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Strong performers and Successful Reformers in Education

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PEOPLE

PROSPERITY

PROTECTION

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Abstract

In today's global economy, countries need high-quality education systems that will teach their citizens the skills necessary to meet the challenges of tomorrow. Through its internationally comparative assessment of student performance, PISA has shown that education systems can deliver strong and equitable learning outcomes across widely varying cultural and economic contexts. Moreover, a number of countries and regions have succeeded over the past few years in improving their students' performance substantially. The OECD's Strong Performers and Successful Reformers in Education work goes beyond merely describing which countries excel and improved; it identifies key features and reforms that have allowed some countries to excel and improve so that other countries can learn from those that do well. The purpose of the series is to transmit ideas, stimulate debate and to offer insights for policy from successful reform trajectories. Countries that are strong performers and successful reforms share some common features: their politicians and social leaders share with parents, teachers and students a strong belief in the value of education; resources are channeled to the areas where they will provide the greatest results; and all students are given opportunities to succeed.

Introduction

Rapid globalisation and modernisation are posing new and demanding challenges to individuals and societies alike. Increasingly diverse and interconnected populations, rapid technological change in the workplace and in everyday life, and the instantaneous availability of vast amounts of information are just a few of the factors contributing to these new demands. In this globalised world, people compete for jobs not just locally but internationally. In this integrated worldwide labour market, highly-paid workers in wealthier countries are competing directly with people with much the same skills in lower-wage countries. The same is true for people with low skills. The competition among countries now revolves around the quality of their human capital.

The effect of these developments is to raise wages in less-developed countries and depress wages in the most industrialised countries. But these developments do not affect all workers equally. Job automation is proceeding even faster than the integration of the job market. If the work is routine, it is increasingly likely to be automated, although some jobs will always be done by human beings. The effect of automation, and more generally of the progress of technological change, is to reduce the demand for people who are only capable of doing routine work, and to increase the demand for people who are capable of doing knowledge-based work. This means that a greater proportion of people will need to be educated as professionals. High-wage countries will find that they can only maintain their relative wage levels if they can develop a high proportion of such knowledge workers and keep them in their work force. Increasingly, such work will require very high skills levels and will demand increasing levels of creativity and innovation.

This is not a description of one possible future, but of the economic dynamics that are now in play. In the high-wage countries of the OECD, demand for highly skilled people is increasing faster than supply (which OECD indicators show in rising wage premiums for highly-skilled individuals); and demand for low-skilled workers is decreasing faster than supply (which OECD indicators reveal in growing unemployment rates or declining wages for low-skilled individuals). Jobs are moving rapidly to countries that can provide the skills needed for any particular operation at the best rates. And the rate of automation of jobs is steadily increasing in both high- and low-wage countries

The transformation of labour markets, from a high reliance on routine and manual work to knowledge based intensive work is continuing and, aided by new technologies, it is profoundly reshaping the nature of workplaces. Individuals are no longer expected to passively consume information coming from well-defined sources and to use the knowledge they accumulated in the ways they thought would be useful when they were developing it. Information is now produced by a multitude of conflicting sources, and knowledge needs to be transformed and applied to novel situations. The knowledge workers of today are required to have deep knowledge, but the knowledge workers of tomorrow will need deep and wide knowledge: knowledge that can be moulded and shaped to fit a transforming world. The need for deep and wide knowledge means that education systems will need to help students adapt to new situations by giving them a mindset that is ready to absorb and filter new information and is able to combine new information with acquired knowledge in new, innovative ways. More than ever education systems need to help students learn how to learn: only if students have

the capacity, the motivation and enthusiasm to be life-long learners will they be able to remain active and productive citizens throughout their lives and reap the full benefits that life offers.

The task of equipping students with the ability to be life-long learners is compounded by demographic trends. Declining fertility and increasing life-expectancy worldwide mean that populations are aging. Economic growth and stability will depend on the ability of workers to remain in the labour force and to continue having high levels of productivity for longer. Demographic trends will also shift population pyramids towards a smaller base of young, active workers. It will therefore be increasingly important for education systems to tackle barriers that prevent some students from achieving their full potential. For example, socio-economically disadvantaged boys too often drop out of formal education with few skills and, even more worryingly, little willingness and motivation to develop them in the future. Education systems have also so far been unable to make sure that the large numbers of girls who have the ability to excel in mathematics are willing and able to develop their potential to go on and fill occupations in rapidly developing STEM industries. Unless education systems develop and capitalise on the talent of each and every student, demographic changes mean that countries as a whole will likely experience shortage of skills in the future. Never before have equity of educational opportunities and economic efficiency been so closely intertwined.

In this context, governments need to create education systems that are accessible to everyone, not just a favoured few; that are globally competitive in quality; that provide people from all classes a fair chance to get the right kind of education to succeed; and to achieve all this at a price that the nation can afford. The aim is no longer just to provide a basic education for all, but to provide an education that will make it possible for everyone to become "knowledge workers". Such education will need to build the very high skills levels required to solve complex problems never seen before, to be creative, to synthesise material from a wide variety of sources, to see patterns in the information that computers cannot see, to work with others in productive ways, and to be able to both lead and be a good team member when necessary. This is what is required in today's "flat" world – where all work that cannot be digitised, automated and outsourced can be done by the most effective and competitive individuals, enterprises or countries, regardless of their location. The implication is that the yardstick for educational success is no longer simply improvement against national standards, but against the best-performing education systems worldwide.

The aim of the paper is to identify top-scoring and rapidly improving countries as measured by the OECD Programme for international Student assessment (PISA) and examine features that some of these countries share. The paper defines countries as high-performing if: almost all of their students are in high school at the appropriate age, average performance is high and the top quarter of performers place among the countries whose top quarter are among the best performers in the world (with respect to their mastery of the kinds of complex knowledge and skills needed in advanced economies as well their ability to apply that knowledge and those skills to problems with which they are not familiar); student performance is only weakly related to their socio-economic background; and spending per pupil is not at the top of the league tables. Put another way, this paper defines superior performance as high participation, high quality, high equity and high efficiency.

The Main Features of the Programme for International Student Assessment

The main focus of PISA 2009 was reading. The survey also updated performance assessments in mathematics and science. PISA considers students' knowledge in these areas not in isolation, but in relation to their ability to reflect on their knowledge and experience and to apply them to real-world issues. The emphasis is on mastering processes, understanding concepts and functioning in various contexts within each assessment area. Around 470 000 students completed the assessment in 2009, representing about 26 million 15-year-olds in the schools of the 65 participating countries and economies. Some 50 000 students took part in a second round of this assessment in 2010, representing about 2 million 15-year-olds from 10 additional partner countries and economies. Each participating student spent two hours carrying out pencil-and-paper tasks in reading, mathematics and science. In 20 countries, students were given additional questions via computer to assess their capacity to read digital texts. The PISA assessment included tasks requiring students to construct their own answers as well as multiple-choice questions. The latter were typically organised in units based on a written passage or graphic, much like the kind of texts or figures that students might encounter in real life. Students also answered a questionnaire that took about 30 minutes to complete to understand their background, learning habits, attitudes towards reading, and their involvement and motivation. Finally, school principals completed a questionnaire about their school that included demographic characteristics and an assessment of the quality of the learning environment at school.

Since 2000 PISA has stimulated discussion within participating countries about their education policies, with citizens recognising that their countries' educational performance will not simply need to match average performance, but that they will need to do better if their children want to ensure above-average wages and competitive standards of living in the future. PISA assists this discussion by collecting a wide range of background information about each country's education system and about the perspectives of various stakeholders. This makes it possible to relate aspects of performance with important features of those systems.

On their own, cross-sectional international comparisons such as PISA cannot identify cause-and-effect relationships between certain factors and educational outcomes, especially in relation to the classroom and the processes of teaching and learning that take place there. However, they are an important tool to assess and drive educational change in several ways:

PISA, for example, shows what achievements are possible in education. For example, PISA shows that Canadian 15-yearolds, on average, are over one school year ahead of 15-year-olds in the United States in mathematics and more than half a school year ahead in reading and science. They also show that socio-economically disadvantaged Canadians are much less at risk of poor educational performance than their counterparts in the United States. While proponents of the greater male variability hypothesis suggest that innate differences in the distribution of very high skills and very low skills across genders accounts for gender disparities in academia and high-flying professions, PISA data reveal that gender differences in mean performance and in the performance of top and low-achievers vary

greatly across countries and therefore innate genetic differences are most unlikely to play a role.

Some countries have systematically related national performance to international assessments, for example, by embedding components of the PISA assessments into their national assessments. For example, by linking its national assessment with PISA, Brazil is providing each secondary school with information on the progress it needs to make to match the average PISA performance level by 2021. Similarly, Germany and Japan have embedded PISA items in their national/state assessments. PISA can help countries gauge the pace of their educational progress. Educators are often faced with a dilemma: if, at the national level, the percentage of students obtaining high score increases, some will claim that the school system has improved. Others will claim that standards must have been lowered, and behind the suspicion that better results reflect lowered standards is often a belief that overall performance in education cannot be raised.

International assessments allow improvements to be validated internationally. Poland raised the performance of its 15-year-olds in PISA reading by the equivalent of well over half a school year's progress within six years. It also reduced the proportion of students performing below the baseline level of reading performance from 23% in 2000 to 15% in 2009. Last but not least, Poland succeeded in halving performance differences between schools.

Who are Strong Performers and Successful Reformers in Education?

Which countries can be considered to be top-scoring and rapidly improving? Strong performing countries are countries where almost all of their students are in high school at the appropriate age, average performance is high, performance is only weakly related to the socio-economic background of students; and spending per pupil is not at the top of the league tables. Put another way, PISA defines superior performance as high participation, high quality, high equity and high efficiency. Successful reformers are countries and economies that experienced improvements in performance in PISA.

Results presented in Table 1 and 2 help to illustrate which countries can be considered as strong performing and successful reformers.

Table 1. A summary of key indicators based on PISA data on participation, quality, equity and efficiency: which countries are Strong Performers?

	Reading		Mathematics		Science		Percentage of variance in student performance explained by the PISA index of economic, social and cultural status (ESCS)		Cumulative expenditure by educational institutions per student aged 6 to 15
	Mean score		Mean score		Mean score				In equivalent USD converted using PPPs
	Mean	S.E.	Mean	S.E.	Mean	S.E.	%	S.E.	
OECD									
Australia	515	(2.3)	514	(2.5)	527	(2.5)	12.7	(0.85)	72 386
Austria	470	(2.9)	496	(2.7)	494	(3.2)	16.6	(1.39)	97 789
Belgium	506	(2.3)	515	(2.3)	507	(2.5)	**19.3**	(1.01)	80 145
Canada	524	(1.5)	527	(1.6)	529	(1.6)	**8.6**	(0.74)	80 451
Chile	449	(3.1)	421	(3.1)	447	(2.9)	**18.7**	(1.56)	23 597
Czech Republic	478	(2.9)	493	(2.8)	500	(3.0)	12.4	(1.09)	44 761
Denmark	495	(2.1)	503	(2.6)	499	(2.5)	14.5	(1.02)	87 642
Estonia	501	(2.6)	512	(2.6)	528	(2.7)	**7.6**	(1.11)	43 037
Finland	536	(2.3)	541	(2.2)	554	(2.3)	**7.8**	(0.82)	71 385
France	496	(3.4)	497	(3.1)	498	(3.6)	16.7	(1.97)	74 659
Germany	497	(2.7)	513	(2.9)	520	(2.8)	**17.9**	(1.29)	63 296
Greece	483	(4.3)	466	(3.9)	470	(4.0)	12.5	(1.43)	48 422
Hungary	494	(3.2)	490	(3.5)	503	(3.1)	**26.0**	(2.17)	44 342
Iceland	500	(1.4)	507	(1.4)	496	(1.4)	**6.2**	(0.81)	94 847
Ireland	496	(3.0)	487	(2.5)	508	(3.3)	12.6	(1.17)	75 924
Israel	474	(3.6)	447	(3.3)	455	(3.1)	12.5	(1.14)	53 321
Italy	486	(1.6)	483	(1.9)	489	(1.8)	**11.8**	(0.74)	77 310
Japan	520	(3.5)	529	(3.3)	539	(3.4)	**8.6**	(0.96)	77 681
Korea	539	(3.5)	546	(4.0)	538	(3.4)	**11.0**	(1.51)	61 104
Luxembourg	472	(1.3)	489	(1.2)	484	(1.2)	**18.0**	(1.06)	155 624
Mexico	425	(2.0)	419	(1.8)	416	(1.8)	14.5	(0.99)	21 175
Netherlands	508	(5.1)	526	(4.7)	522	(5.4)	12.8	(1.20)	80 348
New Zealand	521	(2.4)	519	(2.3)	532	(2.6)	**16.6**	(1.08)	48 633
Norway	503	(2.6)	498	(2.4)	500	(2.6)	**8.6**	(0.96)	101 265
Poland	500	(2.6)	495	(2.8)	508	(2.4)	14.8	(1.38)	39 964
Portugal	489	(3.1)	487	(2.9)	493	(2.9)	16.5	(1.60)	6 803
Slovak Republic	477	(2.5)	497	(3.1)	490	(3.0)	14.6	(1.48)	32 200
Slovenia	483	(1.0)	501	(1.2)	512	(1.1)	14.3	(1.06)	77 898
Spain	481	(2.0)	483	(2.1)	488	(2.1)	13.6	(1.30)	74 119
Sweden	497	(2.9)	494	(2.9)	495	(2.7)	13.4	(1.33)	82 753
Switzerland	501	(2.4)	534	(3.3)	517	(2.8)	14.1	(1.38)	104 352
Turkey	464	(3.5)	445	(4.4)	454	(3.6)	**19.0**	(1.91)	12 708
United Kingdom	494	(2.3)	492	(2.4)	514	(2.5)	13.7	(1.03)	84 899
United States	500	(3.7)	487	(3.6)	502	(3.6)	16.8	(1.65)	105 752
OECD average	493	(0.5)	496	(0.5)	501	(0.5)	14.0	(0.22)	69 135

Partners									
Albania	385	(4.0)	377	(4.0)	391	(3.9)	10.7	(1.79)	m
Argentina	398	(4.6)	388	(4.1)	401	(4.6)	**19.6**	(2.23)	m
Azerbaijan	362	(3.3)	431	(2.8)	373	(3.1)	**7.4**	(1.57)	m
Brazil	412	(2.7)	386	(2.4)	405	(2.4)	13.0	(1.27)	18 261
Bulgaria	429	(6.7)	428	(5.9)	439	(5.9)	**20.2**	(2.19)	m
Colombia	413	(3.7)	381	(3.2)	402	(3.6)	16.6	(1.90)	19 067
Croatia	476	(2.9)	460	(3.1)	486	(2.8)	**11.0**	(1.34)	34 569
Dubai (UAE)	459	(1.1)	453	(1.1)	466	(1.2)	14.2	(0.80)	m
Hong Kong-China	533	(2.1)	555	(2.7)	549	(2.8)	**4.5**	(1.08)	m
Indonesia	402	(3.7)	371	(3.7)	383	(3.8)	**7.8**	(2.23)	m
Jordan	405	(3.3)	387	(3.7)	415	(3.5)	**7.9**	(1.35)	m
Kazakhstan	390	(3.1)	405	(3.0)	400	(3.1)	12.0	(1.73)	m
Kyrgyzstan	314	(3.2)	331	(2.9)	330	(2.9)	14.6	(1.83)	3 010
Latvia	484	(3.0)	482	(3.1)	494	(3.1)	**10.3**	(1.69)	m
Liechtenstein	499	(2.8)	536	(4.1)	520	(3.4)	8.4	(2.89)	m
Lithuania	468	(2.4)	477	(2.6)	491	(2.9)	13.6	(1.44)	m
Macao-China	487	(0.9)	525	(0.9)	511	(1.0)	**1.8**	(0.35)	m
Montenegro	408	(1.7)	403	(2.0)	401	(2.0)	**10.0**	(0.84)	m
Panama	371	(6.5)	360	(5.2)	376	(5.7)	18.1	(3.86)	m
Peru	370	(4.0)	365	(4.0)	369	(3.5)	**27.4**	(2.62)	m
Qatar	372	(0.8)	368	(0.7)	379	(0.9)	**4.0**	(0.36)	m
Romania	424	(4.1)	427	(3.4)	428	(3.4)	13.6	(2.12)	m
Russian Federation	459	(3.3)	468	(3.3)	478	(3.3)	**11.3**	(1.35)	17 499
Serbia	442	(2.4)	442	(2.9)	443	(2.4)	**9.8**	(1.02)	m
Shanghai-China	556	(2.4)	600	(2.8)	575	(2.3)	12.3	(1.77)	42 064
Singapore	526	(1.1)	562	(1.4)	542	(1.4)	15.3	(1.11)	m
Chinese Taipei	495	(2.6)	543	(3.4)	520	(2.6)	11.8	(1.34)	18 370
Thailand	421	(2.6)	419	(3.2)	425	(3.0)	13.3	(1.94)	46 331
Trinidad and Tobago	416	(1.2)	414	(1.3)	410	(1.2)	**9.7**	(0.86)	m
Tunisia	404	(2.9)	371	(3.0)	401	(2.7)	**8.1**	(1.47)	m
Uruguay	426	(2.6)	427	(2.6)	427	(2.6)	**20.7**	(1.47)	m

Table 2. A summary of annualised performance trends in reading, mathematics and science: which countries are successful reformers?

	Mean score in reading 2009	Number of years for which PISA results are available	Reading	Mathematics	Science
Korea	539	9	1.6	0.7	5.3
Finland	536	9	-1.2	-0.6	-3.1
Hong Kong-China	533	8	1.0	0.7	2.3
Canada	524	9	-1.1	-0.9	-1.9
New Zealand	521	9	-0.9	-0.7	0.5
Japan	520	9	-0.3	-0.9	2.7
Australia	515	9	-1.5	-1.7	0.1
Netherlands	508	6	-0.8	-2.0	-0.9
Belgium	506	9	-0.1	-2.3	-1.3
Norway	503	9	-0.2	0.5	4.4
Estonia	501	3	0.1	-0.8	-1.2
Switzerland	501	9	0.7	1.2	1.7
Poland	500	9	2.4	0.8	3.4
Iceland	500	9	-0.7	-1.4	1.6
United States	500	9	-0.5	0.8	4.4
Liechtenstein	499	9	1.9	0.0	-0.7
Sweden	497	9	-2.1	-2.5	-2.7
Germany	497	9	1.5	1.6	1.6
Ireland	496	9	-3.4	-2.6	-0.1
France	496	9	-1.0	-2.3	1.0
Chinese Taipei	495	3	-0.3	-2.1	-4.0
Denmark	495	9	-0.2	-1.8	1.1
United Kingdom	494	3	-0.3	-1.0	-0.4
Hungary	494	9	1.6	0.0	-0.4
Portugal	489	9	2.1	3.5	6.2
Macao-China	487	6	-1.8	-0.3	0.1
Italy	486	9	-0.2	2.9	4.5
Latvia	484	9	2.9	-0.2	1.4
Slovenia	483	3	-3.8	-1.0	-2.4
Greece	483	9	1.0	3.5	-1.1
Spain	481	9	-1.3	-0.3	-0.1
Czech Republic	478	9	-1.5	-3.9	-4.1
Slovak Republic	477	6	1.4	-0.3	0.6
Croatia	476	3	-0.5	-2.4	-2.3

Israel	474	8	2.7	1.7	0.3
Luxembourg	472	6	-1.2	-0.7	-0.8
Lithuania	468	3	-0.5	-3.3	1.2
Turkey	464	6	3.9	3.7	10.0
Russian Federation	459	9	-0.3	-0.1	-0.4
Chile	449	8	5.0	3.2	3.1
Serbia	442	6	5.0	0.9	2.4
Bulgaria	429	8	-0.2	4.9	1.7
Uruguay	426	6	-1.4	0.8	-0.3
Mexico	425	9	0.4	5.5	2.1
Romania	424	7	-0.5	4.1	3.3
Thailand	421	8	-1.2	0.3	1.4
Colombia	413	3	9.3	3.6	4.6
Brazil	412	9	1.7	5.0	5.0
Montenegro	408	3	5.2	1.1	-3.5
Jordan	405	3	1.5	0.9	-2.2
Tunisia	404	6	4.8	2.1	5.1
Indonesia	402	8	3.9	1.9	-3.6
Argentina	398	8	-2.5	2.3	3.2
Albania	385	8	4.5	m	m
Qatar	372	3	19.8	16.7	10.0
Peru	370	8	5.3	m	m
Azerbaijan	362	3	2.9	-15.0	-3.1
Kyrgyzstan	314	3	9.8	6.9	2.5

Source: OECD, 2010.

Legend:

Mean score in 2009 is statistically significantly above the OECD average. Annualised score point changes in reading, mathematics and science are statistically significantly positive.

Mean score in reading 2009 is not statistically signficantly different from the OECD average. Annualised

Mean score in reading 2009 is statistically significantly below the OECD average. Annualised score point changes in reading, mathematics and science are statistically significantly negative.

What can be learnt from an analysis of strong performers and successful reformers in education?

Economic resources and investments are a necessary, but not sufficient condition for success

At first glance, it might seem that a country's wealth is related to how well it does in PISA. Among moderately wealthy economies whose per capita GDP is up to around USD 20 000 (such as Estonia, Hungary, the Slovak Republic and the partner country Croatia), the greater the country's wealth, the higher its mean score on the PISA reading test. For example, in Poland, the partner country Latvia, and the partner economy Chinese Taipei, the per capita GDP is at least twice as high as that of the partner countries Azerbaijan and Peru – and their mean scores in the PISA reading assessment are more than 100 points higher.

But PISA results suggest that above this threshold of USD 20 000 in per capita GDP, national wealth is no longer a predictor of a country's mean performance in PISA. The amount these high-income countries spend on education is similarly unrelated to their performance in PISA. A country's/economy's cumulative expenditure on education is the total dollar amount spent on educating a student from the age of 6 to the age of 15. After a threshold of about USD 35 000 per student, that expenditure is unrelated to performance. For example, countries that spend more than USD 100 000 per student from the age of 6 to 15, such as Luxembourg, Norway, Switzerland and the United States, show similar levels of performance as countries that spend less than half that amount per student, such as Estonia, Hungary and Poland. Meanwhile, New Zealand, a top performer in PISA, spends a lower-than-average amount per student from the age of 6 to 15.

What, then, contributes to better performance among high-income countries and economies? PISA results suggest that, in these countries, what matters more is how the resources are spent rather than how much is spent. The strongest performers among high-income countries and economies tend to invest more in teachers. For example, lower secondary teachers in Korea and the partner economy Hong Kong-China, two high-performing systems in the PISA reading tests, earn more than twice the per capita GDP in their respective countries. In general, the countries that perform well in PISA attract the best students into the teaching profession by offering them higher salaries and greater professional status. This relationship between performance and teachers' salaries does not hold among less wealthy countries and economies, however.

Developing countries with few resources to invest in education are unlikely to be able to fully capitalise on the potential of all their students and therefore may choose to invest more heavily into educating well small elites to lead the country's industries and government operations while allocating remaining resources for teachers with little training. When teacher quality is low, governments may also prescribe to teachers very precise job requirements, instructing them on what to do and how to do it. Such systems tend to rely on "tayloristic" methods of administrative control and accountability in an effort to achieve desired results.

As developing and transition economies become

more industrialised, citizens and policy makers tend to converge on the idea that the best way to compete in the global economy is to provide all citizens with the type and quality of education formerly provided only to the elite. To provide high-quality education to the broader population, education systems must recruit their teachers from the top of the higher education pool. But top graduates tend to find tayloristic workplaces such as school systems using bureaucratic command-and-control systems to be unappealing options. to attract the best graduates to the teaching profession, these systems need to transform the work organisation in their schools to an environment in which professional norms of control replace bureaucratic and administrative forms of control. Equally important, more professional discretion accorded to teachers allows them greater latitude in developing student creativity and critical thinking skills that are important to knowledge-based economies; such skills are harder to develop in highly prescriptive learning environments.

All countries lie somewhere along this economic continuum. As a country's goals move from the delivery of basic skills and rote learning to the delivery of advanced, complex skills, they increasingly need: more educated teachers, more professional forms of work organisation and accountability, and more developed forms of professional practice. These fundamental differences in education system design have important ramifications for every aspect of the education system. Progress along each of these dimensions can be made, at least to some degree, independently of the others – but not without some penalties. For example, nations attempting to promote complex learning and creativity without improving teacher quality will likely run into difficulties. Countries that try to improve teacher quality without professionalising their work organisation are also likely to face challenges. in this framework, there is nothing inevitable about the movement from left to right, nor is it necessarily the case that policy makers will see the need for coherence in the policies in play at any one time, but there is a price to be paid for lack of coherence. Adjusting only one or two dimensions at a time without concern for a more co-ordinated adaptation of the system as a whole risks tampering with the equilibrium that pervades successful systems.

Successful PISA countries also invest something else in their education systems: high expectations for all of their students. Schools and teachers in these systems do not allow struggling students to fail; they do not make them repeat a grade, they do not transfer them to other schools, nor do they group students into different classes based on ability. Regardless of a country's or economy's wealth, school systems that commit themselves, both in resources and in policies, to ensuring that all students succeed perform better in PISA than systems that tend to separate out poor performers or students with behavioural problems or special needs.

Developing a commitment to education and a conviction that all students can achieve at high levels

PISA indicates that in the countries with the highest performance, teachers are typically paid better relative to others, education credentials are valued more, a higher share of educational spending is devoted to instructional services and parents encourage their high-achieving children to become school teachers.

Many nations declare that they are committed to

children and that education is important. The test comes when these commitments are weighed against others. How do they pay teachers compared to the way they pay others with the same level of education? How are education credentials weighed against other qualifications when people are being considered for jobs? Would you want your child to be a teacher? How much attention do the media pay to schools and schooling? When it comes down to it, which matters more, a community's standing in the sports leagues or its standing in the student academic achievement league tables? Are parents more likely to encourage their children to study longer and harder or to want them to spend more time with their friends or playing sports?

In strong performing countries like Finland, Japan, Singapore, Shanghai-china and Hong Kong-China, parents, teachers and the public at large tend to share the belief that all students are capable of achieving high standards and need to do so. This reflect in the organisation of the education system and whether students are streamed into different types of secondary schools, with curricula set to very different levels of cognitive demand or whether a more comprehensive education system is put in place. The same belief also influences what happens when some students start to fall behind: in strong performing education systems, universal high expectations mean that when students start to fall behind, they are identified quickly, their problem is clearly identified and the appropriate course of action is taken. Because eventually all students face difficulties in fulfilling their own full potential, individualised support plans are Inevitably, this means that some students get more resources than others because the needs of some students are greater; but it is the students with the greatest needs who get the most resources, for that reason.

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