the other hand, would suggest a more general managerial role for a principal and a system in which principals would not be expected to provide teaching-related guidance. In such a system, a principal's area of expertise is not expected to overlap with that of teachers—each performs a role in which they have an accepted comparative advantage. Such requirements could, however, take away a potentially important career goal for many teachers.
Is there a performance evaluation system for school principals?	Evaluation and feedback mechanisms can be used to help school principals achieve goals associated with the post; they can be used to reward effective school leaders and identify principals unsuited for the post. It is also important to know who conducts such evaluations and provides feedback; for instance, is the process top-down, bottom-up, or a combination of the two? The consequences of each method for principal accountability and school performance are likely to differ. In a top-down system where evaluations are conducted by a national educational authority, there is the risk that important context-specific factors, such as parents' demands, are not accounted for adequately in an evaluation. Yet, the answer may not be a bottom-up system, such as a village education committee with parental representation, because such committees may not have the capacity to effectively assess a principal. Their goals, moreover, may not align well with the broader goals of the education system.
What are the responsibilities of school principals?	If a school principal is expected to be a school leader, then it is important to understand what types of powers and responsibilities principals in different countries have, and which types of powers and responsibilities make a principal an effective leader. For instance, principals may or may not have a say in the hiring or firing of teachers, which may affect their ability to recruit, build, and retain an effective teaching force. Principals may be required to act as instructional leaders, but then they need to be equipped with the skills necessary to be able to perform this duty. Principals may be required to set standards for the performance of teachers, but then it is important for them to be equipped with tools to ensure these standards are met. Some principals may be expected to deploy resources where they think are most needed, while others may have little control over resource allocation.
How are school principals rewarded for their work? How are principals' contracts determined?	In many countries, school principals are subject to different compensation rules than are classroom teachers. These differences may create incentives for improved performance and/or remaining in teaching for many years in order to be promoted to a principal post. In addition, the types of contracts available to principals and how principals are selected and appointed to schools can be important factors in the quality of school principals.

3. POLICY GUIDANCE: WHAT MATTERS MOST IN TEACHER POLICY?

8 TEACHER POLICY GOALS

Producing a detailed description of the policies education systems use to manage their teacher force is a necessary first step to inform policy decisions. A second important step is to assess the extent to which the teacher policies of an education system are aligned with those policies that the research evidence to date has shown are associated with improved student achievement. This component of the SABER-Teachers framework identifies those policies that, based on the available research evidence to date, are most closely aligned with improved student performance, and provides an approach to assess the extent to which a given education system has in place teacher policies that may lead to improved education outcomes. It does so by identifying 8 Teacher Policy Goals (functions that high-performing education systems fulfill to ensure that every classroom has a motivated, supported, and competent teacher) and their corresponding policy levers (specific actions governments can take to achieve those goals).

The 8 Teacher Policy goals were identified through a review of evidence of research studies on teacher policies, and the analysis of policies of top-performing and rapidly-improving education systems (see Annex 3). Three criteria were used to identify these policy goals. Teacher policy goals had to be: linked to performance; a priority for resource allocation; and actionable. First, to identify the 8 Teacher Policy Goals, the SABER-Teachers team conducted a thorough literature review which included causal studies on the effect of teacher policies on student achievement, as well as case studies and correlational studies that provide information on system-wide policies implemented by high-performing education systems in those cases where causal analyses were not available. Second, teacher policy goals must be a priority for resource allocation. Even the most advanced countries face resource constraints. Thus, the SABER - Teachers framework focuses only on goals that promise to produce considerable improvements in teaching and learning. Third, teacher policy goals must be actionable. There are many issues that deeply influence teachers' work but over which education policy makers have little control, such as the socioeconomic background of students, for example. SABER-Teachers focuses on identifying those teacher-related policy actions that have been shown to affect student learning outcomes over which education policy makers have decision-making authority.

The 8 Teacher Policy Goals exclude objectives and policies that countries might want to pursue to improve teacher effectiveness, but on which there is no empirical basis to make specific policy recommendations either because evidence on policy interventions in an area remains unclear or because top-performing education systems take very different approaches to reach these objectives. For example, there is no clear trend on whether (and if so, how) governments should engage with teacher organizations. Many studies have looked at the impact of unionization on schools' productivity (Argys & Reese 1995; Eberts & Stone 1986; Hoxby 1996), student learning (Kingdon & Teal 2008; Kleiner & Petree 1988; Kurth 1987; Register & Grimes 1991; Steelman, Powell & Carini 2000), teachers' wages (Ballou & Podgursky 2002; Baugh & Stone 1982; Bee & Dolton 1995; Dolton & Robson 1996), working conditions (Eberts 1984; Murillo, et al. 2002; Zegarra & Ravina 2003) and education policy (Goldschmidt & Stuart 1986; Woodbury 1985). But evidence on the relationship between teacher organizations and student achievement is contested, and top-performing countries differ widely in how much they engage, to what extent they regulate, and how they organize teacher unions. Therefore, regulations related to teacher organizations were not included in the 8 Teacher Policy goals, but are still an important part of the policy mapping component of the framework.

The 8 Teacher Policy Goals are functions that all high-performing education systems fulfill to a certain extent in order to ensure that every classroom has a motivated, supported, and competent teacher who can advance the learning of each and every student. The 8 SABER-Teachers policy goals are: 1. Setting clear expectations for teachers; 2. Attracting the best into teaching; 3. Preparing teachers with useful training and experience; 4. Matching teachers' skills with students' needs; 5. Leading teachers with strong principals; 6. Monitoring teaching and learning; 7. Supporting teachers to improve instruction; and 8. Motivating teachers to perform (see Figure 1). For each policy goal, the SABER-Teachers team identified policy levers, which are actions that governments can take to reach these goals. In turn, each policy lever has a corresponding set of indicators that measure the extent to which governments are making effective use of these policy levers (see Table 1). Using these policy levers and indicators, it is possible to assess the extent to which a given education system has in place teacher policies that are known to be related to improved student outcomes. The main objective of this assessment is to identify the strengths and weaknesses of the teacher policies of an education system and pinpoint possible areas for improvement. In a companion paper (see Background Paper 2), we explain in detail the mechanism followed to assess the level of development of each education system towards each of the 8 Teacher Policy Goals. This paper focuses on the description of the general framework, as well as a review of the evidence base that supports it.

Figure 1: SABER-Teachers 8 Teacher Policy Goals



Policy Goal 1: Setting Clear Expectations for Teachers.

Setting clear expectations for student and teacher performance is important to guide teachers' daily work and align necessary resources to make sure that teachers can constantly improve instructional practice. In addition, clear expectations can help ensure there is coherence among different key aspects of the teaching profession such as teacher initial education, professional development, and teacher appraisals.

Based on the review of the evidence base on teacher policies, the SABER - Teachers framework has identified two policy levers school systems can use to reach this goal:

(1) *Clear expectations for what students should know and be able to do, and how teachers can help students reach these goals.* Rigorous research using econometric methods has evaluated the effects of structured programs that provide clear expectations for teacher work on student achievement. Results indicate that providing a clear instructional framework that teachers can rely on for organizing instruction can indeed lead to better student achievement. Such is the case of the Success for All program in the United States (Borman et al 2007), which had a positive effect on literacy outcomes. Research from developing countries also supports this conclusion (He, Linden & McLeod 2007). However, research in developing settings has also highlighted that while scaffolding might be effective at producing relatively simple changes in teacher pedagogy, the low capacity of the teaching force in some school systems might limit the extent to which more complex changes can be achieved, as He, Linden and MacLeod (2009) found in the case of a program to improve English instruction in India. *This lever focuses on whether there are standards for what students must know and be able to do, and whether the tasks that teachers are expected to carry out are officially stipulated*.

(2) *Useful guidance on teachers' use of time to be able to improve instruction at the school level.* Case study research on successful education systems such as Ontario, Finland, Japan, South Korea, and Singapore suggests that high-performing education systems devote considerable time at the school level to activities that are related to instructional improvement, such as collaboration among teachers on the analysis of instructional practice (Darling Hammond & Rothman 2011, Darling-Hammond 2010, Levin 2008). In addition, these systems tend to devote a smaller share of teacher's time to actual contact time with students, and a relatively larger share to teacher collaboration, in-site professional development and research on the effectiveness of various teaching strategies. Japan, for example, devotes about 40 percent of teachers' working time to this type of activities, while Ontario currently devotes 30 percent (Darling Hammond & Rothman 2011). *This lever focuses on the extent to which teachers' official tasks include tasks related to instructional improvement at the school level (such as supporting other teachers, collaborating on the school plan, or taking part in the internal evaluation activities of the school), whether the statutory definition of teachers' working time recognizes non-teaching hours, and what the share of working time allocated to teaching is vis-à-vis other activities.*

Policy Goal 2: Attracting the Best into Teaching.

The structure and characteristics of the teaching career can make it more or less attractive for talented individuals to decide to become teachers. Talented people may be more inclined to become teachers if they see that entry requirements are on par with those of well-regarded professions, if compensation and working conditions are adequate, and if there are attractive career opportunities for them to develop as professionals.

Based on the review of the evidence base on teacher policies, the SABER - Teachers framework has identified four policy levers school systems can use to reach this goal:

(1) Minimum requirements to enter pre-service training and teaching. The results of causal analyses of the impact of entry requirements on teacher effectiveness as well as case studies of high-performing systems suggest that there is a relationship between the level of selectivity of entry into the teaching profession (or entry into teacher initial education programs) and the quality of the teaching force. First, case studies on high-performing systems such as Singapore, South Korea, and Finland show that these countries have a very competitive process to select applicants to teacher initial education programs (Auguste, Kihn & Miller

2010, Darling-Hammond 2010, Barber & Mourshed 2007). Studies in the US context suggest that while traditional certification routes may be relatively successful at identifying the most effective teachers among those who apply to become teachers, they may not be attracting the most talented individuals of the pool of potential applicants (Cantrell, et al., 2008). Causal research that has looked at the effects of relaxing entry requirements to attract talented individuals that otherwise would not have opted for a teaching career suggests that alternatively-certified teachers may be more effective than traditionally-certified ones only when they are selected through highly-competitive programs, and that alternatively-certified teachers who do not enter the profession through highly-selective routes are not all that different from traditionally certified teachers (Decker, Mayer and Glazerman, 2004; Alfonso, Santiago and Bassi, 2011; Constantine, et al., 2009). Regarding the level of educational qualifications that is required of teacher entrants, there is uneven evidence on the effect of educational qualifications on student achievement. For example, Kane and Staiger's causal studies in the US (2006) found that teachers with master's degrees had students who scored higher in math, but lower in English than those without such degrees. However, the analysis of the policies of high-performing systems suggests that there may be a floor in the level of educational qualifications that is required of teachers in order to attract talented individuals to the teaching profession. Virtually all high-performing countries require that teachers have an educational level equivalent to ISCED 5A (a Bachelor's degree), and some systems, such as Finland, require in addition a research-based master's degree (OECD 2011). *Based on this and other evidence, this policy lever aims to assess the extent to which entry requirements are set up to attract talented candidates to the teaching profession. It does so by taking into consideration the level at which teacher initial education takes place; how stringent the requirements to enter teaching are, as a proxy for selectivity; and assessing whether the teacher profession benefits from a wider pool of applicants by having alternative routes into the profession that are at least as selective or more than traditional routes.*

(2) *Competitive pay.* The evidence base indicates that those considering whether to go into the profession care about what they would earn in teaching in comparison to other occupations (Boyd, et al. 2006b; Dolton 1990; Wolter & Denzler 2003) and that higher salaries attract more able candidates into teaching (Barber & Mourshed 2007; Figlio 1997; Hanushek, Kain & Rivkin 1999; Leigh 2009), although Hanushek & Pace (1994, 1995) find that relative earnings seem less relevant when individuals decide whether to go into teacher training programs or not). Starting pay has also been found to influence how long an individual stays in the profession (Dolton & van der Klaauw 1999; Ingersoll 2001a, 2001b; Murnane & Olsen 1989, 1990; Stinebrickner 1998, 1999a, 1999b, 1999c, 2001a, 2001b). While the effectiveness of overall high salaries at attracting better teachers is difficult to evaluate rigorously using causal analyses, Hoxby and Leigh (2004) were able to use these methods to find that pay compression played a key role in the decline in the average aptitude of individuals who decide to enter the teaching profession. In addition, case studies and correlational research on high-performing education systems across the world show that, while teacher salaries are not extremely high, they are at least on par with the salaries of other civil servants (OECD 2011, Mourshed, Chijoke & Barber 2010, Carnoy et al. 2009). *Based on this research, this lever considers whether starting teacher pay is competitive, whether it changes over the course of a teacher's career, and whether it varies according to performance.*

(3) *Appealing working conditions.* There is considerable evidence that teachers care a great deal about where they work (Boyd, et al. 2005a; Hanushek, Kain & Rivkin 2004a, 2004b; Jackson 2010). Schools that have poor working conditions may have a harder time attracting and retaining able candidates. For example, Chaudhury et al. (2005) found that the quality of school infrastructure affects teacher attendance. In addition, lower student-teacher ratios can improve in-class interaction and teachers' working conditions

(Angrist & Lavy 1999; Bloom, Levy Thompson & Unterman 2010; Case & Deaton 1999; Krueger & Whitmore 2001; Urquiola 2006) and reduce teacher turnover (Mont & Rees 1996). Other research cautions, however, that the effects of class size reductions may be offset by the increase in unqualified teachers that they demand (Jepsen & Rivkin 2009) and that other interventions might prove more cost-effective (Rivkin, et al. 2005). Nevertheless, data from high performing systems shows that these systems share a maximum teacher-student ratio that does not exceed 30 students per teacher for primary education and 20 students per teacher for secondary education (UNESCO 2012). *Thus, this lever assesses the extent to which schools working conditions are appealing enough for talented candidates, by taking into consideration the proportion of schools that comply with the standards for infrastructure, hygiene and sanitation, as well as the pupil/teacher ratio for primary and secondary schools.*

(4) *Attractive career opportunities.* Career opportunities are important to attract talented individuals into teaching and provide incentives for them to stay in the profession. Top candidates can often choose among many occupations, most of which offer them opportunities to grow professionally. Virtually all education systems offer teachers the possibility of being promoted to principal positions at some point in their careers. In addition to these "vertical" promotions, case study research on high-performing systems shows that most of these systems offer teachers the possibility of "horizontal" promotions, to academic positions that allow them to grow professionally as teachers and yet remain closely connected to instruction, instead of moving up to managerial positions (OECD 2012, Darling-Hammond 2010). *Based on this evidence, this lever explores whether there are multiple opportunities for career advancement, and whether these opportunities are linked to performance.*

Policy Goal 3: Preparing Teachers with Useful Training and Experience.

Equipping teachers with the skills they need to succeed in the classroom is crucial. Teachers need subject matter and pedagogic knowledge, as well as classroom management skills and lots of teaching practice in order to be successful in the classroom. In addition, preparation puts all teachers on an equal footing, giving them a common framework to improve their practice.

Based on the review of the evidence base on teacher policies, the SABER - Teachers framework has identified two policy levers school systems can use to reach this goal:

(1) Minimum standards for pre-service teacher education programs. As noted before, the analysis of the policies of high-performing systems suggests that there may be a floor in the level of educational qualifications that is required of teachers in order for them to be able to develop the necessary skills to be effective teachers. Virtually all high-performing countries require that teachers have an educational level equivalent to ISCED5A (a Bachelor's degree), and some systems, such as Finland, require in addition a research-based master's degree (OECD 2011). *This lever looks at the minimum level of qualification that is required of teachers in order to be allowed to teach.*

(2) *Required classroom experience for all teachers.* Several studies have found that the first few years of a teacher's experience considerably impact their effectiveness in the classroom—regardless of whether teachers acquire this experience through clinical practices or during a probationary period (Boyd, et al. 2009; Chingos & Peterson 2010; Hanushek, et al. 2005; Hanushek & Rivkin 2010; Rivkin, et al. 2005). Teacher initial education programs vary considerably on the characteristics and length of classroom

experience that they require from their graduates, and thus it is difficult to assess what specific characteristics may be associated with student achievement. Some systems have experimented with assigning mentors or coaches to new teachers to accelerate their learning in what are often called "induction" programs. The evidence from causal studies suggests that such interventions can have an effect on student learning, but that the quality and dosage of mentoring matters in ways that may not be easy to anticipate when designing these programs. For example, in a study of a mentoring program adopted in New York City, Rockoff (2008) found that teachers were less likely to leave a school when they had mentors with prior experience at that school, suggesting that an important part of mentoring may be the provision of school-specific knowledge. He also found that the number of hours that mentors spent with a teacher had a positive impact on student achievement. However, Glazerman, et al. (2010) found no significant effect of comprehensive induction programs in a number of states in the United States, suggesting that it is important to evaluate the content and characteristics of these programs to assess their relative effect on student achievement. Case study research on the practices of high-performing systems shows that most high-performing systems require their teacher entrants a considerable amount of classroom experience before becoming independent teachers, and some of these systems provide mentoring and support during the first and even second year on the job (Darling-Hammond 2010, Ingersoll 2007). *Thus, this lever assesses the extent to which teacher entrants are required to have classroom experience, either through initial teacher education or on-the-job mentoring programs, by documenting the existence of mentoring or induction programs and clinical training during teacher initial education, and by estimating the length of actual classroom experience time that teacher entrants are required to have.*

The SABER-Teachers framework does not include policy levers related to the comparative advantage of subject matter knowledge vs. pedagogy training in teacher initial education, because the evidence base regarding this issue is still contested. While several studies have found that subject matter knowledge can positively impact teacher performance (Darling-Hammond 1999a, 1999b; Guyton & Farokhi 1987; Monk 1994; Rowan, Chiang & Miller 1997), others have cautioned that subject matter knowledge might be important up to some level of basic competence but less important thereafter (Ferguson & Womack 1993; Goldhaber & Brewer 2000; Monk & King 1994). Likewise, several studies have found that pedagogical preparation can have an impact on teacher performance (Ashton & Crocker 1987; Evertson, et al. 1985). Yet, the high level of aggregation of these studies makes it hard to identify the elements of education coursework that consistently impact teacher quality (Santiago 2004). In addition, high performing education systems vary greatly in the degree to which they prioritize subject matter or pedagogy knowledge in teacher initial education programs, as well as in the formats teacher initial education take place. While some countries have concurrent models, which blend pedagogy and subject matter knowledge in teacher initial education, with a greater focus on pedagogy, other systems have opted for a consecutive model, whereby student teachers are required first to focus on learning a discipline at the university level, and only then study towards a teaching certification in a program mostly devoted to pedagogy training.

Policy Goal 4: Matching Teachers' Skills with Students' Needs.

Ensuring that teachers work in schools where their skills are most needed is important for equity and efficiency. First, it is a way of ensuring teachers are distributed as efficiently as possible, making sure that there are no shortages of qualified teachers at any given grade, education level, or subject. Second, it is a means of ensuring all students in a school system have an equal opportunity to learn. Without purposeful allocation systems, it is likely

that teachers will gravitate towards schools serving better-off students or located in more desirable areas, deepening inequalities in the system (Boyd, et al. 2005a; Hanushek, et al. 2004b).

Based on the review of the evidence base on teacher policies, the SABER - Teachers framework has identified two policy levers school systems can use to reach this goal:

(1) *Incentives for teachers to work in hard-to-staff schools*. Providing incentives (monetary or otherwise) to teachers for teaching in hard-to-staff schools can make working in these schools more attractive. Evidence from causal and correlational studies suggests, however, that the design of these incentives programs matter. Some initiatives have been successful at attracting teachers to work in hard-to-staff schools (Boyd, et al. 2005c; Hanushek, et al. 1999, 2004b; Steele, Murnane & Willett 2009), but others have failed or have had a limited impact on student learning (Clotfelter, et al. 2006; Lankford, Loeb & Wyckoff 2002; Liu, Johnson & Peske 2004; Urquiola & Vegas 2005). Even in education systems with well-designed incentives to attract teachers into hard-to-staff schools, the distribution of teachers may still be inequitable if experienced teachers (who can be more effective than novice teachers) are given priority in transfer assignments. *Thus, this lever looks at whether teachers are provided incentives to teach in hard-to-staff schools, and whether teaching experience is the only factor used in deciding transfer priorities.*

(2) *Incentives for teachers to teach critical shortage areas*. Incentives for teachers to teach critical shortage areas also allow the "price" of teachers to vary—in this case, according to their relative scarcity in specific subjects on which there are frequent teacher shortages. Given that individuals who major in high-demand fields (e.g., math and science) can access other well-remunerated professional opportunities and thus face a higher opportunity cost by going into teaching (Carnoy, et al. 2009; Murnane & Olsen 1990), offering higher salaries to teachers specialized in critical shortage subjects can potentially make teaching a relatively more attractive profession for these skilled individuals. *Thus, this lever looks at whether the education system has a way of addressing critical shortages, and whether teachers are provided incentives to teach these subjects.*

Policy Goal 5: Leading Teachers with Strong Principals.

The quality of school heads is an important predictor of student learning. Capable principals can act as instructional leaders, providing direction and support to the improvement of instructional practice at the school level. In addition, capable principals can help attract and retain competent teachers (Boyd, et al. 2009; Ingersoll 2001a, 2001b). The more capable a school principal, the more he or she can support teachers, create a sense of community, make teachers feel valued and ease their anxiety about external pressures (Mulford 2003).

Based on the review of the evidence base on teacher policies, the SABER - Teachers framework has identified two policy levers school systems can use to reach this goal:

(1) *Education system's investment in developing qualified school leaders*. Making sure that the right individuals are selected into principal positions is key for ensuring the success of an education system. This can be ensured through making principal positions attractive for talented individuals, and making sure these individuals have the necessary skills for the job. There is promising evidence that indicates that higher pay can attract better candidates into principal positions, ensure they stay for longer and motivate them (Brewer 1993), although more research is still needed. Regarding the development of necessary

skills for principal positions, a recent study by Grissom & Loeb (2011) found that out of a number of principal' skills correlated with school performance, organization management is the one that best predicts student achievement growth and other success measures. Such skills can be developed through supported work experience or through specific training courses. High performing systems such as Japan, South Korea, Shanghai, and Singapore require the participation of applicants to principal positions in specific coursework and/or a specialized internship or mentoring program aimed at developed essential leadership skills (OECD, 2012; Darling-Hammond 2010). *This policy lever considers whether education systems invest in developing qualified school leaders, by focusing on whether there are programs to support the development of leadership skills, and whether principals' performance is rewarded.*

(2) *Decision-making authority for school principals to support and improve instructional practice*. Once education systems get talented candidates to become principals, they need to structure their time to focus on improving instruction (OECD 2012, Barber & Mourshed 2007). Case studies of high-performing education systems such as Finland, Ontario, and Singapore, show that school principals in the three jurisdictions are expected to be instructional leaders. They are expected to be knowledgeable in teaching and curriculum matters, and be able to provide guidance and support to teachers. They evaluate teachers, provide feedback, assess the school's needs for professional development, and direct instructional resources where they are most needed (Darling Hammond & Rothman 2011). *This policy lever considers the extent to which principals are expected to support instructional practice, by explicitly requiring them to provide curriculum and pedagogy support, and evaluating teacher performance.*

Evidence is still contested on whether granting school principals' autonomy to make decisions regarding teachers' employment and pay is related to increased student achievement. While the available evidence suggests that having well-functioning mechanisms to relate teacher performance to employment decisions is an important function of education systems, it is less clear whether it is principals who should be in charge of fulfilling this task. Conversely, there is a growing consensus on the importance of the instructional leadership role of school principals (understood as organizational management for instructional improvement rather than day-to-day teaching activities). For these reasons, the capacity of schools principals to hire and fire teachers is not considered as a policy lever in the SABER-Teachers framework, while the function of having a mechanism to relate teacher performance to employment decisions is included in the framework (regardless of whether this function is carried out by school principals or other actors in the system. See Goal 8 below). It is interesting to note that most high performing education systems grant their principals no decision-making power on teacher dismissals, although they do have other mechanisms to dismiss ineffective teachers (OECD 2012). In addition, while empowering principals by giving them authority over teacher pay can potentially encourage them to reward outstanding teacher behavior, effort and performance, research on the effects of principal discretion over teacher pay is still in its early stages. The available evidence from developing countries suggests that principals may not apply performance criteria consistently when awarding monetary bonuses, as found by Kremer and Chen (2001) in Kenya.

Policy Goal 6: Monitoring Teaching and Learning.

Assessing how well teachers are teaching and whether students are learning is essential to devise strategies for improving teaching and learning. First, identifying low-performing teachers and students is critical for education systems to be able to provide struggling classrooms with adequate support to improve. Second, teacher and

student evaluation also helps identify good practices which can be shared across the system to improve school performance.

Based on the review of the evidence base on teacher policies, the SABER - Teachers framework has identified three policy levers school systems can use to reach this goal:

(1) *Availability of data on student achievement in order to inform teaching and policy*. Case study research from high performing education systems shows that they all have mechanisms in place to ensure that there is enough student data to inform teaching and policy, but they do so in very different ways. For example, Finland prioritizes the collection of data directly by teachers at the classroom level, and school-level samples of student performance are evaluated periodically by the Finnish education authorities to inform curriculum and other policies, while Singapore has external examinations at the end of primary and secondary school and the results of these examinations are used to identify areas of improvement for schools (Darling-Hammond & Wentworth 2010). Regardless of the mechanism they decide to follow, high performing systems ensure three main functions are fulfilled: 1. There is a system to collect relevant and complete data on student achievement regularly; 2. There is a mechanism for public authorities to have access to these data so that they can use it to inform policy, and 3. There is a mechanism to feed these data and relevant analyses back to the school level, so that teachers can use it to inform the improvement of instructional practice. *Thus, this policy lever looks at whether teachers are trained to assess student achievement, whether national large scale examinations are used to monitor education quality levels, whether student achievement data is available for policy makers, whether student achievement data is disseminated to schools and teachers, and whether assessments are supposed to be used to improve instruction.*

(2) *Adequate systems to monitor teacher performance*. Several studies have found an association between the existence of systems to monitor teacher performance and improved teacher effectiveness and/or student achievement. For example, a recent randomized study by Duflo, Hanna and Ryan (2010) in India found that it is possible to reduce teacher absenteeism by developing an independent monitoring system closely aligned with the expected changes (in this case, the system used video cameras to monitor teacher absenteeism). Correlational studies in the US have found that classroom-observation-based evaluation and performance measures can improve mid-career teacher performance during the period of the evaluation and in subsequent years (Taylor & Tyler 2011). Case studies on high performing systems show that these systems regularly use evaluations of teacher performance to provide feedback to teachers and assign teacher professional development. Thus, having enough information on whether teachers are performing adequately is necessary for education systems to be able to align support structures to achieve systemic improvements, and to provide adequate incentives to motivate teachers. *This policy lever considers whether teachers are required to participate in evaluations, and whether central authorities monitor teacher performance.*

(3) *Multiple mechanisms to evaluate teacher performance*. Using multiple sources to assess teacher performance is crucial, since no method of evaluating teachers is failsafe. While classroom observations conducted by principals have been found in some cases to be aligned with “value-added” models that measure teachers’ impact on student learning (Rockoff & Speroni 2010; Rockoff, et al. 2010), both observations (Toch & Rothman 2008) and value-added algorithms (Koretz 2008; Rothstein 2010) have a number of flaws. Therefore, it is crucial to use as many sources of information on teacher performance as possible so that they complement each other and produce a more accurate evaluation of their work

(Grossman, et al. 2010). *This policy lever considers whether there are multiple mechanisms and multiple criteria (subject matter knowledge, teaching methods, student academic achievement) to evaluate teacher performance.*

There is a growing body of evidence, particularly from causal analyses, on the relationship between parental or community involvement on the evaluation of teacher performance and student outcomes. This issue has not been included in the SABER-Teachers framework because the evidence is still contested regarding whether having greater parental participation on the monitoring of teacher performance necessarily produces better student outcomes. This is a common component of strong forms of school based management (see Barrera Osorio et all 2009). Studies suggest that these reforms have an effect in changing the dynamics of the school and tend to have a positive effect on repetition, failure and dropout rates, but the evidence on their impact on student achievement is mixed (Bruns, Filmer & Patrinos 2011). For example, community involvement on teacher appraisals was a component of programs such as the ETP project in Kenya, the ASP program in Nicaragua, and the EDUCO in El Salvador. While impact evaluations of the ETP program in Kenya and the ASP program in Nicaragua found an effect on student achievement (Duflo, Dupas & Kremer 2007, King, Özler & Rawlings 1999), EDUCO was found to have no significant effect on test scores (Jimenez & Sawada 1999, Sawada & Ragatz 2005). A hypothesis to explain the variation in results has been that low levels of knowledge about school systems in the community prevent parental participation from being more effective in improving student scores, since communities may not be well aware of how best to judge teachers' performance. As a consequence, some programs have included a community training component (this is the case of ETP in Kenya), and others have focused on the effects of disseminating information to communities about their role in school management. Research on the dissemination of information to school communities has not found yet a strong causal link between the dissemination of information and the improvement of student outcomes (see, for example, Pandey, Goyal & Sundararaman 2009 on the evaluation of a program in three states in India).

Policy Goal 7: Supporting Teachers to Improve Instruction.

Support systems are necessary to help improve instruction at the school level. In order to constantly improve instructional practice, teachers and schools need to be able to analyze specific challenges they face in classroom teaching, have access to information on best practices to address these challenges, and receive specific external support tailored to their needs.

Based on the review of the evidence base on teacher policies, the SABER - Teachers framework has identified three policy levers school systems can use to reach this goal:

(1) *Availability of opportunities for teacher professional development*. Studies on the effect of in-service professional development show that such programs can have a significant effect on the improvement of teaching skills and student achievement, as long as they focus on changing pedagogy and not merely providing additional materials for teachers (Angrist and Lavy 2001; Abeberese, Kumler & Linden 2011). Indeed, evaluations of programs that provide additional teaching materials without having a pedagogy component in Colombia, India, United States, and Kenya seem to have had little if any effect on sustained improvements on student achievement (Barrera-Osorio & Linden 2009; Banerjee, et al. 2007; Rouse & Krueger 2004, Borkum, He and Linden 2009; Glewwe, Kremer & Moulin 2009, Glewwe, et al. 2004). *This policy lever looks at whether teacher professional*

development is available, while the following one concentrates on the characteristics of these programs.

(2) *Teacher professional development activities that are collaborative and focused on instructional improvement.* Evidence suggests that when professional development activities expose teachers to best practices in instruction and show teachers how to implement these practices, teachers are more likely to adopt them in their classrooms (Angrist & Lavy 2001; Borko 2004; Brown, Smith & Stein 1995; Cohen & Hill 1997; Wenglinsky 2000; Wiley & Yoon 1995). In addition, there is a growing body of evidence that finds that collaborative types of professional development can impact teacher performance, such as teacher networks or mentoring programs (Barber & Mourshed 2007; Jackson & Bruegmann 2009; Rockoff 2008). High-performing countries such as Japan, with its lesson-study system, are well-known for providing opportunities for teacher collaboration and research on instructional methods at the school level, with a strong focus on best-practice sharing. *This policy lever assesses the extent to which teacher professional development opportunities include activities that promote best-practice sharing, as well as opportunities for the analysis of instructional practice.*

(3) *Making sure teacher professional development is assigned based on perceived needs*. Providing additional professional development to struggling teachers can offer them the tools they need to improve, and for this it is necessary to have a mechanism to identify those teachers who may need support. In addition, research finds that mentors can impact teacher effectiveness (although their effect varies with mentor experience and quality of the program (Rockoff 2008), so assigning tutors, supervisors or coaches to low-performing teachers may offer guidance to struggling teachers. *This policy lever looks at whether underperforming teachers are assigned specific support, either in the form of a mentor or in the form of additional teacher professional development.*

Policy Goal 8: Motivating Teachers to Perform.

Adequate motivation mechanisms can contribute to effective teaching. First, incentives are a way for school systems to signal their seriousness in achieving certain goals. The more aligned incentives are with the behaviors and outcomes they want to elicit, the more likely they will obtain them. Second, incentives are also a way to recognize teachers' work. Teaching is a challenging job and incentives can let teachers know the results they have achieved are valued. Finally, some types of incentives can also influence the profile of the teaching profession, making the teaching career more attractive to competent individuals.

Based on the review of the evidence base on teacher policies, the SABER - Teachers framework has identified three policy levers school systems can use to reach this goal:

(1) *Linking career opportunities to teachers' performance*. Several studies find that the first few years of a teacher's experience are among the best available predictors of that teacher's performance later in his or her career (Chingos & Peterson 2010; Hanushek, et al. 2005; Hanushek & Rivkin 2010). *Thus, this policy lever considers whether education systems take advantage of this information to screen teachers once they enter the system, and whether promotion opportunities are linked to performance*.

(2) *Having mechanisms to hold teachers accountable.* Research in both developed and developing countries indicates that teacher absenteeism can reach high levels, negatively impacting student performance (Chaudhury, et al. 2005; Herrmann & Rockoff 2009; Miller, Murnane & Willett 2008; Rogers & Vegas 2009). Education systems can encourage teacher attendance by taking it into account in teacher evaluations, giving teachers monetary bonuses for coming to school and/or by dismissing teachers if they are consistently absent. Evidence suggests that linking pay to attendance can reduce absenteeism, but how this is done matters: attendance bonuses have been least effective when principals are given the responsibility to grant them (Kremer & Chen 2001) and most effective when combined with other interventions such as changes in the monitoring systems (Duflo, Hanna & Ryan 2008). *This policy lever assesses whether there are minimum mechanisms to hold teachers accountable. It considers whether there are requirements such as professional development and performance evaluations to remain in teaching, and whether teachers can be dismissed with cause, such as misconduct, child abuse, absenteeism or poor performance.*

(3) *Linking teacher compensation to performance.* One reward that teachers can receive for performing well is monetary bonuses or high salaries. While several merit pay programs have been effective in raising teacher and student performance (Glewwe, Ilias & Kremer 2010; Lavy 2004, 2009; Muralidharan & Sundararaman 2009; Springer, Ballou & Peng 2008; Winters, et al. 2008), the evidence shows that the format of monetary incentive programs matters: in particular, the method used to evaluate teacher performance, the level at which incentives are awarded (i.e., individual or group), the size of the incentives and how well they are tied to the behaviors that they seek to elicit (Ahn & Vigdor 2010; Bacolod, DiNardo & Jacobson 2009; Ballou 2001; Eberts 2002; Glazerman & Seifullah 2010; Goodman & Turner 2010; Rau and Contreras 2009; Lavy 2002, 2007; Mizala & Romaguera 2005; Murnane 1996; Murnane & Cohen 1986; Podgursky & Springer 2008; Vegas 2005, 2007). (See Bruns, Filmer & Patrinos for a detailed analysis of the effects of various types of teacher incentives on student outcomes in developing countries). *This policy lever considers whether performance reviews carry salary implications, and whether high-performing teachers get monetary bonuses.*

A growing body of research has analyzed whether making public school rankings based on the achievement if their students as an incentive for teacher performance has an effect on improving student outcomes. The evidence on this issue is still unclear, and for that reason this particular type of incentives has been excluded from the SABER-Teachers framework. For example, some causal studies have found that this type of school accountability policies can have considerable effects on teacher mobility, with teachers leaving failing schools, without improving student learning (Feng, Figlio & Sass 2010), but other studies, such as the Rockoff and Turner study in New York City (2010) find that assigning grades to schools based on their student outcomes and tying these classifications to rewards and consequences had a positive effect on student achievement. Research on this issue in developing country contexts shows mixed results. For example, Mizala and Urquiola (2007) find that ranking schools according to their performance, adjusted for their students' socio-economic status, and offering them a monetary incentive if they perform above a threshold had no consistent effect on learning outcomes in Chile. Conversely, a randomized evaluation of a report card system in Punjab, Pakistan, found that student test scores increased in schools that were underperforming at the baseline, while they remained the same in schools that were above the mean at baseline (Andrabi, Das & Khwaja 2009).

Table 1: SABER-Teachers Policy Goals, Levers and Indicators

Policy Goal	Policy Levers	Indicators
1. Setting Clear Expectations for Teachers	A. Are there clear expectations for teachers?	1. Are there standards for what students must know and be able to do?
		2. Are the tasks that teachers are expected to carry out officially stipulated?
	B.Is there useful guidance on the use of teachers' working time?	1. Do teachers' official tasks include tasks related to instructional improvement?
		2. Does the statutory definition of working time for primary school teachers recognize non-teaching hours?
		3. What is the share of working time allocated to teaching for primary school teachers?
2. Attracting the Best into Teaching	A. Are entry requirements set up to attract talented candidates?	1. At what level of education does teacher initial education take place for primary school teachers?
		2. At what level of education does teacher initial education take place for secondary school teachers?
		3. How stringent are requirements to become a primary school teacher?
		4. How stringent are requirements to become a secondary school teacher?
		5. How broad is the pool of potential teacher entrants for primary school?
		6. How broad is the pool of potential teacher entrants for secondary school?
	B. Is teacher pay appealing for talented candidates?	1. Is starting teacher pay competitive?
		2. Does pay vary according to teacher performance?
		3. Does pay change over the course of a teacher's career?
	C. Are working conditions appealing for talented applicants?	1. How many schools comply with standards for the infrastructure, hygiene and sanitation of schools?
		2. How many primary school students are there per each teacher?
		3. How many secondary school students are there per teacher?
	D. Are there attractive career opportunities?	1. Are there opportunities for career advancement?
		2. Are promotion opportunities linked to performance?
3. Preparing Teachers with Useful Training and Experience	A. Are there minimum standards for pre-service teaching education programs?	1. What is the minimum level of education required to become a teacher for primary school teachers?
		2. What is the minimum level of education required to become a teacher for secondary school teachers?
	B. To what extent are teacher-entrants required to be familiar with classroom practice?	1. Do primary school teacher entrants have opportunities to learn from other teachers through induction, mentoring, or student experience programs?
		2. Do secondary school teacher entrants have opportunities to learn from other teachers through induction, mentoring, or student experience programs?
		3. How much classroom experience must beginning primary school teacher have?
		4. How much classroom experience must beginning

Policy Goal	Policy Levers	Indicators
		secondary school teacher have?
4. Matching Teachers' Skills with Students' Needs	A. Are there incentives for teachers to work at hard-to-staff schools?	1. Are teachers provided incentives for working in hard-to-staff schools?
		2. Is teaching experience the only factor used in deciding transfer priorities?
	B. Are there incentives for teachers to teach critical shortage subjects?	1. Are critical subjects shortages addressed?
		2. Are teachers provided incentives for teaching critical shortage subjects?
5. Leading Teachers with Strong Principals	A. Does the education system invest in developing qualified school leaders?	1. Are there programs to support the development of leadership skills?
		2. Is principals' performance rewarded ?
	B. Are principals expected to support and improve instructional practice?	1. Are principals explicitly required to provide guidance for curriculum and teaching-related tasks?
		2. Are principals explicitly required to evaluate teacher performance?
6. Monitoring Teaching and Learning	A. Are there systems in place to assess student learning in order to inform teaching and policy?	1. Are teachers trained to assess student achievement?
		2. Are national large scale examinations used to monitor education quality levels?
		3. Is student achievement data available for policymakers?
		4. Are student assessment findings disseminated to teachers and/or used to provide guidance to underperforming teachers and schools?
		5. Are student assessments used to inform teaching lesson plans and instructional practices?
	B. Are there systems in place to monitor teacher performance?	1. Are teachers required to participate in evaluations?
		2. Do authorities (national, sub-national or local) monitor teacher performance?
		3. Is it possible to track teachers over time?
	C. Are there multiple mechanisms to evaluate teacher performance?	1.Are classroom observations part of teacher assessment systems?
		2. Are professional communities involved in teacher assessment systems?
		3. Are a variety of criteria (subject matter knowledge, teaching methods, student assessment methods, students' academic achievement) used to assess teacher performance?
7. Supporting Teachers to Improve Instruction	A. Are there opportunities for professional development?	1.Are primary school teachers required to participate in professional development?
		2.Are secondary school teachers required to participate in professional development?
		3.Are individual teachers responsible for paying for their professional development?
	B. Is teacher professional development collaborative and focused on instructional improvement?	1.Does professional development include activities that may promote best-practice sharing?
		2.Does professional development provide opportunities for the analysis of instructional practice?
	C. Is teacher professional development assigned based on perceived needs?	1.If a teacher obtains an unsatisfactory result in an evaluation, is he or she assigned to a supervisor?
		2.Are teacher performance evaluations used to assign

Policy Goal	Policy Levers	Indicators
		professional development?
8. Motivating Teachers to Perform	A. Are career opportunities linked to performance?	1. Are promotion opportunities linked to high teacher performance?
		2. Are open-ended appointments informed by performance history?
	B. Are there mechanisms to hold teachers accountable?	1. Are there requirements (professional development and performance evaluations) to remain in teaching?
		2. Can teachers be dismissed with cause?
	C. Is teacher compensation linked to performance?	1.Do performance reviews carry salary implications?
		2. Do high-performing teachers get monetary bonuses?

PRIORITIZING AMONG POLICY OPTIONS

Assessing the extent to which an education system has in place teacher policies that are known, based on the evidence to date, to be associated with good student outcomes is a first step in defining a route for systemic improvement. Ideally, if an education system was able to perform well in all eight teacher policy goals, it would likely achieve good education results for all its students. However, governments face financial, political, and societal constraints when deciding which policies to implement, in addition to the fact that some policies in place at a given moment may present barriers to the implementation of other policies, a process known as path dependency. For these reasons, it is unreasonable to expect that every education system will be able to achieve progress equally in each and all of the 8 Teacher Policy Goals.

The 8 Teacher Policy Goals were identified because they are functions that all high performing education systems fulfill to a certain extent, but high performing education systems do vary in the extent to which they place equal policy emphasis on each of the eight goals. In fact, successful systems combine the 8 Teacher Policy Goals in different ways to achieve good education results. It is important to stress that all high performing systems fulfill the functions delineated in the 8 Teacher Policy Goals, but they do so placing a different degree of emphasis in each of them.

Thus, it is possible to identify different “profiles” of successful education systems, that is, ways in which education systems combine the 8 Teacher Policy Goals to control the quality of education provided. These profiles are the current result of historic trends, path dependency, and political, financial, and societal constraints. However, they have in common the fact that they are internally coherent. For example, a system, such as Finland, that decides to grant ample autonomy to teachers to control the quality of education makes sure to control ex-ante the quality of its teachers by placing its policy emphasis on attracting the best into the profession and preparing them exceptionally well. This system can place lower emphasis on centrally-managed ex-post quality control because it is controlling quality at the initial end of the pipeline. Thus, understanding the ways in which successful education systems achieve internal consistency in combining the 8 Teacher Policy Goals may provide some insight for policy makers regarding how to prioritize among competing policy options when making decisions about teacher policy reform.

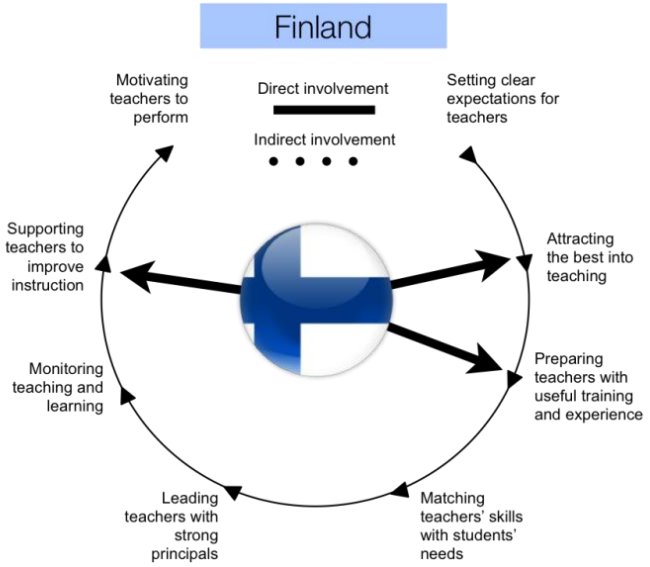
Based on a detailed review of the characteristics of successful education systems, the SABER-Teachers team identified four ways, or "profiles", via which high performing systems combine the 8 Teacher Policy Goals to achieve good education results: 1. professional autonomy; 2. shared responsibility; 3. career development; and 4. performance management. These profiles differ in the extent to which the government is directly involved in quality assurance in each of the 8 Teacher Policy Goals. A gradual movement from a professional autonomy profile at one end of the continuum to one of performance management at the other implies a more direct role for the government in each of the 8 Teacher Policy Goals. Successful education systems span the whole continuum, suggesting that no teacher policy profile is intrinsically more desirable than the others, although some profiles may be best suited for some contexts rather than others.[2]

Professional Autonomy: These systems are particularly effective at selecting the best individuals into teaching and preparing them exceptionally. Therefore, once teachers enter the profession, the system grants them ample discretion to decide how to best achieve high performance and focuses on supporting their work rather than on trying to steer it in any particular direction.

Finland is a good example of this type of system (see, for example, Darling-Hammond 2010; Schwartz & Mehta 2011; Tucker 2011). The Finnish system is characterized by high standards to enter the teaching profession, rigorous initial teacher education, and ample pedagogical discretion for teachers. Only one in ten applicants are admitted into initial teacher education after undergoing two screening processes, which include a review of their performance in secondary school as well as a written exam on pedagogy and a sample lesson. These applicants are drawn from the top 20 per cent of their graduating class. In addition to focusing on selecting talented students for initial teacher education, these students undergo rigorous training to become teachers. Teacher initial education is research-based (all students have to write a dissertation in order to graduate), and has a strong clinical (practice-based) component (Finnish student teachers spend a full year in model schools associated with their university, where they participate in "problem solving" groups). All Finnish teachers are required to have a masters' degree. While requirements to enter the teaching profession are very strict, Finnish teachers enjoy considerable autonomy over what and how to teach. They are free to develop their own learning materials and lessons, within the broad framework of the national curriculum. Quality control of teaching is done through the analysis of the results of diagnostic and formative assessments teachers implement in their classrooms. While there is an external test conducted by the National Board of Education, this test is sample-based, and used to assess the overall performance of the system, rather than for individual teacher or school accountability. The underlying theory of action in Finland is that the system can place considerable trust on teachers because they have the skills necessary to make decisions about instructional improvement.

[2] For each profile, SABER-Teachers looks at: 1. the teacher policies that distinguish each system; 2. other (i.e., non-teacher) education policies that support teachers' work; and 3. other factors—both within and beyond government control—that help explain why the system works. The rationale for taking this comprehensive view is that it will help systems in need of improvement realize of everything that is needed to achieve high performance in each of the different profiles and chart its improvement journey accordingly. These profiles are a stylized and, in some cases, simplified version of a more complex set of teacher policies; we do so intentionally to facilitate understanding the key features that drive teacher management efforts in each profile (for a more detailed analysis of each of the four teacher policy profiles, see Ganimian & Vegas 2011).

Figure 2. Finland: Government involvement in quality control of teaching

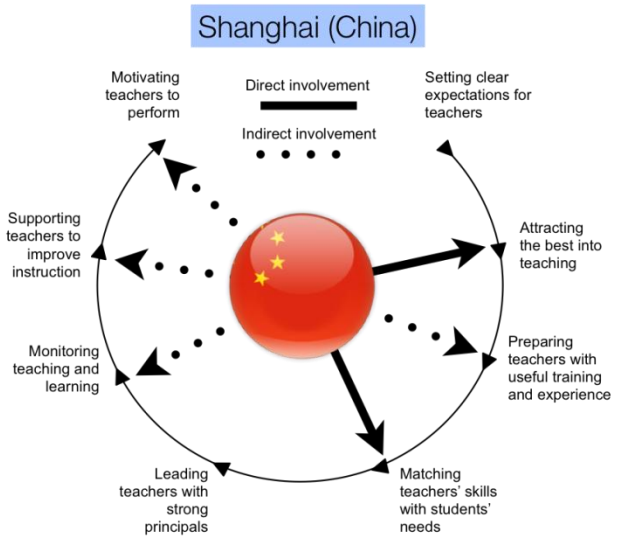


Source: Ganimian & Vegas (2011)

Shared Responsibility: These systems also place considerable trust on teachers. Yet, they are built around the notion that excellent teaching is not the responsibility of a single instructor, but rather of the profession as a whole. Thus, they have in place mechanisms that foster collaboration and encourage teachers to hold their peers accountable for the quality of their work.

Shanghai, China, is a good example of this type of system (see, for example, Cheng 2011; Tucker 2011). The quality of teaching is controlled directly by the government through policies to attract the best into teaching and policies to match teachers' skills to student needs. It is controlled indirectly by professional communities through mechanisms that facilitate strong support to instructional improvement, monitoring, and motivation. That is, the government creates the mechanisms for teachers to support their peers and hold them accountable, but rarely does so directly. The government involvement in controlling the quality of teaching in Shanghai is characterized by attracting the best into the teaching profession through targeted scholarship programs, having a strong system to assign teachers and principals to the schools where they are most needed, and having a school accountability mechanism to intervene in low-performing schools. In addition, the government creates the conditions necessary for professional communities to support teachers to improve instruction, monitor teaching and learning, and motivate teachers to perform well. There are mechanisms in place geared towards fostering collaboration among teachers to encourage peer-to-peer learning and accountability. The "teaching-study groups" are a clear example of such mechanisms. These groups bring together teachers of the same subject and level so that they can jointly plan their lessons. In addition, teachers' workload in Shanghai is structured so that teachers can regularly observe their peers during actual lessons. Novice teachers are supported by master teachers during their first year of classroom experience, and can observe more seasoned instructors to learn from them through apprenticeships. The underlying theory of action in Shanghai is that no individual teacher is perfect but that capable teachers can help each other improve, so the role of the government should be to create the spaces and mechanisms for teachers to work together.

Figure 3. Shanghai: Government involvement in quality control of teaching

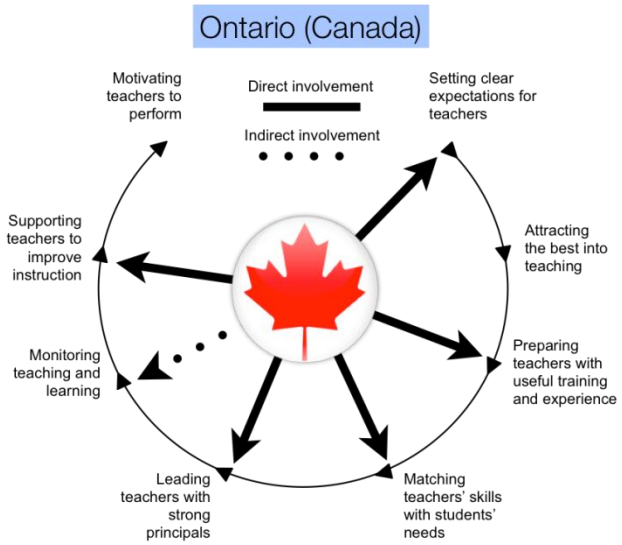


Source: Ganimian & Vegas (2011)

Career Development: These systems focus on building teachers' capacity throughout their careers, providing them with induction, professional development and formative assessment and making sure to recruit the best teachers to be principals, so that they may become effective instructional leaders.

Ontario, Canada, is a good example of this type of system (see, for example, Pervin & Campbell 2011; Schwartz & Mehta 2011). The system is characterized for investing heavily in teacher professional development, school leadership development, and support mechanisms for novice teachers. The province requires all new teachers to participate in the New Teacher Induction Program, which includes orientation, mentoring, professional development, and performance appraisals conducted by the school principal. In this way, Ontario makes sure that teachers are not left to "sink or swim", but that they can adjust quickly to their new work environment and get the additional support they need to succeed. Teacher performance is periodically evaluated to assess teacher professional development needs, and the province invests heavily in professional development to improve teacher practice. Finally, there are mechanisms in place to ensure that there is a qualified principal in each school. There are strict requirements to become a principal (which include classroom experience and a graduate degree), school boards receive guidance from the ministry to develop a talent development plan, and novice principals are mentored during their first two years of service. The underlying theory of action in Ontario is that an education system can improve by providing lots of support to teachers once they enter the profession.

Figure 4. Ontario: Government involvement in quality control of teaching

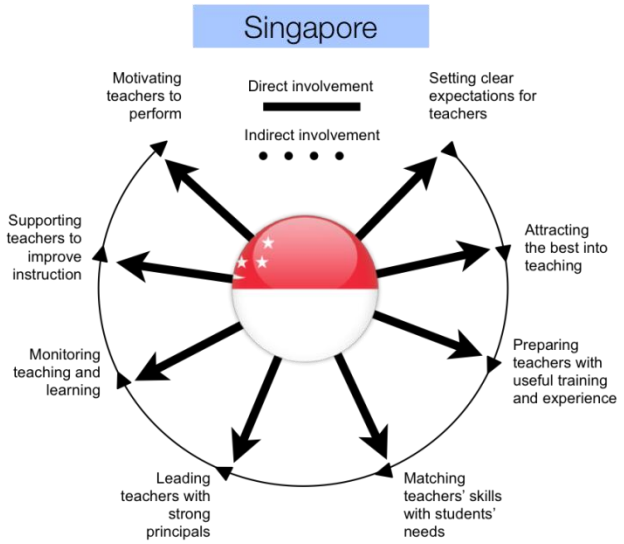


Source: Ganimian & Vegas (2011)

Performance Management: These systems are characterized by exerting tight control over teachers' daily work in the classroom. They provide teachers with detailed guidelines for their work, they monitor their execution closely and they use multiple incentives to reward outstanding teaching as well as accountability mechanisms to tackle low teacher effort and performance.

Singapore is a good example of this type of system (see, for example, Tucker 2011; Stewart 2011). The Singaporean system is characterized by a direct government involvement in all eight teacher policy goals. There is only one teacher initial education institution in the system, which facilitates direct government control over the curriculum of teacher initial education and its alignment with the school curriculum, as well as the regulation of teacher supply by restricting and directing entry into teacher initial education based on systemic needs. Entry into teacher initial education is highly competitive: only one in eight applicants are admitted to initial teacher education, and they are drawn from the top 30 per cent of the graduating class. Teachers' careers are also highly regimented. Upon entering the profession, and based on an initial assessment, teachers are encouraged to undergo one of three career paths: the teaching track (for classroom and master teachers), the leadership track (for subject/level heads, school principals, and superintendents), and the senior specialist track (for government officials). The existence of a specialized track for school principals, together with specific mechanisms to develop principals' competencies (which include a specific training program, supervised practice, and internships to shadow experienced principals) ensures that teachers are supported by strong school leaders. In addition to the support they receive from school leaders, teachers are required to participate in at least 100 hours of teacher professional development each year. Like Shanghai, Singapore has created spaces for teacher collaboration, such as teacher networks and professional learning communities, but it does not rely solely on these to promote peer-to-peer learning or to hold teachers accountable. Singaporean teachers and schools are evaluated regularly, and high-performing teachers are offered bonuses based on their performance. The underlying theory of action in Singapore is that the government knows how to get excellent teachers and is capable of doing so, so that it should be involved at every stage of the teacher pipeline to ensure teaching quality is of the highest caliber.

Figure 5. Singapore: Government involvement in quality control of teaching



Source: Ganimian & Vegas (2011)

Using the profiles approach to prioritize among policy options for teacher policy reform

While in ideal conditions an education system would strive to achieve all eight teacher policy goals as described in Section 2, resource, political, and institutional constraints force education systems to prioritize among the eight goals. The analysis of the teacher policy profiles of high-performing education systems provides an approximation to the ways in which the 8 Teacher Policy Goals can be combined to produce good education results. A system in need of improvement can look at the different profiles that exist and decide whether it would like to follow any one in particular or a combination of two or more of them.

These teacher policy profiles may provide some broad guidance to governments to think about how to prioritize among competing policy options in several ways: 1. They provide examples of the ways in which successful education systems have dealt with the issue of prioritization in teacher policies, while still ensuring good education quality results; 2. They stress the fact that regardless of the profile an education system decides to implement, what is important is to ensure internal consistency in the ways in which the 8 Teacher Policy Goals are used; 3. While they do not offer a clear path for improvement (that is, what actions an improving education system may decide to follow first), they do provide a sense of what the end points may be.

In the process of using the profiles to guide decision making, it is important to remember that the teacher policy profiles reviewed in this paper do not exist in a vacuum. As mentioned earlier, they are the current result of political, financial, and societal constraints, as well as the dependency on previously existing policies. In addition, they interact with other policies and other conditions in place in the education system. Singapore, for instance, benefits from being a small system, which may facilitate its emphasis on a tight control of the teaching profession. Shanghai has in place extremely demanding university entrance examinations, which may influence teacher or student effort independently or in interaction with specific teacher policies. Ontario focuses on the professional development of teachers once they have entered the career rather than in attracting the best into teaching, but it

benefits from the fact that its student teachers have acquired a minimum level of skills during secondary school that may not be the same in some developing countries.

In addition, this description of teacher policy profiles has two important limitations. First, it considers the teacher policy profiles of high-performing education systems in their current state of development. It does not consider the history of the reform process, that is, how the combinations of policy goals have evolved over time for each education system. Second, this description of teacher policy profiles focuses to date in high performing and high income countries. It does not address how middle/low income but rapidly improving education systems have dealt with the issue of prioritization among policy goals. Because of these two limitations, this analysis of the teacher policy profiles should be taken as a first step in the process of concretizing the 8 Teacher Policy Goals to inform education reform decisions. It is expected that this framework will evolve and provide more detailed guidance on how to think about the issue of prioritization as the SABER-Teachers program collects additional information on how high performing and rapidly improving education systems at different income levels have dealt, in historical perspective, with the issue of prioritization among policy goals. Such analysis would allow a better understanding of the possible pathways for education reform. Box 1 provides an example of how the profiles approach can be applied to the case of a middle income education system, such as Chile.

Box 1. Applying the profiles approach to a middle-income country: The case of Chile

The profiles approach is useful to highlight the teacher policy goals on which education systems place a greater policy emphasis. Chile has a teacher policy system that focuses mostly on setting clear expectations for teachers, and then assessing whether those expectations have been met, through the monitoring of teaching and learning, and motivating teachers to perform by providing monetary incentives to schools and teachers (see Figure 6).

Chile places a weaker policy emphasis on attracting the best candidates to enter the teaching profession, preparing them with useful training and experience, and creating support structures either through teacher professional development or strong school leadership to help them improve classroom practice. While teachers are trained at the ISCED5A level in Chile, the requirements to enter teacher initial education are not too strong. About 85 percent of those who apply to teacher initial education are admitted, and data suggests that applicants to teacher initial education do not come from the top graduates of secondary school. In addition, there are few opportunities for student teachers and novice teachers to develop classroom experience in a supported environment: opportunities to practice during teacher initial education are limited, and there are no mentoring systems for novice teachers. School principals are expected to support and evaluate teacher performance, but there are no specific programs to support the development of leadership skills.

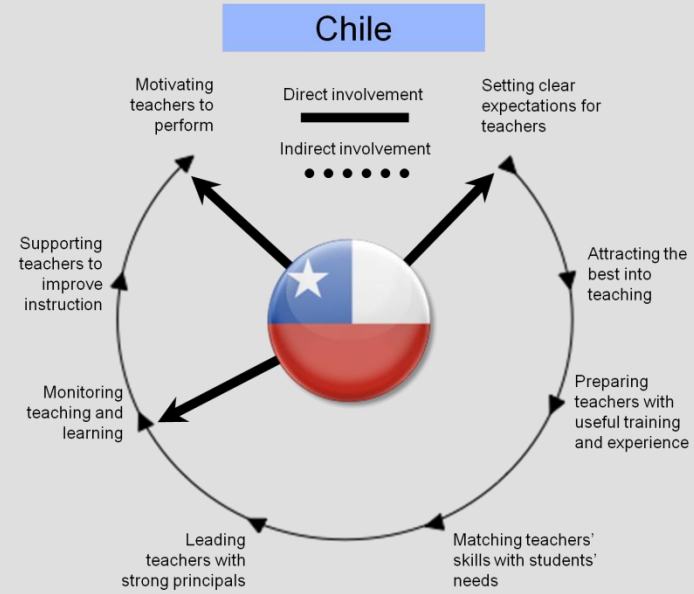
Thus, Chile is mostly focused on driving quality by monitoring teaching and learning, and developing a strong external accountability system. Student achievement is evaluated regularly through the SIMCE assessment (an annual census-based assessment covering grades 4, 8 and 10), and the results are used for accountability purposes through two main programs: the National Performance Assessment System (Sistema Nacional de Evaluación del Desempeño, SNED, implemented since 1995) and the Preferential Subsidy (Subvención Escolar Preferencial, SEP, implemented since 2008). The former program provides monetary incentives to teachers of high performing schools, and the latter provides economic incentives and pedagogic support to schools serving low-income students that reach agreed objectives. In addition, school results in the SIMCE are published in national newspapers and made directly available to parents online and through school reports.

While prioritizing these three goals has allowed Chile to improve its student achievement measure in the PISA international assessment over time. However, Chile's results remain below the OECD average, and further improvement may require that the country implements additional teacher policy reforms. The specific course of

teacher policy reform that Chile may decide to pursue requires a careful assessment of the conditions present in the Chilean education system that is beyond the scope of this framework. However, a rapid assessment using the 8 Teacher Policy Goals and the profiles approach would suggest that Chile may consider placing a greater policy emphasis on the selection and preparation of teacher candidates, as well as on supporting them to perform at their best. As already described, Chile places a strong emphasis on ex-post quality assurance mechanisms. The analysis of the internal consistency of this teacher policy profile would suggest that while assessing ex-post the quality of teaching and providing incentives to teachers to improve their practice may be enough to improve education quality up to a certain extent, additional improvements may require a greater focus on ex-ante quality control, that is, on selecting good candidates and preparing them exceptionally well, since motivation can only be expected to improve teaching practice within the limits set by the knowledge and skills teachers actually have. Instead of moving to a fully different profile altogether (like Finland's professional autonomy profile, for example), Chile may opt to build on its current strengths and incorporate elements from the performance management or the career development profiles.

It is important to emphasize that this exercise serves the purpose of modeling possible policy options. A full assessment would require, in addition to this first step, a careful analysis of the relationship between current teacher policies and their implementation in the specific context of Chile, the study of the political economy around the reform process, an assessment of the relative capacity (financial and human resources, as well as expertise) of governmental and non-governmental institutions, and the interaction between the teacher policy system and other education policies.

Figure 6. Chile: Government involvement in quality control of teaching



Source: SABER-Teachers data

4. LIMITATIONS AND FUTURE WORK

The SABER-Teachers framework builds on the evidence base on effective teacher policies available to date. As mentioned throughout the paper, there are several limitations that need to be taken into account when using this framework. It is expected that, as new evidence on what matters most for building effective teacher policy systems is developed, the framework will evolve to address these limitations.

First, while the SABER-Teachers framework builds on the current knowledge regarding what teacher policies have an effect on student achievement, there are many teacher policies whose effect on student achievement is still unknown. These policies are still part of the teacher policy system of an education system, and thus they may qualify, undermine, or boost in unexpected ways the effect of those policies that are known to improve student outcomes. It is expected that the SABER-Teachers program will contribute to fill these knowledge gaps over time. First, as impact evaluations of teacher policies become more and more widespread and encompass a greater scope of policies, it is expected that new evidence on what policies result in improved student outcomes will provide new insights into what the most adequate policy levers are to fulfill the 8 teacher policy goals. A second source of new evidence will be the data collected by the SABER-Teachers program. As described in the Policy Mapping section of this document (see Section 2 above), an important component of the SABER-Teachers framework is the identification of what the relevant dimensions of teacher policy are, regardless of whether they have been found, to date, to correlate with student achievement, in order to guide data collection efforts. SABER-Teachers collects data on all these dimensions. In the future, the analysis of the interaction of policies that are known to have a positive effect on student achievement and these other policies may shed additional light on what matters most for developing effective teacher policy systems.

Second, the SABER-Teachers framework focuses on policy design and fills a gap in our understanding of existing policies across education systems. However, policies in action may differ quite substantially from policies as originally designed, due to the political economy of the reform process, a lack of capacity of the institutions in charge of implementing the reforms, and the interaction between the policies and specific contextual factors, among other factors. While the SABER-Teachers framework currently focuses on policy design, it is expected that this limitation will be addressed through the collection and analysis of data on policy implementation. Such information may come from a variety of sources. The World Bank collects information on policy implementation in selected education systems based on demand, through tools such as Public Expenditure Tracking Surveys and their associated service delivery indicators, and Quantitative Service Delivery Surveys. As the number of countries participating in these surveys increases, it will become possible to better analyze the relationship between policy design and policy implementation. This information will also be complemented by that collected by other international actors, such as the OECD or UIS, as they continue to systematize their efforts to collect information on policy implementation. Finally, SABER-Teachers already collects data on several statistics that address some aspects of policy in practice, such as the ratio of entrants to applicants to teacher initially education, the percentage of teachers who fail their performance assessments, information on average teacher salaries, etc. It is expected that the SABER program will over time develop additional modules to collect information at the central level on a variety of issues that will provide a more thorough approximation to the actual implementation of policies.

Third, the framework could benefit from a historical perspective that provides insight into the evolution of teacher policy profiles over time, not only in high performing education systems, but also in rapidly improving middle and low income systems. This perspective may provide a better understanding of the different pathways followed by education systems when implementing teacher policy reform. The description of teacher policy profiles presented

in this paper is based on the current characteristics of high performing education systems. While it provides guidance on what the end point of teacher policy reform may be, it offers limited guidance for governments on how to get there. It is expected that SABER-Teachers will address this issue in two ways. First, it will collect information on the process that high performing and rapidly improving systems at different income levels followed to reform their teacher policies, how their governments decided among policy options along each step of the way, and how these decisions were results or served to overcome political, institutional, financial and societal constraints. Second, SABER-Teachers aims to collect information across several waves on the teacher policies of all participating systems (not only high performing or rapidly improving). Over time, this information will allow to track the trajectories of teacher policy reform across several systems, and better understand how to move from one point to another in teacher policy reform.

Finally, the framework does not currently address how teacher policies interact with other policies in an education system, and how changes in these other policies may alter the configuration of teacher policies at a given point in time. SABER-Teachers is part of SABER, a larger initiative that collects information on several domains of education systems, including student assessment policies, finance, education management and information systems, equity and inclusion, autonomy and accountability, private sector development, early childhood education, tertiary education and workforce development, information and communication technologies, and health and feeding initiatives. This initiative recognizes that education systems are *systems*, and not merely collections of inputs. As information on the policies implemented in these domains becomes available, SABER-Teachers expects to analyze the interactions between the teacher policy sub-system and other policies that are in place in education systems.

CONCLUSIONS

An education system can only succeed in ensuring learning for all by making sure that every classroom has a motivated, supported, and competent teacher who is effective in getting every child to achieve at his or her highest potential. In order to provide a lens through which to assess the merits of competing policy options for teacher policy reform, the SABER-Teachers framework extracts principles and guidelines from the research evidence to date on teacher policies, as well as the teacher policies of high performing education systems.

The review of the evidence base allowed identifying 8 Teacher Policy Goals, that is, functions that all top performing education systems fulfill to a certain extent. High performing education systems make sure to set clear expectations for their teachers, attract good candidates to the teaching profession, prepare them with useful training and experience, match their knowledge and skills with students' needs, support them with good leaders and useful teacher professional development, monitor their performance and their students' achievement, and offer incentives to motivate them. In addition, the SABER-Teachers framework identifies policy levers, that is, broad policy actions governments can implement in order to fulfill the 8 Teacher Policy Goals. The specific design of each policy will of course vary from education system to education system, based on the political, societal, financial, and institutional constraints each system faces.

While all top performing education systems have mechanisms to fulfill the 8 Teacher Policy Goals to a certain extent, they do place different emphasis on each of them. Different combinations of teacher policy goals lead to different teacher policy profiles. An analysis of how successful education systems combine the teacher policy goals

to achieve outstanding education results suggests that there is no unique combination of teacher policies that would be valid for all education systems. Some high performing education systems place greater emphasis on providing extremely well qualified teachers with ample autonomy, while others decide to control more closely all aspects of teachers' work.

Regardless of the different ways in which high performing education systems combine the 8 Teacher Policy Goals, they all share in common the fact that there is internal coherence in the way they do so. Education systems like Finland that decide to grant ample autonomy to their teachers can do so without sacrificing the quality of education because they have well functioning mechanisms to ensure that there is an extremely well qualified teacher in every classroom. Education systems like Ontario that have less focus on attracting the best into teaching, focus instead on providing extensive support through teacher professional development and school leadership. Whatever profile high performing education systems choose, they ensure that the elements of the teacher policy sub-system are well aligned.

The SABER-Teachers framework is a dynamic framework which has already evolved since its inception and is expected to evolve as new evidence on what matters most for building effective teacher policy systems is developed. Further developments will allow for a better assessment of the relationship between policy design and policy in practice, a better understanding of the conditions that affect the evolution of teacher policy profiles over time in education systems at different income levels, and a refinement of the indicators and levers used to assess the extent to which education systems achieve the 8 Teacher Policy Goals. It is expected that such developments will further improve the capacity of the framework to provide a lens through which to analyze and assess potential teacher policy reforms.

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ANNEX 1: SABER-TEACHERS PRODUCTS

The SABER-Teachers initiative aims to collect, analyze, synthesize, and disseminate comprehensive information on teacher policies across countries around the world. The ultimate objective is to develop a knowledge bank through which interested stakeholders can access information regarding what education systems around the world do in terms of teacher policies, as well as assessments of the extent to which these systems put in place teacher policies that are known, based on the available evidence, to be related to improved student achievement.

To develop this knowledge bank, SABER-Teachers collects detailed information on several dimensions of teacher policies, in addition to data on characteristics of the system as a whole. Data is collected using questionnaires applied at the government level (at the national level for centralized education systems, and at the state/provincial level for decentralized systems), which collect information on the policies each education system puts in place to manage its teaching force. To date, SABER-Teachers has collected or is currently collecting information in 65 education systems in 44 countries. While the first round of information collected focuses on the teacher policies currently in place in each education system, SABER-Teachers aims to collect information along several waves, and thus document changes in policies across time.

The information collected is used to serve two main purposes:

1. **Description of teacher policies**. The information collected is organized in a database of teacher policies. This database contains descriptive information on the teacher policies put in place by participating education systems, organized following the teacher policy dimensions described in section 2 of this document. In addition to the creation of this database, SABER-Teachers has developed a library where interested stakeholders can find the actual text of laws and regulations concerning teachers in each education system. A stakeholder interested in finding out which education systems have a specific teacher policy in place can access the teacher policies database to look for this information, and can find additional details by checking the laws and regulations library.

2. **Policy guidance**. In addition to making available the descriptive information on teacher policies, SABER-Teachers uses the information collected to conduct analyses to assess the strength of the teacher policy design of participating education systems. It does so by assessing the extent to which education systems put in place those policies that are known to be related to improved student assessment based on the research evidence available to date. To this end, the descriptive data is analyzed using a rubric that classifies the teacher policies in an education system into four different levels of development (latent, emerging, established, and advanced) which describe the extent to which education systems have succeeded in achieving each of the 8 Teacher Policy Goals described in section 3 of this paper. The objective of this analysis is to identify the strengths and weaknesses of the teacher policies of each participating education system, and offer comparative analyses of how different education systems combine the 8 Teacher Policy Goals.

The main product of SABER-Teachers will be a web-based portal (httt://www.saber.worldbank.org/), which will include four main features:

1. A database on teacher policies, which contains the descriptive information on teacher policies for each participating country. There will be a search function that will enable users to find specific information, as well as to obtain comparative reports on what is it that education systems do in terms of teacher policies.

2. Results of the benchmarking exercise. Users will be able to access results of the analysis of the extent to which each participating education system is making progress in achieving each of the 8 Teacher Policy Goals. They will be able to generate individual and comparative reports on the relative strengths and weaknesses of each teacher policy system.

3. Country and regional reports. These reports are brief (10 pages long) and user-friendly and they provide a succinct analysis of the performance of an education system on each one of the SABER-Teachers Policy Goals.

4. Library of laws and policy documents. The users of the website will also have access to the original text of the laws and policy documents that SABER-Teachers has collected in each participating education system.

The underlying conceptual framework of the initiative and the methods for assessing the strengths and weaknesses of teacher policies have been documented in a series of Background Papers: Background Paper 1 (this paper) describes the conceptual framework underlying the SABER-Teachers program, and describes in detail the evidence base used in the development of the framework. Background Paper 2 focuses on the method used to assess the extent to which education systems are achieving each of the 8 Teacher Policy Goals. It describes in detail the rubric used for this assessment, the data collection and data management procedures, and data quality control mechanisms. Background Paper 3 (Ganimian & Vegas, 2011) describes in greater detail the different teacher policy profiles described in section 3 of this paper.

ANNEX 2: SUMMARY OF PREVIOUS RELATED INITIATIVES

TALIS (*Teaching and Learning International Survey*), 2009 – on	
Objectives	• To understand the teaching and learning environments inside schools • To contrast teaching and learning environments within and between countries • To inform countries in the development of their policies for teachers, teaching, and learning
Issues & topics covered	• School leadership and management: - principals' approach to leadership and management (based on activities that are performed or not), with special attention to the degree of instructional leadership - influence of different leadership and management approaches on the school environment (professional degree of cooperation and collaboration between teachers, level of teacher morale and job satisfaction, student-teacher relations) - influence of internal/ external evaluation on leadership and management • Performance evaluation of teachers, evaluation feedback, and consequences: - internal and/or external evaluation: how teachers' work is appraised, how they receive feedback on their work, how frequently this occurs, who is involved in the process and what the outcomes are - degree to which evaluation processes are motivated by administrative, accountability, or professional development aims - influence of different evaluation systems on the school environment - influence of different evaluation systems on teaching practices • Professional development: - amount and type of professional development undertaken - support provided and barriers encountered in undertaking professional development - impact of different forms of professional development on teachers' work - types of development needs identified by teachers - systems of induction and mentoring for new teachers • Teaching practices, activities, beliefs and attitudes: - profiles of teaching practices (for example, focus on direction from the teacher vs. more open-ended approach) - picture of teachers' beliefs about teaching - correlation between teachers' practices and/or beliefs and the school environment - correlation between teachers' practices and/or beliefs and their professional activities (professional development, collaboration)
Methodology development	• Survey questionnaires were developed by an expert group that was put together by the OECD. The questionnaires were discussed with teacher representative bodies before being implemented.
Data collection	• Surveys of lower secondary education teachers and their principals • Separate questionnaires for teachers and principals • Each questionnaire takes 45 minutes to complete and can be completed online
Sample population	• Includes not only teachers but also school principals. • Participating schools are selected at random and, within them, participating teachers are selected at random. For each country, 200 schools and 20 teachers within those schools. • Conducted in 24 OECD countries in four continents during 2007–2008 (first report by mid-2009); other countries may join later on.
Relevant link	http://www.oecd.org/document/0/0,3343,en_2649_39263231_38052160_1_1_1_1,00.html

LOEB & MILLER, *A Review of State Teacher Policies* (2006)	
Objectives	• To describe and compare teacher policies across U.S. states • To inform California policy makers about the effect of teacher policies on teacher quality and student outcomes, as well as their implications for school finances
Issues & topics it covers	• Pre-service training policies: - accreditation requirements for teacher preparation programs regarding minimum subject matter coursework and field and clinical experiences - measures by which governments hold the programs accountable for the quality of the teacher candidates they train • Licensure and certification policies: - authority (functions and degree of autonomy) of State professional standards boards for teacher licensure regulation development - required teacher assessments for initial licensure - second-stage license requirements (availability of certificates and assessment requirements to obtain one) - alternative routes to certification - state implementation of NoChild Left Behind (NCLB) Highly Qualified Teacher definition • Tenure policies: - detail of processes through which teachers transition from probationary to non-probationary status, plus due process rights (tenure requirements, reasons for termination or dismissal, and appeal process) • Professional development policies: - requirements, approval, and funding for professional development - induction and mentoring programs: minimum requirements for beginning teacher induction and mentoring programs - teacher performance evaluations. • Policies for recruitment, retention, and assignment: - tuition support - loan assumption - salary bonuses - housing assistance - incentives to complete the National Board for Professional Teacher Standards (NBPTS) certification process • Salary structure policies: - Minimum salary schedules - output-based pay structures such as career ladders, merit pay, and pay-for-performance programs • Teacher association policies: - teachers' collective bargaining rights (policy type, scope of representation, salary schedule, permission to strike) - right-to-work laws • Teacher retirement policies: - details of teacher retirement systems (system management, membership in the system, mandatory contribution rates, service requirements for vesting and benefits, calculation of retirement benefits, health insurance coverage).

LOEB & MILLER, *A Review of State Teacher Policies* (2006)	
Methodology development	• The researchers conducted a review of research on teacher policies and used state statutes and regulations as the primary source of data, supplementing this information with external information. • The report also provides a brief overview of the teacher labor market in California.
Data collection	• State statutes and regulations • "Knowledge" database of National Association of State Directors of Teacher Education and Certification (NASDTEC) • Education Week's *Quality Counts 2005* • Individual state Web sites • State policy summaries by the Education Commission of individual states
Sample population	• The 50 states of the USA, plus the District of Columbia
Relevant link	http://irepp.stanford.edu/documents/GDF/STUDIES/11-Loeb-CATeacherPolicy/11-Loeb-Miller(3-07).pdf

QUALITY COUNTS 2008, *Tapping into Teaching* (Education Week)	
Objectives	• To characterize, track, compare, and rank the quality of education provided in the 50 U.S. states, plus the District of Columbia • To inform researchers, legislators, policy makers, and practitioners of states' efforts to improve the quality of education
Issues & topics covered	Topics covered in the "Teaching Profession" module: • Accountability for quality: - initial licensure requirements for all prospective teachers - discouraging out-of-field teaching for all schools - evaluation of teacher performance - accountability for effectiveness of teacher education programs - data systems to monitor quality • Incentives and allocation: - reducing entry and transfer barriers - teacher salaries - incentives for teacher leadership and performance - monitoring the distribution of teaching talent - managing the allocation of teaching talent • Building and supporting capacity: - support for beginning teachers - professional development - school leadership - school working conditions Some relevant topics are also covered by the "Standards, Assessment, and Accountability" module. In particular, this module looks into the existence of state resources and/or guides for educators that elaborate on official academic standards, as well as state provision of formative assessments or item banks linked to state standards.
Methodology development	• In 2006, after a decade of producing the publication *Quality Counts*, Education Week decided to take a hiatus from grading states on their efforts to improve public education. The 2008 report reintroduces state grades, but with several key differences. First, it grades states on their performance as well as their policy efforts. Second, it grades states on their efforts to better align policies across the various levels of education. Third, it introduces a greatly revised set of indicators on the teaching profession. • In the past, the "Teaching Profession" module graded states on their efforts to improve teaching based largely on their role as a gatekeeper, by

QUALITY COUNTS 2008, *Tapping into Teaching* (Education Week)	
	determining which institutions could prepare teachers and setting the standards for who could earn a teaching license. The 2008 module continues to look at these issues, but it also grades states on their efforts in three areas related to advancing human capital development in education: accountability for quality; incentives to attract talented people into teaching and keep them there, as well as allocate talent equitably across schools and districts; and initiatives to build and support effective teaching, both during the early stages of a teacher's career and through ongoing professional development and positive working conditions. • The new "Teaching Profession" module is the result of a one-year revision of the latest and best thinking from the field, led by the Editorial Projects in Education (EPE) Research Center. • The grades awarded to states regarding their teaching-profession–related efforts are largely based on non-numerical measures that indicate whether or not a state has implemented a particular policy and/or program. The overall score represents the percent of tracked teacher policies that the state has implemented. A state that has enacted all tracked teacher policies would receive a perfect score of 100 points. To obtain the overall score, the three main topics within the module (accountability for quality, incentives and allocation, and building and supporting capacity) are equally weighted.
Data collection	• The EPE Research Center sent surveys to the chief state school officers in all 50 states and District of Columbia public schools. The surveys were distributed in August 2007. • Respondents were asked to answer the questions and provide appropriate documentation to verify that the reported policies were in place at the time of the survey or for the 2007–08 school year. Such documentation could include state statutes, administrative rules, or Web links for information available online. • To check the accuracy of the information, as well as to check that consistent standards were applied across the states, the EPE Research Center evaluated each state's responses and documentary evidence over an 11-week period. That process often included discussions with the respondents. In the absence of documentation, the center did not award credit. • On November 2007, the EPE Research Center sent each chief state school officer a completed survey indicating the state's initial responses and the final determinations by the center, based on available documentation. Officials in the state were asked to review the final answers and supply corrections and/or changes supported by additional documentation.
Sample population	• The 50 U.S. states , plus the District of Columbia, with a focus on public education in those states.
Relevant links	http://www.edweek.org/ew/toc/2008/01/10/index.html 2008 Indicators available at: http://www.edweek.org/ew/articles/2007/01/04/17sources.h26.html?print=1 http://www.edweek.org/ew/articles/2008/01/10/18execsum.h27.html?r=683472133 http://www.edweek.org/ew/articles/2008/01/10/18overview.h27.html

EURYDICE, *A Review of State Teacher Policies* (2002)	
Objectives	• To characterize and compare teacher policies across European countries
Issues & topics covered	• Teacher education for pre-primary, primary, and secondary education: - curriculum - foreign languages - ICT - initial teacher education - in-service training - level of qualification - organization and structure - reading - specialist teachers • Teachers in primary and secondary education: - age - employment and status - gender - responsibilities - retirement - salaries - subject division - support - team planning - working time
Methodology development	• Most data was collected by Eurydice based on a review of existing policies and country-specific legislation and regulations. • Some statistics were provided by Eurostat. • Other statistics (the ones that measure issues in terms of "proportion of students in the fourth year of primary education") were obtained from the PIRLS 2001 database.
Data collection	• Review of country laws, statutes, and regulations • Already existing data in the Eurostat database • Already existing data in the PIRLS 2001 database
Sample population	• European countries
Relevant links	http://eacea.ec.europa.eu/portal/page/portal/Eurydice http://eacea.ec.europa.eu/portal/page/portal/Eurydice/Overview/OverviewByIndicator

INCA (*International Review of Curriculum and Assessment Frameworks Internet Archive*), 1996 – on	
Objectives	• To build, maintain, update, and develop an accurately researched and ready-to-use resource of "country archives" comprising descriptions of government policy on the aims, organization, and control, and structure of the education system; curriculum and assessment frameworks; and initial teacher training systems in mainstream and special education across countries • To provide comparative tables, thematic probes, and thematic studies in specific areas of interest • To provide detailed information on specific areas to enable the Qualifications and Curriculum Authority (QCA) in England to evaluate the English National Curriculum and assessment frameworks • To help QCA analyze the outcomes of international comparisons
Issues & topics it covers	• Steps to becoming a primary school teacher: - length of training - type of training available: Consecutive (a program of professional education training is undertaken once an undergraduate degree has been obtained); Concurrent (teacher training is combined with a degree which results in the award of a Bachelor of Education degree or similar); Combined (a joint degree in education and a specific subject) - on-the-job training - probationary period - registration • Steps to becoming a lower secondary school teacher: - same indicators as in previous bullet • Special educational needs teacher training: - specialist initial teacher training - post-qualification specialization - special-needs education component of initial teacher training • Recruitment incentives to encourage individuals to train as teachers (defined as the payment of course tuition fees by the government): - primary education: all subjects; shortage subjects - compulsory secondary education: all subjects; shortage subjects • Organizing bodies responsible for initial teacher training: - Types of bodies: national ministry, federal ministry, statutory body (a body independent of government that was established by legislation); non-departmental public body (a body set up, sometimes under statute, to carry out specific functions on behalf of government; although non-departmental public bodies are government funded, they are not government departments or part of government departments); local authority (regional education headquarters, local arms of the Ministry of Education) - responsibilities considered: standards for teaching qualification; teacher training curriculum/ guidance standards; registration agency • Organization of teaching: - minimum teaching time per week (in hours) - length of teaching periods
Methodology development	• The archive is funded by the QCA in England and managed and updated by the International Information Unit of the National Foundation for Educational Research (NFER). The project, which began in 1996, seeks to inform curriculum and assessment policies and practices in England, therefore the concepts and categories used are related to the curriculum and assessment framework in England. • The initial teacher training modules were incorporated in 2004–2005, and are funded by the Training and Development Agency for Schools (TDA).
Data collection	• Review of legislation as it affects the education provided in schools for the 3–19 age range • Data is sometimes complemented by additional information from contacts in ministries and agencies in the countries concerned • Since the inception of the project (in 1996), data on all countries has been regularly reviewed and updated. It was most recently updated in July 2008.

INCA (*International Review of Curriculum and Assessment Frameworks Internet Archive*), 1996 – on	
Sample population	• 20 countries: Australia, Canada, England, France, Germany, Hungary, Ireland, Italy, Japan, Korea, The Netherlands, New Zealand, Northern Ireland, Scotland, Singapore, Spain, Sweden, Switzerland, the United States, and Wales. Information for South Africa has recently been prepared and is currently being validated. • Policies that affect education provided in schools for the 3–19 age range.
Relevant links	http://www.inca.org.uk http://www.inca.org.uk/INCA_comparative_tables_July_2008.pdf

GARY REID, *Actionable Governance Indicators about Human Resource Management* (The World Bank), 2007--on	
Objectives	• To diagnose the extent to which developing countries achieve the following six core objectives of civil service management: - attract and retain required human capital - fiscally sustainable wage bill - depoliticized, meritocratic civil service management - performance-focused civil service management - ethical behavior by civil servants - effective working relationships with other cadres • To diagnose the extent to which developing countries are able to quantify their achievement of these core objectives of civil service management
Issues & topics it covers	• Institutional arrangements (the legal framework and in-practice features, such as rules, procedures, and assignment of responsibility): - civil service legal framework - due process protection (i.e., the rules that require various checks on the exercise of human resource management authority in order to reduce the odds of arbitrary exercise of that authority. These rules can include, among other things, required ex-ante clearances for particular human resource management actions; ex-post oversight of human resource management practices, and redress mechanisms) - civil service management objectives - division of responsibility and authority - remuneration policies and practices - non-remuneration policies and practices - wage bill and control - recruitment and selection - promotions and transfers procedures and practices - disciplinary procedures and practices. - redress (i.e., adjudicating challenges to particular civil service management actions in which the complainant claims that the particular civil service management action violated one or more requirements of civil service management) - code of ethics and asset declaration - performance objectives - performance appraisal - promotions - performance-related pay practices - stability of the highest ranking civil servant - working relations between cadres • Organizational capacities (skills of employees, their functions and authority): - capacity of policy-setting agents' (where capacity means that employees have officially recognized legal status; well-defined roles,

GARY REID, *Actionable Governance Indicators about Human Resource Management* (The World Bank), 2007--on	
	responsibilities and authority; and adequate human, financial, and information resources). - capacity of oversight agents - capacity of management agents - capacity of redress agents • Human resource management (HRM) system performance (the extent to which core 2 are achieved): - attracting and retaining staff with needed skills - depoliticized, meritocratic civil service management - performance appraisal practices and their consequences. - absenteeism - ethical behavior with civil servants - working relationships with other cadres
Methodology development	• Developed by a group of World Bank experts in public sector governance, led by Gary Reid. It took 1.5 years to develop the methodology. • The methodology recognizes the difference between "in practice" and "in law" answers.
Data collection	• Review of legislation and other official documents • Structured interviews with civil servants, including subjective assessment by those conducting these interviews of which answers were the most reliable. In each country, interviews are conducted by two individuals (a World Bank person knowledgeable about the country and language and a local consultant with sector-specific knowledge) over 2 weeks. Questions were sent to interviewees in advance. Every interview requires 4 to 8 hours, but a given individual is interviewed several times to avoid overwhelming him or her and to allow him or her to look for information to respond to interview questions. Another 4 weeks are used to analyze the data and write the report.
Sample population	Piloted in seven countries in three different regions (Peru, Paraguay, and Guatemala in Latin America and the Caribbean; the Kyrgyz Republic and Tajikistan in Europe and Central Asia; Tanzania and Ghana in Africa) Each of the three main topics is analyzed at four levels of government: - total public administration: entire budget-financed public administration, exclusive of state-owned enterprises - central public administration: central government budget-financed public administration, exclusive of state-owned enterprises, excluding de-concentrated central public administration - subnational public administration
Relevant links	https://www.surveymonkey.com/s.aspx?sm=ECan93OIqhAYzE4_2f_2fv96aA_3d_3d https://www.surveymonkey.com/s.aspx?sm=GIQXkiW6AivRemevmx5Gog_3d_3d https://www.surveymonkey.com/s.aspx?sm=mV51IhmJh8foAd2crguC6g_3d_3d

ANNEX 3: REVIEW OF COMPARATIVE ANALYSES OF TEACHER POLICIES IN HIGH-PERFORMING EDUCATION SYSTEMS

Databases				
Citation	Criteria	Systems	Methodology	Teacher Policies
Eurydice (1999-2009). *Key Data on Education in Europe*. Brussels, Belgium: Education, Audiovisual and Cultural Executive Agency (EACEA).	Member countries of the EU	Austria, Belgium, Bulgaria, Cyprus, Czech Rep., Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovak Rep., Slovenia, Spain, Sweden and the UK	Data from Eurydice network, Eurostat, PISA and PIRLS	1. Concurrent model of teacher training is the preferred pathway 2. Teacher education is professionally-oriented for pre-primary teachers, occupationally-oriented for primary teachers and academically-oriented for secondary teachers 3. Clinical teacher training exists in few countries 4. Support for teachers is increasing 5. Professional development is mandatory 6. Most teachers spend less than 35 hours on training for teaching reading 7. Teachers are career civil servants in only a few EU countries 8. Support for teachers is increasingly regulated 9. Special support for reading difficulties is offered outside of the classroom 10. Teacher contracts factor in non-teaching time 11. Number of required teaching hours varies widely across countries 12. Official retirement age for teachers is generally 65 13. Seniority is the main factor influencing teacher salaries.

Case Studies				
Citation	**Criteria**	**Systems**	**Methodology**	**Teacher Policies**
Auguste, B., Kihn, P. & Miller, M. (2010). "Closing the Talent Gap: Attracting and Retaining Top-Third Graduates to Careers into Teaching." London, UK: McKinsey & Co.'s Social Sector Office.	High performance in international tests	Finland, Korea and Singapore	Review of analyses and interviews with policy-makers	1. Selective admissions to teacher initial education 2. Government-funded teacher initial education 3. Government regulation of teacher supply to match demand 4. Professional working environment 5. Competitive compensation 6. High prestige of the profession 7. Opportunities for career advancement 8. Performance pay

Case Studies				
Citation	**Criteria**	**Systems**	**Methodology**	**Teacher Policies**
Darling-Hammond, L. (2010). "Steady Work: How Countries Build Successful Systems" and "Doing What Matters Most: Developing Competent Teaching." In *The Flat World and Education: How America's Commitment to Equity Will Determine Our Future*. New York, NY: Teachers College Press.	High performance in international tests	Finland, Korea and Singapore (including comparisons with OECD countries)	Review of analyses and interviews with policy-makers	Finland: 1. Extension of teacher training 2. Selection into teacher training 3. Clinical experience component of teacher training 4. Time and space allotted for collaboration for teachers at school 5. Teachers' capacity to create challenging curricula 6. Teachers' dual master's degrees in their subject matter and in education.
				Korea: 1. Compulsory training and exams to enter the profession 2. High respect attributed to the profession 3. Automatic tenure upon hiring 4. Highly desirable working conditions 5. Induction programs for beginning teachers 6. Personal learning opportunities for teachers 7. Career opportunities and salary incentives
				Singapore: 1. Link between curriculum and teachers' pre- and in-service training 2. Active recruitment for and government coverage of training costs 3. Reform in teacher training to augment teachers' pedagogical knowledge and expand practicum training in exemplary schools 4. Close collaboration between expert and novice teachers 5. Government-subsidized professional development 6. Opportunities for collaboration among teachers 7. Principal training at the government's expense with school apprenticeships

Case Studies				
Citation	**Criteria**	**Systems**	**Methodology**	**Teacher Policies**
Darling-Hammond, L. & Rothman, R. (Eds.) (2011). *Teacher and Leader Effectiveness in High-Performing Education Systems.* Washington, DC: Alliance for Excellent Education & Stanford, CA: Stanford Center for Opportunity Policy in Education (CREDO).	High performance in international tests	Finland, Ontario (Canada) and Singapore	Review of analyses and interviews with policy-makers	1. Systemic approach to teacher effectiveness 2. Strong recruitment and preparation 3. Attractive teaching conditions 4. Continuous support to improve learning 5. Proactive leadership development policies in place.
Goldhaber, D. (2009). "Lessons from Abroad: Exploring Cross-Country Differences in Teacher Development Systems and What They Mean for U.S. Policy." In D. Goldhaber & J. Hannaway (Eds.) Creating a New Teaching Profession. Washington, DC: The Urban Institute.	Participation in assessment of math teachers	Bulgaria, Germany, Korea, Mexico, Taiwan and the United States	Review of analyses and descriptive statistics	1. High status of the profession 2. Multiple pathways into the profession 3. Experimentation with incentives
	Industrialized countries with contrasting learning outcomes	Germany and Korea		

Cross-National Comparisons				
Citation	Criteria	Systems	Methodology	Teacher Policies
Barber, M. & Mourshed, M. (2007). "How the World's Top-Performing School Systems Come Out on Top." London, UK: McKinsey & Co.'s Social Sector Office.	Top 10 in 2003 PISA	Alberta (Canada), Australia, Belgium, Finland, Hong Kong, Japan, Netherlands, New Zealand, Ontario (Canada), Singapore, South Korea.	Interviews with policy-makers	Attracting top candidates into teaching Developing these people into effective instructors Tackling student failure quickly by assigning struggling students to outstanding teachers
	Improvement in NAEP or TIMSS	Atlanta (US), Boston (US), Chicago (US), England (UK), Jordan, New York (US) and Ohio (US).		
	Launching major reforms	Bahrain, Brazil, Qatar, Saudi Arabia and UAE.		
Barber, M. & Mourshed, M. (2009). "Shaping the Future: How Good Education Systems Can Become Great in the Decade Ahead." Report on the International Education Roundtable. 7 July 2009, Singapore.	Not specified	Alberta (Canada), Hong Kong (China), China, Sweden, the United States and Victoria (Australia)	Expert opinion	Recruiting top talent into teaching Supporting and managing teachers and leaders to be successful and to retain them Establishing a model of teaching practice and embed it in instruction and professional development Offering leadership development to school leaders.

Cross-National Comparisons				
Citation	Criteria	Systems	Methodology	Teacher Policies
Mourshed, M., Chijioke, C. & Barber, M. (2010). "How the World's Most Improved School Systems Keep Getting Better." London, UK: McKinsey & Co.'s Social Sector Office.	Sustained, significant or widespread gain on universal scale of international student assessments from 1964 to 2010	Sustained improvers: Aspire Public Schools (US), Boston, MA (US), England (UK), Hong Kong, Korea, Latvia, Lithuania, Long Beach, CA (US), Ontario (Canada), Poland, Saxony (Germany), Singapore and Slovenia. Promising starts: Armenia, Chile, Ghana, Jordan, Madhya Pradesh (India), Minas Gerais (Brazil) and Western Cape (South Africa).	Database of historical interventions collected through document analysis and interviews with policy makers	"Stage dependent" interventions: Providing scaffolding for low-skilled teachers (poor to fair) Ensuring teacher and school accountability (fair to good) Ensuring teaching and leadership are regarded as full-fledged professions (good to great) Putting in place the necessary practices and career paths to ensure the profession is clearly defined (good to great) "Cross-stage" interventions: Ensuring an appropriate remuneration level for teachers and principals
Carnoy, M., Brodziak, I., Luschei, T., Bateille, T. & Loyalka, P. (2009). *Do Countries Paying Teachers Higher Relative Salaries Have Higher Student Mathematics Achievement?* Amsterdam, the Netherlands: International Association for the Evaluation of Educational Achievement (IEA).	Volunteer participation and additional convenience sampling	Australia, Botswana, Bulgaria, Canada, Chile, Finland, France, Georgia, Germany, Hong Kong (China), Italy, Korea, Malaysia, Mexico, Norway, Oman, Philippines, Poland, Russian Federation, Singapore, Spain, Switzerland, Taipei (China), Thailand, the United Kingdom and the United States	Multivariate regression analysis with TEDS-M results	Successful systems are clustered in the high-paying group: Chile, Finland, Hong Kong, Korea, Singapore, Taipei (China) and the United Kingdom

Cross-National Comparisons				
Citation	Criteria	Systems	Methodology	Teacher Policies
OECD (2005). *Teachers Matter: Attracting, Developing and Retaining Effective Teachers*. Paris, France: Organisation for Economic Co-operation and Development (OECD).	Volunteer participation	Australia, Austria, Belgium, Chile, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Israel, Italy, Japan, Korea, Mexico, the Netherlands, Norway, Quebec (Canada), the Slovak Republic, Spain, Sweden, Switzerland, the United Kingdom and the United States	In all systems: country background reports, literature reviews, data analyses and commissioned papers. In 9 systems: review visits.	Making teaching an attractive choice Developing teachers' knowledge and skills Recruiting, selecting and employing the best teachers Retaining effective teachers in schools Developing and implementing teacher policy
OECD (2009). *Creating Effective Teaching and Learning Environments. First results from TALIS.* Paris, France: Organisation for Economic Co-operation and Development (OECD).	Volunteer participation	Australia, Austria, Belgium (Fl.), Brazil, Bulgaria, Denmark, Estonia, Hungary, Iceland, Ireland, Italy, Korea, Lithuania, Malaysia, Malta, Mexico, Norway, Poland, Portugal, Slovak Republic, Slovenia, Spain and Turkey	Survey of teachers and principals	Systems with more pronounced instructional leadership link teacher appraisals to professional development and schools Relatively weak evaluation structures and lack of school evaluations and teacher appraisal and feedback Teachers participate in professional development for one day a month

Cross-National Comparisons				
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OECD (2011). *Strong Performers and Successful Reformers in Education: Lessons from PISA for the United States*. Paris, France: Organisation for Economic Co-operation and Development (OECD)	High school enrollment 2009 PISA ranking Scores of top students Weak link between learning and poverty Efficient spending	Canada, Shanghai (China), Hong Kong (China), Finland, Japan, Singapore, Poland, United States, United Kingdom	Review of analyses and interviews with policy-makers	Attracting high-quality teachers Preparing high-quality teachers Developing teacher quality once teachers are in the workforce Fostering the professionalization of teaching Developing capable school leaders Providing a work organization in which teachers can use their potential
	Progress in 1-5 above	Brazil and Germany		
OECD (2011). *PISA 2009 Results: What Makes a School Successful? Resources, Policies and Practices. Vol. IV*. Paris, France: Organisation for Economic Co-operation and Development (OECD)	Performance above OECD average in reading and below OECD-average impact of poverty on student outcomes	Canada, Estonia, Finland, Iceland, Japan, Korea and Norway (and other systems close to meeting the criteria)	Multivariate regression analysis with PISA 2009 results	No link between school autonomy over teacher hiring, teacher firing, teachers' starting salaries or salary increases and student performance Association between higher teachers' salaries (but not reducing class size) with better student performance

Cross-National Comparisons				
Citation	Criteria	Systems	Methodology	Teacher Policies
Schmidt, W. et al. (2007). *The Preparation Gap: Teacher Education for Middle School Mathematics in Six Countries.* Ann Arbor, MI: MSU Center for Research in Mathematics and Science Education.	Volunteer participation	Bulgaria, Germany, Korea, Mexico, Taipei (China) and the United States	Survey of teachers	Taiwanese and Korean future teachers are the top performers in all five assessed areas of mathematical knowledge These teachers also reported taking courses that covered a greater share of the advanced mathematical topics typically covered in undergraduate math programs

Source: *Author's elaboration.*