



Estudios sobre la Economía Española

# The Level of Skills in Spain: How to Solve the Puzzle using International Surveys

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# The Level of Skills in Spain: How to Solve the Puzzle using International Surveys

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## Summary

The information provided by international surveys is essential to understand the strengths and weaknesses of the Spanish education system, since one of its unique features is the lack of national standardized evaluations. Historically, Spain has lagged behind most other European countries in terms of the rate of expansion of the education system, the increase in years of schooling and the lengthening of compulsory education. When convergence was eventually achieved, Spain continued to focus its efforts on increasing access to tertiary education and pre-school, to the extent that it has surpassed most European countries in these quantitative targets. Unfortunately, much effort has been placed on inputs with little regard for outcomes.

The evidence from international surveys shows that Spanish students have levels of performance below the OECD average, particularly in maths, which have followed a flat line for over a decade (from 2000 onwards) showing a complete lack of progress until some improvements took place around 2015. When compared to other countries, Spain has very few excellent students. This flatness has been wrongly interpreted as a signal that the Spanish education system has sacrificed quality for the sake of equity. Nothing could be further from the truth. The most distinctive feature is the high rate of early school leaving, which represents the worst kind of inequity since it is the origin of the endemic problem that high rates of youth unemployment represent.

The reason why early school leaving remains high was that vocational education and training was delayed by two years at the wrong time, when the student population was still unprepared. This decision was a clear example of policy-borrowing from Nordic countries, where comprehensive policies had been implemented, but it went further making the whole of compulsory education a rigid and uniform stage with no flexibility or paths. While Nordic countries already enjoyed high levels of equity and a rather uniform student population, in Spain this model was imposed upon a diverse student population with a large proportion of low performing students many of whom were choosing VET at the age of 14. The consequence of the delay of VET to the age of 16 was an increase in drop-out rates which remained high (30%) for decades. This problem was only addressed by an education reform which introduced flexibility into compulsory education, advanced VET by one year and built bridges between different VET stages and with the academic track: enrolment in VET increased and early school leaving decreased. The prevalence of high levels of early school leaving for so long led to an atypical distribution pattern in terms of levels of educational attainment, such that a large proportion has low and high educational levels, while few have achieved medium education levels; in most European countries, medium levels of educational attainment clearly predominate. In addition, the policy borrowing was selective since those elements which were politically costly were not addressed: teacher excellence and student assessments. The result was a system which performed badly in the two main dimensions: quality and equity.

Despite the rapid expansion in access to tertiary education, which is unparalleled in Europe, the adult population (including younger generations) has low levels of skills. This result is likely to be the combination of delays in access to higher levels of educational attainment, high rates of early school leaving and the low quality of the education system. Skills mismatches also represent a major problem in Spain. In particular, field of study mismatch is higher than in most other countries, i.e. students choose to study in fields that are not demanded by the labour market, reaching almost half of the population. The degree of overqualification has been interpreted as a sign that the population is “over-educated” in relation to the demands of the labour market. However, the level of skills mismatch is actually rather low, so even though

university graduates do tend to accept jobs that do not require a university degree, their skills are right for the job. This is the result of a combination of a high field of study mismatch and the low skills acquired at university. Finally, the returns of tertiary education in Spain in terms of employability are lower than in other countries.

In conclusion, the herculean effort undertaken by society at large to expand access to higher levels of educational attainment has had low returns, given that the quality has remained poor. Spain seems to have fallen into the so-called “low skills trap” because the country remains stuck in a dangerous equilibrium between an economy strongly reliant on low skilled jobs and a mediocre education system.

## Resumen

Las comparativas internacionales ofrecen información esencial para entender las fortalezas y debilidades del sistema educativo español, dado que una de sus características más únicas es que carece de evaluaciones nacionales estandarizadas. Históricamente, España ha ido muy retrasada en relación con el resto de los países europeos en cuanto a la velocidad con la que el sistema educativo se ha expandido, el aumento en el número de años de escolarización y la extensión de la educación obligatoria. Una vez que se consiguió la convergencia, España continuó centrando sus esfuerzos en aumentar el acceso a la educación terciaria e infantil, hasta el punto en que ha superado a la mayoría de los países europeos en estas metas cuantitativas. Desafortunadamente, mientras se ha puesto mucho esfuerzo en aumentar las cifras de estudiantes matriculados, se han descuidado los resultados. La evidencia de las comparativas internacionales muestra que los estudiantes españoles tienen niveles de rendimiento por debajo de la media de la OCDE, particularmente en matemáticas, que han permanecido estancados durante más de una década (desde el 2000) mostrando una clara incapacidad de progreso, hasta que tuvieron lugar algunas mejoras alrededor del 2015. Cuando se compara con otros países, España tiene muy pocos estudiantes excelentes.

El hecho de que el sistema genere resultados planos se ha interpretado equivocadamente como prueba de que España ha sacrificado la calidad por la equidad. Nada más lejos de la verdad. La característica más distintiva es la alta tasa de abandono educativo temprano, que representa la peor forma de inequidad pues es el origen del problema endémico que representan las elevadas tasas de desempleo juvenil. La razón por la que la tasa de abandono educativo temprano permanece elevada es que la formación profesional se retrasó dos años en el momento equivocado, cuando la población estudiantil aún no estaba preparada. Esta decisión fue un claro ejemplo de “políticas prestadas” de países nórdicos en los que se había implementado la “comprensividad”, pero además este modelo se llevó al extremo pues toda la educación obligatoria se transformó en una etapa rígida y uniforme. Mientras los países nórdicos ya disfrutaban de elevados niveles de equidad y su población estudiantil era uniforme y con un buen nivel de formación, en España este modelo se impuso sobre una población estudiantil diversa con una elevada proporción de estudiantes con niveles de rendimiento bajos, muchos de los cuales optaban por la formación profesional a la edad de 14 años. La consecuencia de postponer esta opción a los 16 años fue un incremento en las tasas de abandono que permanecieron elevadas (30%) durante décadas. Este problema no se abordó hasta la reforma educativa que introdujo flexibilidad en la etapa obligatoria, adelantó la formación profesional un año y construyó puentes entre las diferentes etapas de la formación profesional y la vía académica: la matriculación en formación profesional incrementó y la tasa de abandono disminuyó. La prevalencia de altas tasas de abandono educativo temprano durante tanto tiempo ha dado lugar a una distribución atípica de niveles educativos en la población, pues una proporción elevada tiene niveles educativos altos o bajos, mientras pocos tienen niveles

educativos medios; en la mayoría de los países europeos prevalecen los niveles educativos medios. Además, sólo se copiaron algunos elementos de las políticas nórdicas pues los más costosos políticamente se obviaron: la excelencia del profesorado y las evaluaciones de los alumnos. El resultado fue un sistema con resultados pobres en las dos dimensiones: calidad y equidad.

A pesar de la rápida expansión en el acceso a la educación terciaria, sin parangón en Europa, la población adulta (incluyendo las generaciones más jóvenes) tienen niveles de competencias bajos. Probablemente es el resultado de la combinación de varios factores: los retrasos en el acceso a niveles educativos más altos, las elevadas tasas de abandono que han prevalecido durante décadas y la baja calidad del sistema educativo. El desajuste competencial también representa un serio problema en España. En particular, el desajuste entre los grados que eligen los estudiantes y los que demanda el mercado laboral es más elevado que en la mayoría de los países, alcanzando casi a la mitad de la población estudiantil. El grado de sobre-cualificación ha sido erróneamente interpretado como una señal de que la población está “sobre-educada” en relación a las demandas del mercado laboral. Sin embargo, el desajuste competencial real es bastante bajo luego, siendo cierto que los graduados universitarios aceptan trabajos que no requieren un título universitario, la realidad es que sus competencias son las adecuadas para ese trabajo. Las causas son el desajuste entre los estudios elegidos y los demandados y los bajos niveles competenciales que se adquieren en la universidad. Finalmente, los beneficios de la educación universitaria en términos de empleabilidad son más bajos que en otros países.

La conclusión es que el esfuerzo hercúleo realizado por la sociedad para expandir el acceso a niveles educativos más elevados ha tenido unos retornos muy pobres, dado que la calidad del sistema educativo en su conjunto es baja. España ha caído en la “trampa competencial” un equilibrio peligroso que se da cuando la economía se basa en trabajos que requieren bajos niveles competenciales y el sistema educativo es mediocre.

## 1. Why are International Large-Scale Assessments so important for Spain

International Large-Scale Assessments (ILSAs) evaluate the quality of education systems worldwide using the same metrics and are widely recognized for providing useful comparative information on levels of student performance (Crato 2021a, b, Gomendio 2021a, Gomendio & Wert 2023, Hanushek & Woessmann 2011, 2015, Nilsen *et al.* 2022, Reimers 2020, Strietholt *et al.* 2014). For countries and governments, the value of ILSAs lies in providing international benchmarks. Despite major differences across education systems in their architecture, curricular contents, teacher training and quality, as well as many other features, ILSAs quantify student outcomes using the same standards by focusing on a limited range of subjects (mainly reading, mathematics and science). These evaluations generate scores for each participating country which can be used to rank countries according to their level of performance, allowing countries to understand where they stand in a comparative perspective. Top performers are then used as models of how education systems should be designed and low performers as examples of what does not work. These data have been used extensively to identify which education practices are associated with better students' outcomes, so ILSAs (in particular PISA) have become influential in guiding education policy. When countries have participated over several cycles, trends over time can be analysed and conclusions drawn about which policies led to improvements or declines. However, the establishment of causal links between specific policies and student outcomes has been criticized due to the cross-sectional nature of the samples (Cordero *et al.* 2013, 2018, Gustafsson & Rosen 2014, Hanushek & Woessmann 2011, 2014, Klieme 2013, Lookheed & Wagemaker 2013), so care should be taken when assessing whether conclusions are robust depending on the statistical methods used.

This comparative perspective allows countries to become aware of their position relative to others and, therefore, provides information on the extent to which their own national assessments are aligned with international standards or not. On the one hand, low performing countries discover the degree to which their national assessments are less demanding than those in other countries and will have to make decisions about their level of ambition for the future, how quickly progress can be made, and which policies are most likely to work in their specific context. On the other hand, countries where declines over time are identified will have to investigate whether their own national assessments show similar trends and, if not, which is the type of assessment that provides more valuable information on the goals that have been established for the education system. If the evidence for declines is solid, such countries will need to re-evaluate the policies in place and make decisions about which new policies should be implemented.

None of this applies to Spain. **The reason is that perhaps the most unique feature of its education system is the absence of evaluations according to national standards** (Gomendio 2021a, b, Gomendio & Wert 2023, Wert 2019). There are no external national evaluations and there are no evaluations at the regional level which follow agreed national standards, even though the lower (“Educación Secundaria Obligatoria”) and upper-secondary (“Bachillerato”) degrees are national and awarded by the Ministry of Education. Conventional wisdom has it that national evaluations were implemented during the Franco regime in order to limit access to university and eliminated during democracy to broaden access to all. According to this widespread view, the main goal of evaluations is to act as bottlenecks that exclude underprivileged students and, therefore, represent a danger to equity.

None of this stands up to scrutiny. In fact, student evaluations (nick-named “reválidas”) were first introduced in 1857 by the Law of Public Instruction (popularly known as “Ley Moyano”). This law remained in place for over a century and during this long period national evaluations were required to obtain national degrees at different stages (mostly lower and upper-secondary, as well as access to university, but the precise stages have changed as the duration of compulsory education and the architecture of the education system have evolved over time). This system of national evaluations was dismantled towards the end of the Franco regime when the General Law on Education (Ley General de Educación, popularly known as “Ley Villar Palasí”) was approved in 1970 and national evaluations were replaced by continuous evaluation by teachers, a decision which in hindsight could be seen as a misguided attempt to combat the high rates of school failure which were prevalent at the time. **Few efforts have been made to implement national evaluations since then (the main one being the Law to Improve the Quality of Education -LOMCE- in 2013) and they have been fiercely opposed on many counts: political parties on the left of the spectrum fear that they harm equity, unions fear that student evaluations may be used to indirectly evaluate teachers, families fear that they may be too demanding for their children (particularly children from disadvantaged backgrounds) and, after education became de-centralised in the 1980s and 90s, regions fear that it would be a means to achieve re-centralisation.**

The main consequence of the absence of evaluations with common standards is that the Spanish education system has been blind to levels of student performance since 1970. Obviously, teachers grade their students, and schools or regions may decide to implement their own exams within the limitations imposed by basic law (see section on recent education reforms), but with no uniform metrics to assess student performance teachers in different schools or regions use more or less stringent criteria. The only assessment that remains at the national level is the university entrance exam, but this evaluation is neither the same nor does it have the same standards in different regions, and the gradual lowering of standards over time has resulted in over 90 % of students passing in the last years (Ministerio de Educación 2020/21 & 2021/22). Unfortunately, the expectation that the lack of evaluations would decrease rates of school failure and early school leaving has not been met, but the tradition to regard evaluations as discriminatory has become deep-rooted.

The lack of national metrics makes ILSAs even more relevant because they are the only reliable source of information on levels of student performance. This exceptional situation means that the information that ILSAs provide at the national level, i.e. trends over time and differences between regions, is considered as relevant (if not more) than information on how Spain performs in relation to other countries. The fact that Spain needs very granular information from ILSAs requires large sample sizes which, in turn, results in huge investments in ILSAs. In PISA all 17 regions having an enlarged sample which, in the case of some regions, is equivalent to the sample size of many other participating countries. To comprehend the magnitude of the effort, suffice it to say that Spain is the participating country with the largest sample of students in PISA, even though the size of its 15-year-old cohort is by no means one of the largest (OECD 2019a). Thus, in PISA 2018 the number of students participating in Spain was 35.943 which represents 7,9% of the 15-year-old cohort, while countries with much larger cohorts have much smaller sample sizes. Thus, in the US with over 4 million 15-year-olds the number of students assessed was 4.838 (0,1%), in Mexico with over 2 million 15-year-olds the number of students assessed was 7.299 (0,3%), and Japan with over 1 million 15-year-olds the number of students assessed was 6.109 (0,5%). Countries with similar cohort sizes to Spain also have much smaller samples of students taking the PISA assessment (e.g., Canada 5,8%, Poland 1,5%).

It may seem contradictory that Spain has chosen not to have national evaluations and still seems to care deeply about the information provided by ILSAs. The reason is that the latter avoid all the fears mentioned above: they have no academic consequences for students, teachers or schools (which cannot be publicly identified) and, since they are not designed, run or “owned” by central government, regions do not feel that they are transferring power back. **In some way, ILSAs are seen as informative but inoffensive. For the same reasons, I would argue that they are insufficient and by no means a substitute for national evaluations.**

In this context, the information provided by ILSAs is essential to understand the quality of the education system in Spain, as well as its strengths and weaknesses. Before examining these data in detail, it is crucial to understand the framework: how the architecture of the education system, as well as patterns of access to different levels of education, have evolved over time. This background information is needed to interpret the data on student outcomes in the right context.

## **2. The evolution of the architecture of the education system**

In many key aspects all education systems follow a similar “developmental pattern” as they mature and Spain is no exception (Barber & Mourshed 2007, Mourshed *et al.* 2010). As access to education expanded to include a growing proportion of the population, the duration of compulsory education gradually increased. As students spent more years at school and drop-out rates decreased, the architecture of the system changed to adapt to the new circumstances. As the level of knowledge and skills of students improved, and skills’ gaps shrank, the age at which students could choose between the academic and the vocational education and training paths was postponed. For the sake of clarity, I will avoid referring to the specific names given to different educational stages by different laws, and instead refer to primary, lower- and upper-secondary, as well as vocational education and training (VET). The sources of information include De la Fuente & Domenech (2014, 2016, 2021a, b), Diez Hochleitner *et al.* (1977), Eurydice, Fernández de Pedro & González de la Fuente (1975) and Ministerio de Educación (1970/71, 1980/81, 1990/91, 2000/2001, 2005/2006, 2010/11, 2015/16, 2020/21, 2021/22),

Before the 1970s compulsory education started at the age of 6 and ended at the age of 12, thus lasting for 6 years. Hence, compulsory education basically covered primary, but there are some relevant nuances. For students following the academic track, primary lasted 4 years, followed by lower-secondary (4 years) and upper secondary (3 years). In contrast, for students following the vocational education and training path, primary lasted for 6 years, followed by two consecutive cycles of VET. Thus, compulsory education lasted 6 years and students could start the VET track at the age of 12.

The approval of the General Law of Education (Ley General de Educación) in 1970 extended primary to 5 years, made lower secondary education (3 years) compulsory (thus extending compulsory education to 8 years) and therefore delayed the choice of VET until the age of 14 years.



**Table 1. Years of schooling and structure of the education system in Spain (adapted and extended from de la Fuente y Domenech 2016).**

Years of schooling	Before 1970	LGE** (1970-90)	LOGSE*** (1990-2006)	LOE (2006), LOMCE (2013) & LOMLOE (2020) ****
Primary	4/6*	5	6	6
Lower secondary or VET	4 academic 2 VET	3	4	4 3+1pre-VET (3 <sup>rd</sup> year of lower secondary)
Upper secondary or VET	3 academic 2 VET	3 academic VET (1 <sup>st</sup> cycle) VET (2 <sup>nd</sup> cycle)	2 academic 2 VET	2 academic 2 VET
Tertiary VET	-----	-----	2 years	2 years
Compulsory education	6 years	8 years	10 years	10 years
Age first choice VET	12 years old	14 years old	16 years old	15 years old

- Notes:

\*6 years for students following a VET path and 4 years for students following the academic track

\*\*LGE: Ley General de Educación (“Ley Villar Palasí”)

\*\*\*LOGSE: Ley Orgánica de Ordenación General del Sistema Educativo

\*\*\*\*LOE: Ley Orgánica de Educación / LOMCE: Ley Orgánica de la Mejora de la Calidad Educativa / LOMLOE: Ley Orgánica de la Educación

After the transition to democracy, the first reform which modified the architecture of the education system was not approved until 1990 (Ley Orgánica de Ordenación General del Sistema Educativo, LOGSE) and was designed and implemented by Socialist governments. It seems fair to say that it marked the beginning of a new era. The beginning of compulsory education remained at the age of 6, primary was extended from 5 to 6 years and lower secondary from 3 to 4; in exchange, upper secondary was reduced from 4 to 2 years. Since compulsory education continued to cover primary and lower-secondary, it expanded from 8 to 10 years. This delayed the choice of VET by 2 years, so that students could only choose VET for the first time at the age of 16 as they entered upper-secondary. Furthermore, the second cycle of VET was deeply transformed since it became a post-secondary educational stage which could only be accessed by students who had chosen the academic track in upper-secondary. This reshaped upper-secondary VET into a dead-end track, given that students could no longer transition from the first cycle of VET to the second one, as was the case before.

These changes to the architecture of the system aggravated the problem of early school leaving, prompting increases which led to high rates during the following decades (see section 3.2). In this way early school leaving became an endemic problem. Further education reforms tried to ameliorate the problem by offering a more flexible system. The Ley Orgánica de Educación (LOE, 2006) introduced an alternative path after the first 3 years of lower secondary for students who were struggling and were deemed unlikely to finish that educational stage; the impact was very limited since this was designed as a path for the lowest performing students. In contrast, the Ley Orgánica de la Mejora de la Calidad Educativa (LOMCE, 2013) went

further since, in addition to the alternative path, it offered students a narrow range of choices at the end of lower secondary between academic and applied subjects in specific topics such as mathematics. A major pillar of the reform was to modernize VET which, after the LOGSE, had become a low prestige track which only attracted a small proportion of low-performing students. The lack of attractiveness for students was such that, despite high rates of early school leaving, few students opted for VET. In other words, students were leaving the system altogether rather than choosing VET. The modernization of VET was profound but, in terms of architecture, the main change involved allowing students with a broader range of performance levels to access lower-secondary VET, to facilitate the transition to tertiary VET and to build bridges with the academic track (including eventually access to university). As we shall see, these changes resulted in a sharp increase in rates of enrolment in lower-secondary VET and a parallel steep decline in early school leaving.

The latest reform of the Ley Orgánica de la Educación (LOMLOE, 2020) keeps the alternative path for low-performing students after the 3<sup>rd</sup> year of lower secondary, as well as the changes to the structure of the VET system.

### **3. Trends in access to different educational levels**

#### **3.1. *Primary, lower- and upper-secondary***

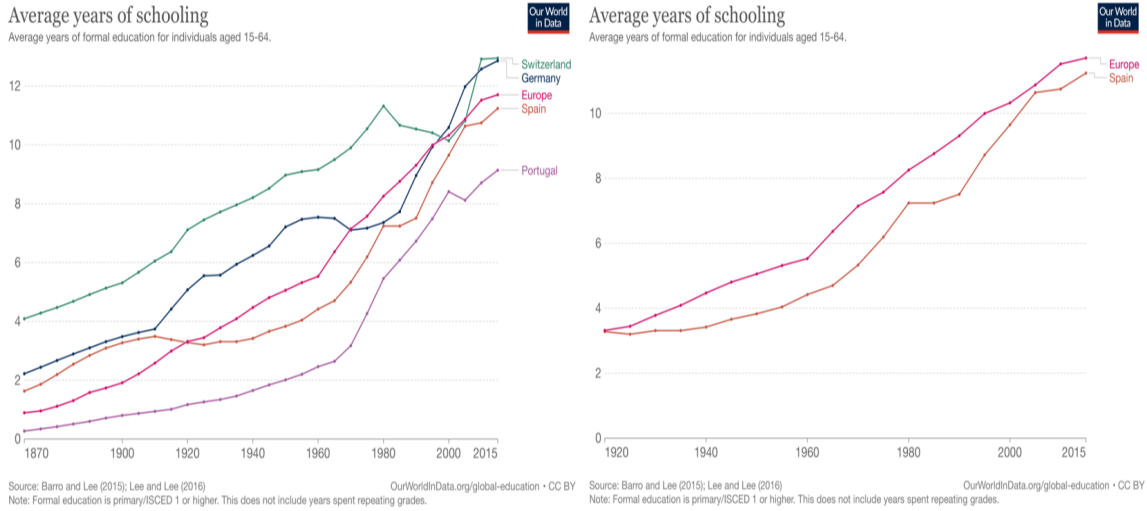
**The most salient feature of trends in access to different educational stages is that Spain has lagged behind all other European countries, with the exception of Portugal.** Eventually, convergence has been achieved.

If we go back to 1870, in Europe only a few countries had reached an average number of years of schooling of 4, as was the case in Switzerland. The average in Europe at the time was around 2 years and Spain seemed to be no different. However, after 1900 many countries in Europe started increasing the number of years substantially, reaching an average of 4,5 years by 1940 and around 11 years by 2015. In contrast, in Spain the average years of schooling did not experience significant increases between 1900 and 1940 when the average number of years remained at 3,4. Although steeper increases took place after 1960, it has lagged behind most European countries, with the exception of Portugal which suffered even greater delays.

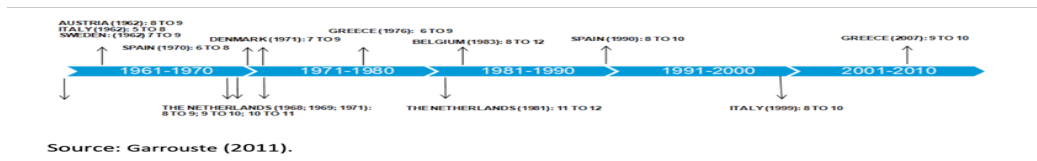
Such major differences between countries in the rate of growth in the average years of schooling is the consequence of differences in the duration of compulsory education set by education reforms. If we look at the reforms which have taken place over the last 50 years, we find that, by the time Spain extended compulsory education to 8 years in 1970, European countries such as Austria and Sweden had already enjoyed 9 years of compulsory schooling for almost a decade. Similarly, when Spain extended the duration of compulsory education to 10 years in 1990, countries such as Belgium and the Netherlands already had expanded to 12 years almost a decade before.

The increase in the duration of compulsory education had major consequences for the rate of literacy and the proportion of the population which achieved higher levels of educational attainment. In 1960, 15% of the adult population in Spain was illiterate, 94% had only studied primary and less than 3% had tertiary education. In 2019 illiteracy had almost disappeared, 70% of the population had achieved some level of secondary education and 25% had tertiary education (de la Fuente & Domenech 2016, 2021a, b).

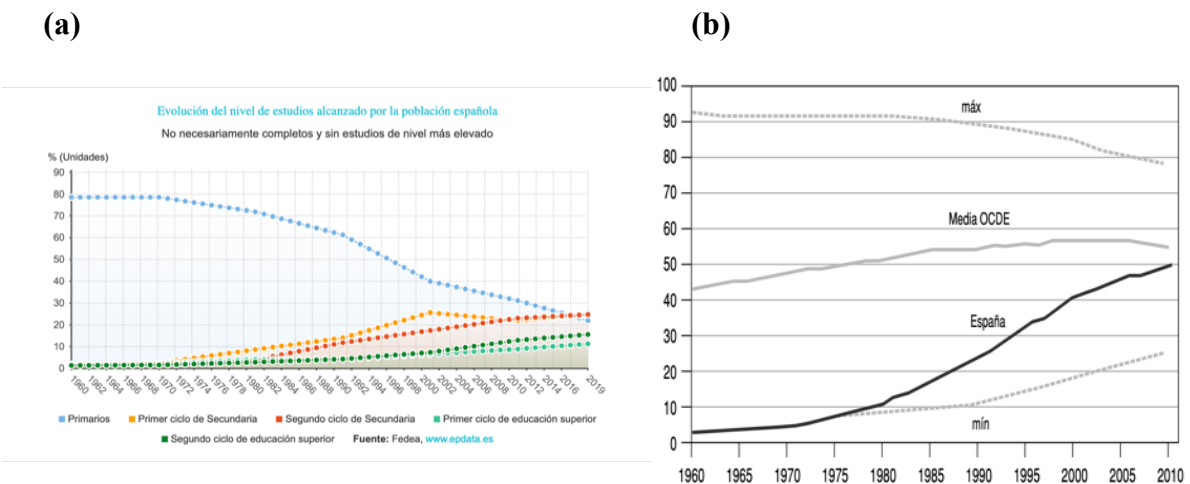
**Figure 1. Average years of schooling in different European countries.**



**Figure 2. Reforms in compulsory years of schooling**



**Figure 3. Trends in the proportion of the adult (25+) population with (a) different levels of educational attainment in Spain and (b) secondary education Spain vs OECD.**



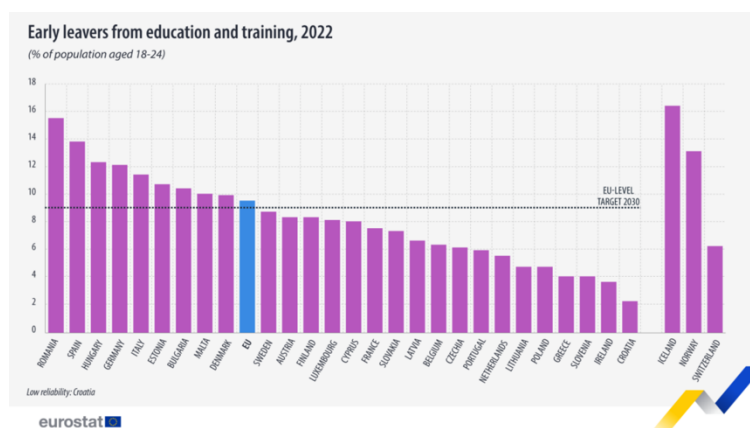
If we compare levels of educational attainment between Spain and the OECD, the extent of the delays suffered in Spain become even more apparent (de la Fuente & Domenech, 2014). In 1960 over 40% of adults attained secondary education on average among OECD countries, while in Spain this proportion was negligible, since most people (80%) had only studied

primary. In Spain it is not until the 1980s and 1990s that the proportion of adults attaining secondary education (but not tertiary) starts to increase in a significant way, reaching around 50% in 2010 when convergence with the OECD is almost achieved. It is worth noting that in 1990, when the LOGSE was approved, around 60% of the population had only achieved primary and only slightly over 20% secondary. After that, the process of convergence with the OECD accelerates.

### 3.2. Early school leaving

The evidence presented so far shows that historically Spain has lagged behind most European countries in the rate of increase in both the number of years of schooling and the proportion of students achieving higher levels of educational attainment. **In addition to the inability to keep pace with other countries Spain has suffered from an endemic problem: high rates of early school leaving. This is an unusual pattern for education systems** since rates of early school leaving tend to be high during the early stages, when a small proportion of children attend school for short periods of time until they drop out, and gradually decrease later on as universal access is achieved and more students stay until the end of compulsory education. In most countries compulsory education is extended at a pace which is well aligned with the students' readiness to stay at school for longer but in Spain, one of the slowest countries in Europe, rates of early school leaving have remained high. In fact, according to the latest figures the rate of early school leaving in Spain in 2022 (14%) was only lower than the rate in Romania, well below the average in the EU (9,6%) and far from the EU target for 2023 (less than 9%).

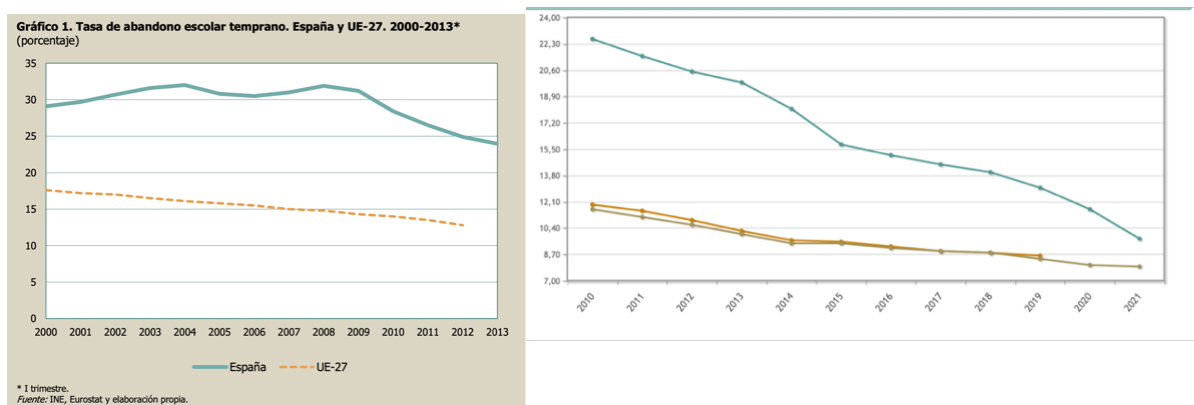
**Figure 4. Early school leaving in Europe**



In order to understand what went wrong, when and why, we need to examine the data more closely. In fact, Spain did follow the usual pattern of declines in rates of early school leaving as the education system matured until the 1990s. Thus, dropout rates decreased from 70% in 1977 to 30% towards the mid 1990s when the declines came to a halt (Felgueroso *et al.* 2014). The truly atypical pattern which requires an explanation is the fact that early school leaving remained stuck at very high levels (around 30%) from 1995 until 2013, when further declines started to take place. This stagnation did not take place in other European countries with high rates of early school leaving (i.e. Italy and Portugal) where improvements continued as should be expected.

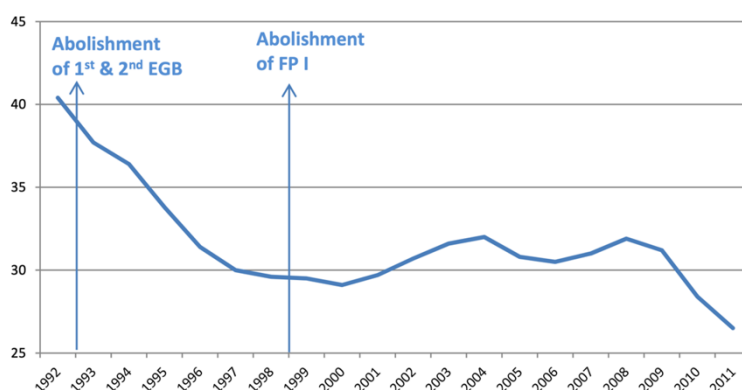
Since the pattern of declines over time resumed around 2011 and intensified after 2013 it would be important to understand both what triggered the standstill in the mid-1990s and what reactivated the declines after almost two decades.

**Figure 5. Early school leaving in Spain (2000-2013)**



Robust evidence suggests that the education reform approved in the 1990s (LOGSE) had a major role in halting the ongoing decline in rates of early school leaving. This education reform extended compulsory education by 2 years (from 14 to 16 years of age) and abolished the first cycle of VET (lower VET for 14-16 year olds), therefore delaying the age at which students could choose VET by two years once compulsory education had ended. It is worth pointing out that at that time (academic year 1990/91) well over 30% of the student population (39,1% of males and 31,9% of females) were enrolled in the first cycle of VET (Felgueroso *et al.* 2014). Detailed studies have analysed the impact of the implementation of the LOGSE on rates of early school leaving by comparing different regions, taking advantage of the fact that the process followed different timings. The evidence strongly supports the conclusion that delaying the option to choose VET from the age of 14 until the age of 16, resulted in increases in dropout rates particularly among male students (Felgueroso *et al.* 2014).

**Figure 6. Evolution of school dropouts in Spain (1992-2011)**



Source: European Labour Force Survey (Eurostat).

**These findings show that decisions to delay the age at which students can choose between VET and the academic track, can have negative consequences if they are implemented before the student population is ready. In the case of Spain, tracking between both paths was**

delayed at a time when a large proportion of students was choosing VET at the age of 14 and, when it disappeared, it turned out that they were not prepared or interested in the only option remaining: two more years of academic studies. **This conclusion can be generalized to make the point that there is no such thing as a universal age at which it is optimal to implement tracking, nor is it true that the best option is always to delay VET as much as possible** (which tends to mean the end of compulsory education). In other words, delaying tracking is not beneficial in all contexts, it depends to a large extent on the level and, perhaps more importantly, the degree of variation in the performance of students. If tracking is delayed at an age when the student population still shows large variation in levels of performance, with a significant share of low-performing students, those who struggle with the academic track will lose any motivation to continue attending school. Thus, the education system needs to put in place measures to ensure higher levels of performance for most students at older ages, before the decision to delay tracking is implemented.

**The fact that this reform also designed lower secondary as a uniform path for all students, with no flexibility to choose between different subjects, or between applied and academic options for the same subjects, made this educational stage very rigid, in contrast to the range of options that students have in most other countries.** This could have contributed to lessen the attractiveness of the academic option to students, making it particularly challenging for low performing students to keep up the pace. The rigidity resulted in a large proportion of students repeating grades in lower secondary, to the extent that most of the early school leavers abandoned without an education degree. Since the law stipulates the age at which compulsory education ends, not the grade, many students lagging one or several grades behind eventually dropped out with no degrees at the age of 16.

Obviously, rates of early school leaving also depend to some extent on the level of skills demanded by the labour market. In the case of Spain, traditionally the economy has relied on low-skilled sectors (OECD 2015, 2017) and it is possible that the construction boom that took place from the end of the 90s until the 2008 financial crisis also played a role, since students with low skill levels could still get jobs, but this factor seems to have had a larger impact in the early 2000s (Felgueroso and Jimenez-Martin 2009).

This conclusion is reinforced if we address the second question: why did rates of early school leaving start to decrease again after 2011 and even more steeply after 2013? The answer seems to lie in the fact that the next major education reform (LOMCE, 2013) introduced more flexibility in lower secondary, including the pre-vocational path which had already been introduced by the LOE in 2006, and modernized VET in upper secondary and tertiary building bridges between both VET cycles. Thus, the factors which had proved to be so damaging were reversed, as we will see in the following section.

### **3.3. *Vocational education and training***

As we have already seen, the implementation of the LOGSE (1990) involved the elimination of the vocational track in lower-secondary and the delay in tracking from the age of 14 to the age of 16 years. In addition, students enrolled in upper-secondary VET could not continue studying tertiary VET, a change which turned it into a dead end. These changes led to a dramatic decrease in the number of students choosing VET. In the academic year 1990-91 there were almost half a million students enrolled in lower-secondary VET (over 30% of the student population) (Ministerio Educación 1990/91, 2000/21, 2005/06). The drop in the number of

students was of such a magnitude that in the academic year 2000/2001, when the new system was fully operational, the number of students enrolled in VET (upper-secondary) was less than 200.000. In this same academic year, almost 600.000 students enrolled in the academic track. While this system remained in place the situation did not improve: in the academic year 2005/06 around 230.000 students enrolled in upper-secondary VET, while over 600.000 students chose the academic track.

In tertiary education the imbalance was even greater: almost 1.6 million students were enrolled in Spanish universities in the academic year 1999–2000, while tertiary VET enrolment was less than 150,000, i.e. less than 10% of total tertiary enrolment (Ministerio de Universidades/Educación 1999/2000). At the same time, rates of early school leaving were on the rise.

The loss of attractiveness of VET was reversed with the approval of the LOMCE (2013), because it addressed its main deficiencies: applied subjects became available towards the end of lower-secondary, VET was opened to a wider range of levels of student performance by implementing a specific evaluation for students who opted for this path, the transition from secondary to tertiary VET was promoted, bridges with the academic track were built and modules were modernized to include new degrees which required higher levels of skills, increasing levels of employability and allowing students to get better paid jobs.

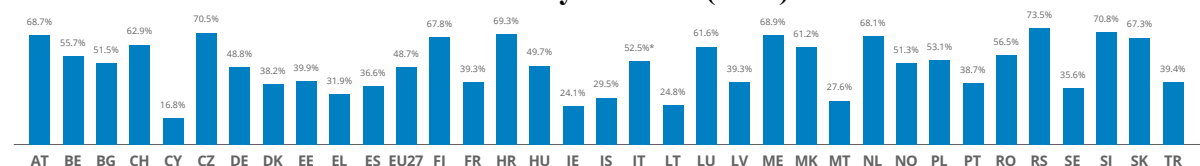
These changes led to a sharp increase in the number of students enrolled in VET which doubled between the academic year 2010/11 and 2020/21, reaching over a million students. The increase has been particularly marked among students enrolled in tertiary VET where the number of students has increased by 74 %.

**Table 2. Number of students and % increase in relation to the previous stage**

Academic year	2010-2011	2015-2016	2020-2021
FP Basic	-----	61.909	76.096 (22,9%)
Upper-secondary VET	297.877	349.631 (17,3%)	399.769 (14,3%)
Tertiary VET	284.699	353.920 (24,3%)	497.560 (40,5%)

However, there is still much room for improvement since the proportion of students choosing VET in upper-secondary in Spain remains much lower than in other countries. Thus, while in Spain about 36% of students enroll in VET, in other European countries, such as Austria, Finland or the Netherlands, the proportion increases above 60% (CEDEFOP data, retrieved 2023).

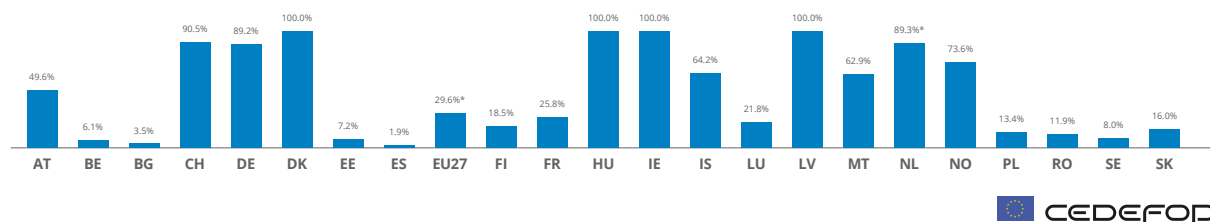
**Figure 7. Number of students in upper-secondary VET as a percentage of all upper secondary students (2020)**



Cedefop calculations based on Eurostat data, UOE data collection on formal education

Among those who do choose to study VET the main deficit seems to be that work-based programmes continue to be very rare, since most of the practical work is carried out at VET Centres. This represents a major limitation since “on-the-job-training” ensures that students acquire skills demanded by the labour market, therefore improving employability.

**Figure 8. Number of VET students who engage in work-based learning as a percentage of all upper secondary VET students (2020)**



Cedefop calculations based on Eurostat data, UOE data collection on formal education

The first attempt to address this limitation was the regulation of a new model of “dual VET” in 2012, which is designed to ensure that students spend a substantial proportion of time engaged in work-based learning (Formación Profesional Dual 2012). However, the success of this initiative has been limited since, despite a substantial increase in the number of students over time, they still represent less than 4% of students in upper-secondary VET and around 6% in tertiary VET. These low numbers seem to be the result of a lack of proper incentives for firms to become involved. Despite this, students enrolled in dual VET are more likely to finish their studies and enjoy higher levels of employability.

### 3.4. University

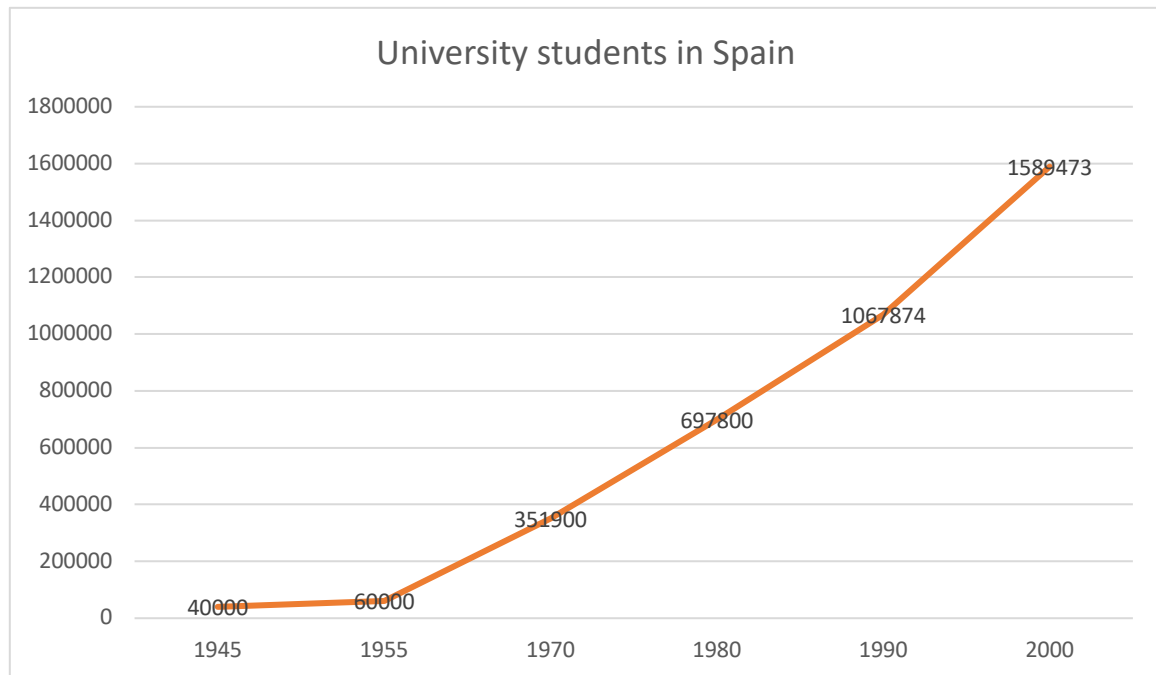
As in most other countries, in Spain university has experienced a profound transformation from an elitist institution to one which grants access to many. This transition has been fueled by the strong belief that access to university *per se* represents a passport to good quality jobs and therefore it is valued as a powerful engine of social mobility. As a result, huge efforts have been made to expand access to university which have been very successful in quantitative terms. The number of university students has increased from 40.000 in 1945 to almost 1.600.000 in 2000. This increase started in the 1970s and has followed a steep curve ever since (García de León and García de Cortázar 1991, Ministerio de Universidades/Educación 1999/2000, 2020/21, 2021/22).

In fact, the expansion has been of such a magnitude that the rate of tertiary educational attainment (25-34 years old) was already higher for Spain than the average for the EU in 2011 (Spain: 40,3%, EU: 33%) and in 2012 Spain surpassed the European target for 2030 (set at 45%) reaching 48,7% (European Commission 2022).

This fast growth rate has been possible due to a combination of two factors: on the one hand, there have been major increases in investment from public funds, given that University fees are comparatively low in Spain. On the other hand, low standards have been set in order to facilitate access to university; thus, the university entrance exam allows more than 96% of students to pass. But such a herculean effort by society at large has had low returns.



**Figure 9. Number of University students in Spain over time**



*Fuentes:* García de León (MEFP), Ministerio Educación/Universidades: Datos y Cifras del Sistema Universitario Español.

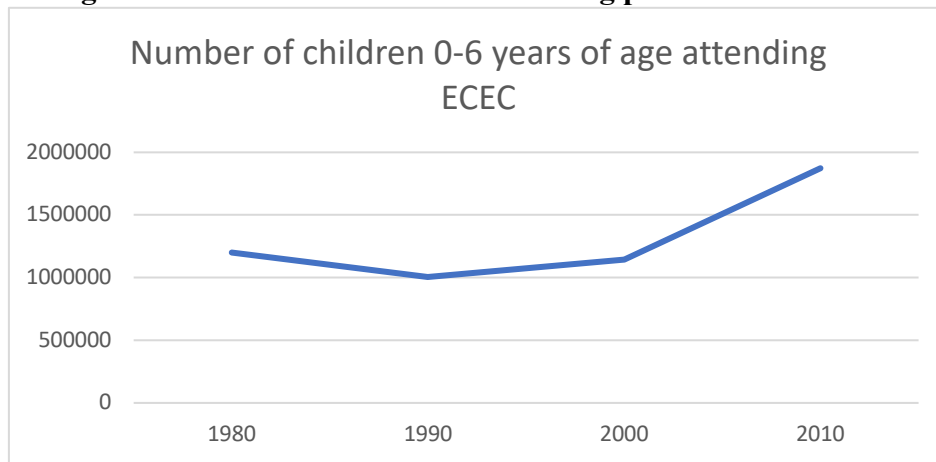
If we focus on the rate of success at obtaining a university degree, we find that more than 20% of students drop out during the first year and most of them do not continue any university studies. The drop-out rate increases to 30% for students in arts and humanities. Only 38,3% of students finish a university degree within the normal duration, while around 50% do so a year later (Gomendio 2022a, Ministerio de Universidades/Educación 2020/21, 2021/22). Thus, many students drop out and those who stay on take forever.

Thus, the role that is expected from university as an “equalizer” which can overcome the educational gaps in previous stages in education, has not been fulfilled. **It goes without saying that the idea that the lack of academic and economic barriers is the only way to achieve equity has led to a system that fails most students, since University degrees have been devalued and, as we shall see, do not have the expected returns either for students or society as a whole.**

### **3.5. Early childhood education and care (ECEC)**

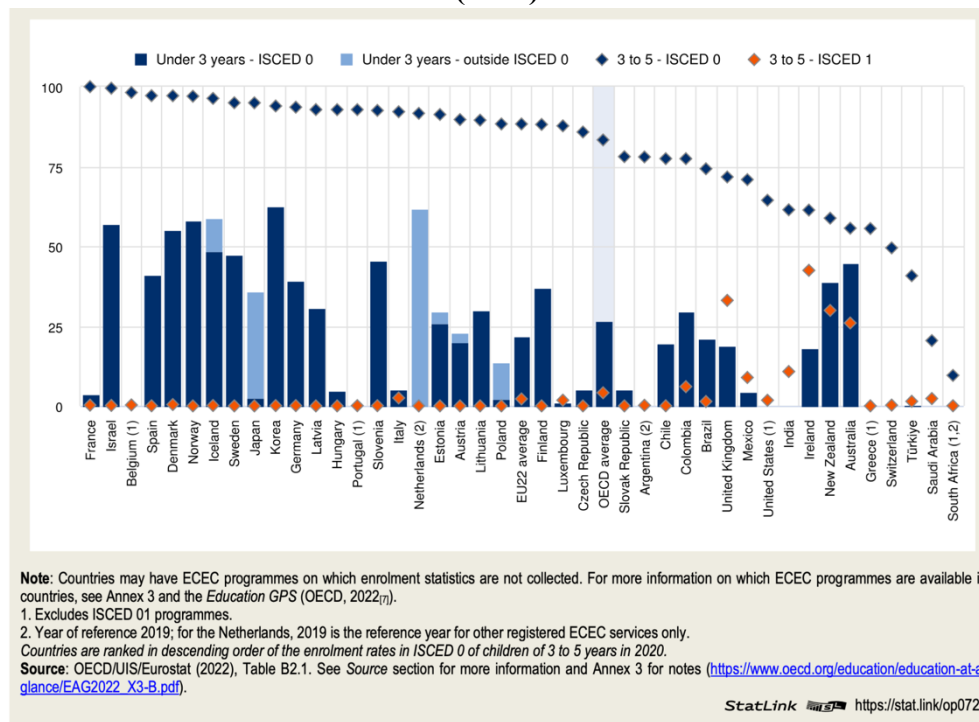
At the opposite end of the spectrum, major efforts have also been made to increase access to ECEC before compulsory education starts (at the age of 6). As part of a consistent trend to concentrate all efforts on increasing student numbers at all educational stages, access was already high by 1980. In fact, the number of children attending pre-school has remained quite stable at around 1 million from 1980 until 2000. Due to declining demographic trends these absolute numbers actually represent around 30% of the children between 0 and 6 years of age in 1980, 38% in 1990, over 50% in 2000 followed by a steep increase in the following years (Ministerio de Educación 1980/81, 1990/91, 2000/21, 2005/06, 2010/11).

**Figure 10. Number of children attending pre-school over time**



Once again, in terms of the number of students attending non-compulsory educational stages, Spain has an excellent record. Today participation of children above 3 years in early childhood education and care (ECEC) is the third highest in the EU (97.2%), surpassing the EU-level target of 96%. The participation rate of children below the age of 3 (55.3% in 2021) is also well above EU average (36.6%) (European Commission 2022).

**Figure 11. Enrolment rates of young children by type of programme and by age group (2020)**



### 3.6. Summary

Overall, the data concerning access reveal that **huge efforts have been made to expand the years spent in education at all levels**, including compulsory education, access to university

and enrollment in ECEC. At present, if we analyse the number of students enrolled at different levels of educational attainment from a comparative perspective, Spain holds many records.

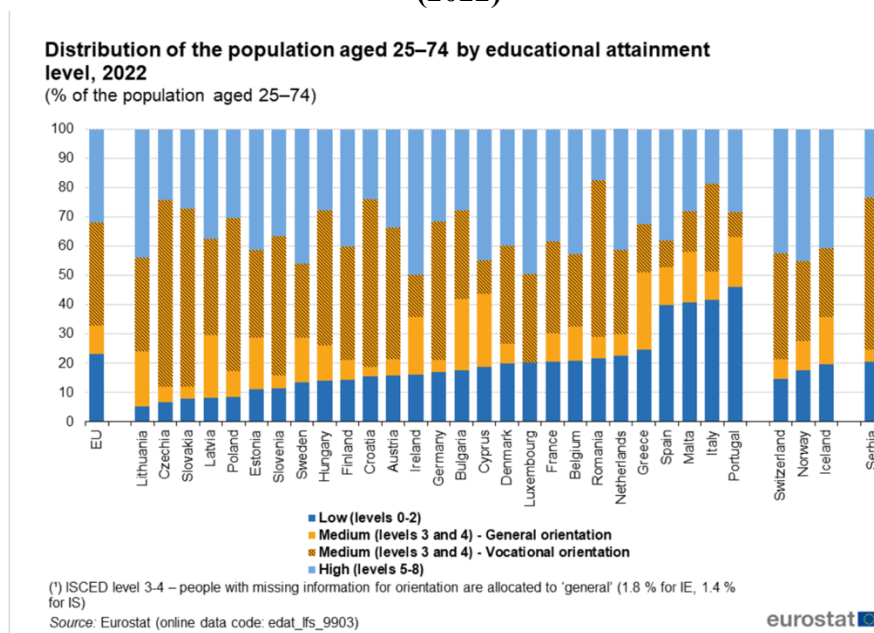
Historically, Spain has lagged behind most European countries (with the exception of Portugal) in terms of the number of years that children spend at school and the duration of compulsory education. Convergence has finally been achieved but **changes in the architecture of the education system which took place at the wrong time (LOGSE, 1990) have led to one of the worst deficiencies: a high rate of early school leaving. The crux of the problem is that lower-secondary VET was eliminated prematurely, at a time when it was the choice of over 30% of the student population.** The consequence was that the opportunity to choose VET was delayed until upper-secondary by two years (from the age of 14 to the age of 16). The evidence clearly shows that, at that time, a substantial proportion of the student population was still not ready nor willing to continue the academic track. The tragic consequence of delaying tracking when the system was not mature enough for that kind of measure, was an increase in rates of early school leaving. Thus, faced with the lack of choice a substantial proportion of students decided to leave rather than follow the academic track for two additional years. As a consequence, the declines in rates of early school leaving that had taken place over the previous years were reversed and experienced an increase. Unfortunately, despite the high rates of early school leaving that were achieved, the problem persisted for a long period of time given that a rigid system was imposed upon a heterogeneous student population. During the following two decades 30% of the student population dropped out, many of them without the lower-secondary degree. **Nothing was done until a new education reform (LOMCE, 2013) modernized VET, introduced applied subjects at the end of lower-secondary, and built bridges with tertiary VET and University. Its implementation led to a historical decline in rates of early school leaving, clearly showing that the lack of alternative paths was the problem that needed to be tackled.**

In sharp contrast, the focus on expanding access beyond compulsory education continued. The task has been of such magnitude that, within the European context, Spain occupies the highest positions in the ranking of access to both ECEC and tertiary education. However, the rate of drop-outs at university degrees is quite high. **Hence, much effort has been placed on inputs with little regard for outcomes.**

Based on this set of facts it can be concluded that the Spanish education system resembles a pipeline with huge inputs but substantial leaks at key points: high rates of early school leaving before the end of lower-secondary (compulsory education) and high dropout rates at university. This leads to a distribution of levels of educational attainment in the population such that a large proportion has low and high educational levels, while few have achieved medium education levels. This is an atypical distribution pattern when compared to other European countries where medium levels of educational attainment clearly predominate.

This leads to an unusual shape of the distribution of the Spanish student population, which resembles a sandglass: it starts with a very wide base of students at the bottom (high pre-school enrolment), which narrows in the middle (a large proportion leave before reaching upper-secondary) and enlarges again at the top (a large proportion of those who attain upper-secondary then move onto tertiary education). **This reveals a misguided approach which assumes that by increasing inputs while disregarding outputs, improvements in the levels of knowledge and skills will occur. As we shall see, this is not the case because the overall quality of the system remains low and few efforts have been made to address this deficiency.**

**Figure 12. Distribution of the population aged 25-74 by level of educational attainment (2022)**



#### 4. International Large Scale Assessments of students' outcomes

The main international surveys among European and OECD countries are PIRLS, TIMSS and PISA. The IEA developed the initial surveys, sampling all students in each classroom focusing on specific grades and have been designed to analyse the extent to which students have acquired curriculum-based content (Martin *et al.* 2016, Mullis *et al.* 2000, 2016, 2017, 2020 and 2023). TIMSS (Trends in International Mathematics and Science Study) has monitored the performance of students in grades 4 and 8 in mathematics and science every four years since 1995. PIRLS (Progress in International Reading Literacy Study) has monitored trends in reading achievement at the 4<sup>th</sup> grade since 2001 and it takes place every five years.

The Organization for Economic Cooperation and Development (OECD) started its own survey, PISA, in 2000 which samples fifteen-year-olds irrespective of the grades (eighth, ninth, tenth and eleventh grades). PISA's goal is to assess how the knowledge and skills acquired during compulsory education are applied to meet real-life challenges and to solve problems in unfamiliar settings (OECD, 2001 and 2019a, b). The domains are the same (reading, mathematics and science) and PISA takes place every three years, focusing on one domain in each cycle. Unlike IEA surveys, PISA does not attempt to relate differences in curricular content between countries to student outcomes. Instead, the knowledge and skills considered relevant for "knowledge-based societies" are decided by groups of experts. This approach recognises explicitly that PISA scores are the result of the combined impact of school, home and the social environment, making the links between PISA results and school policies more tenuous. Despite this, PISA claims to be more policy-oriented than IEA's assessments (Gomendio 2023a).

International surveys have uncovered major differences in student performance between countries which are equivalent to several years of schooling, revealing differences in the quality of education systems which are much larger than expected. Obviously, these differences grew over time as all international surveys started from a rather small and uniform group of countries and gradually expanded to incorporate an increasing number of participating countries. To give an idea of the magnitude of the differences, it will suffice to point out that in 2015, PISA assessed students in 72 countries and the data show that the difference between the top-performing country and the lowest-performing country is equivalent to more than seven years of schooling according to PISA (OECD, 2016a). In other words, what an eight-year-old has learned in a country with a good-quality education system is roughly equivalent to what a fifteen-year-old knows in a low-performing system. Thus, differences in the quality of education systems are of such magnitude that students in different countries end compulsory education with a shocking difference in levels of knowledge and skills.

These findings have far reaching implications since they show that years of schooling is not a reliable proxy measure for students' levels of knowledge and skills, because how much students learn in a school year differs greatly from country to country. In other words, education systems differ to a large degree in their effectiveness, or productivity, when these are measured as learning progress made by students per time unit.

As we shall see, one might also question the usefulness of viewing the educational attainment of adults as an accurate proxy for a country's human capital and talent, since students at the end of any educational stage will have very different levels of knowledge and skills in different countries. The worrying conclusion is that, while the expansion of educational opportunities has led to high returns in terms of skills and knowledge in countries with good-quality education systems, it has delivered very poor results in terms of human capital growth among low-performers.

#### **4.1. Student outcomes among primary students: an international perspective (PIRLS and TIMSS)**

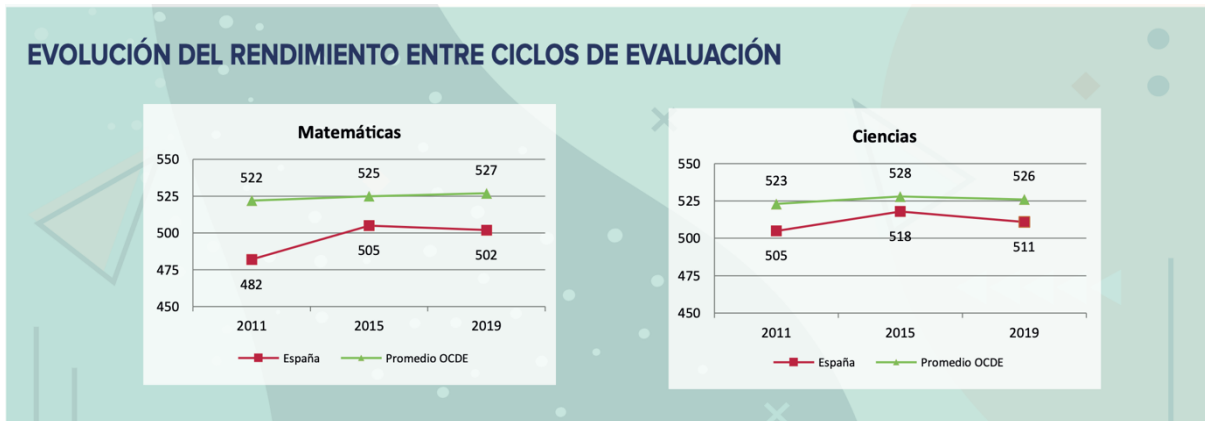
Spain has only participated in the PIRLS and TIMSS surveys for students in 4<sup>th</sup> grade. Thus, there are no data for the 8<sup>th</sup> grade which is generally treated as targeting a sample of students broadly comparable to those included in the PISA survey. However, the sample of 4<sup>th</sup> grade students provides useful information on the performance of students in primary (Martin *et al.* 2016, Mullis *et al.* 2016, 2017, 2020, 2023).

##### **TIMSS 2019**

The evidence from TIMSS 2019 shows that Spain performs below the OECD and the UE in science and much lower in maths (Mullis *et al.* 2020). This result is the combination of two factors: Spain has substantially fewer top-performing students (Mathematics: Spain 27% vs OECD 41%) and more low-performing students (Mathematics: Spain 35% vs OECD 26%).

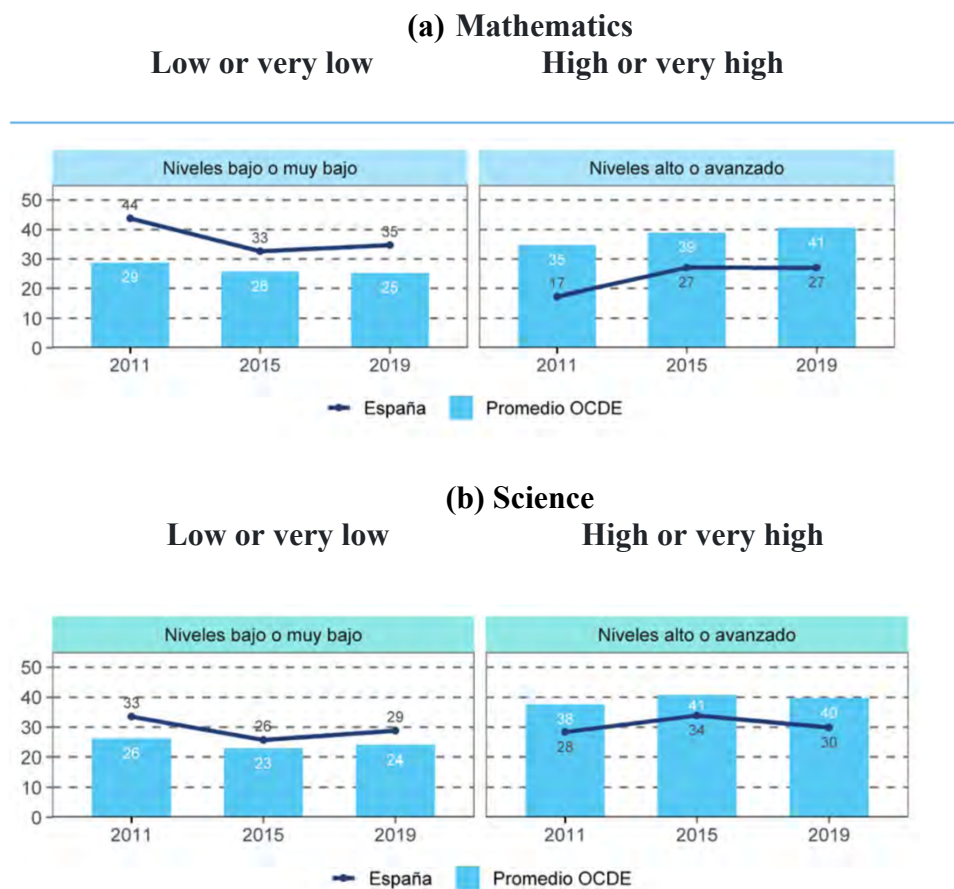
If we look at trends over time, Spain had a poor starting point in 2011 performing below the OECD in science and considerably worse in mathematics. In both domains, student performance improved in the next cycle (2015), with a steeper increase in maths, reaching values which were much closer to OECD averages in both. However, these positive trends were reversed in 2019 when levels of performance started to decline. During this period of time levels of performance for the OECD remained stagnated.

**Figure 13. Levels of student performance according to TIMSS in mathematics and science: Spain vs OECD**



In Spain these trends over time are the result of a marked decrease in the proportion of low performing students and a substantial increase in the proportion of top performing students in both domains until 2015, a trend which came to a halt afterwards. Meanwhile, the OECD average shows slight decreases in low performing students and increases in top performing students in 2015, followed by a period of stagnation.

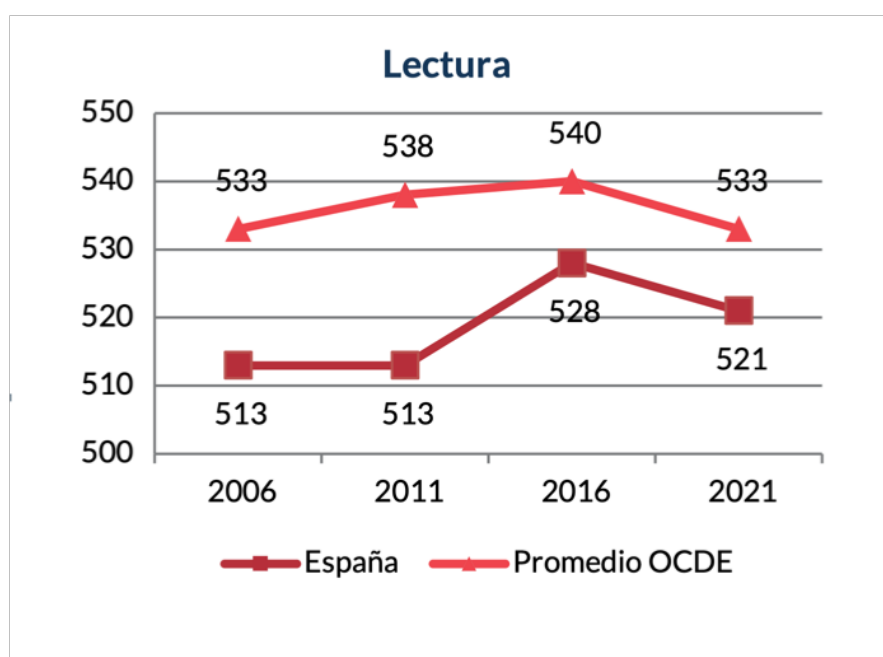
**Figure 14. Low and top performers in (a) Mathematics and (b) Science according to TIMSS: Spain vs OECD**



## PIRLS 2021

Spain joined PIRLS in 2006 and, once again, had a very difficult starting point with students showing levels of performance in reading substantially below the OECD average. This difference became even greater in the next cycle (2011) since Spain did not improve, but the OECD did. The pattern of convergence that we have just seen in TIMSS appears again in 2016 when student performance improves to such an extent that the gap with the OECD reaches its minimum value. This is due mainly to a decrease in the proportion of low performing students (from 28% down to 20%). In contrast, the OECD showed only marginal improvements.

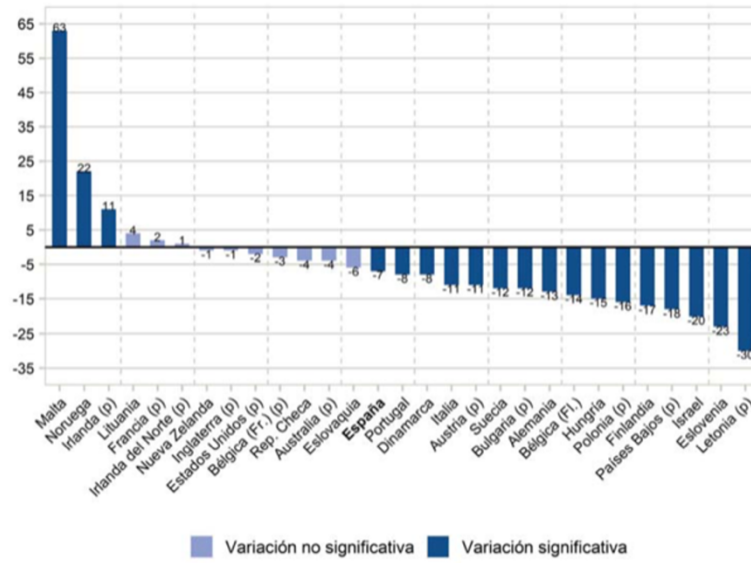
**Figure 15. Levels of student performance in reading according to PIRLS: Spain vs OCDE**



The following cycle (2021) should be interpreted with caution, because it should be taken into account that it is the first international survey which has taken place during and after the Covid19 pandemic (Mullis *et al.* 2023). As part of the restrictive measures taken to control the spread of the virus, many countries closed schools for different periods of time. Thus, this was a time of unprecedented disruption in education at a global scale. School closures took place unexpectedly, as did lockdowns, so students all over the world had to stay at home and shift rapidly to online learning. Some countries were better prepared than others to make this sudden transition.

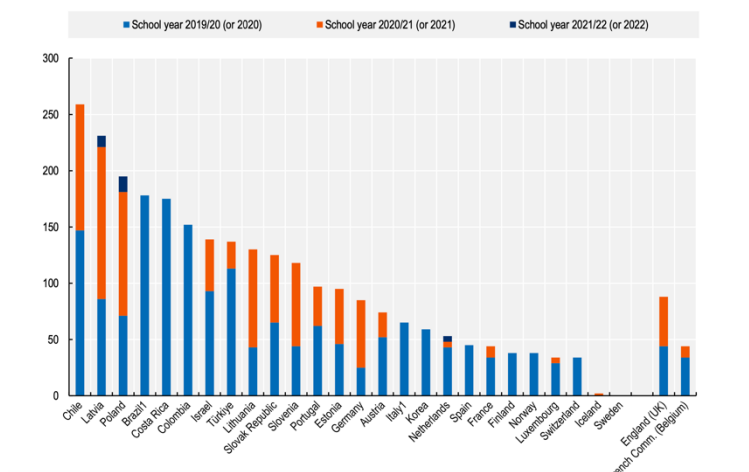
As expected, a shock of this magnitude resulted in an overall decline in student levels of performance. However, this was not the case in all countries: 3 countries improved, 10 showed no significant changes, and 16 experienced declines.

**Figure 16. PIRLS: variation in levels of student performance before and after Covid19 (2016 and 2021)**



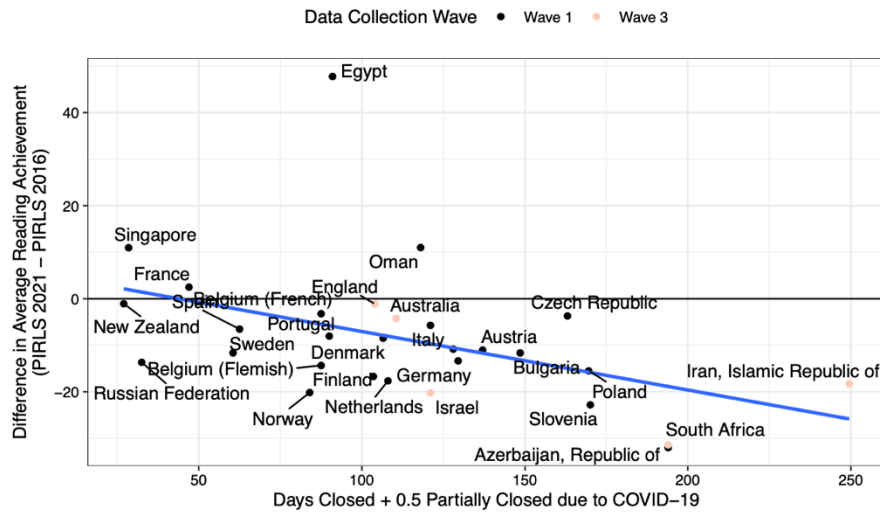
It has been argued that such differences between countries are the consequence of schools being closed for different periods of time, but there is only a moderate relationship between the duration of school closures and the changes in reading performance between 2016 and 2021 (Kennedy and Strietholt 2023). If such declines in student performance were caused mainly by school closures, Spain should not have had suffered a negative impact, since it belongs to the group of countries where schools closed for shorter time periods. In fact, within this group, which includes Belgium, Finland, France, Netherlands, Norway and Spain, three countries improve and three decline; Spain is among the latter.

**Figure 17. School closures due to Covid-19 (2020, 2021 and the first quarter of 2022)**  
Number of instruction days of full closure of lower secondary schools excluding school holidays, public holidays and weekends (Education at a Glance 2022)





**Figure 18. Relationship between School-Closure Duration and Changes in Average Student Reading Achievement between PIRLS 2016 and 2011**



Note: The correlation between the two measures is moderate ( $r = -0.44$ ). Egypt stands out as an outlier in the plot as it showed by far the largest positive change in average reading achievement. However, there are some questions about the reliability of the results in Egypt as between 15% and 25% of students had achievement too low for estimation (Mullis, von Davier, Foy, & Fishbein, 2023). Therefore, we urge the reader to interpret the results in Egypt with caution. Removing Egypt from the sample leads to a slightly stronger correlation ( $r = -0.56$ ).

From Kennedy and Strietholt (2023)

Thus, the explanation is likely to be much more complex and integrate many factors, such as the degree of preparedness of countries for such a shock (i.e. the extent to which countries had developed and implemented effective online tools before the pandemic), as well as the extent to which compensatory measures were implemented afterwards to close the learning gaps that had emerged between students with access to computers and internet, as well as high quality online resources, and those without.

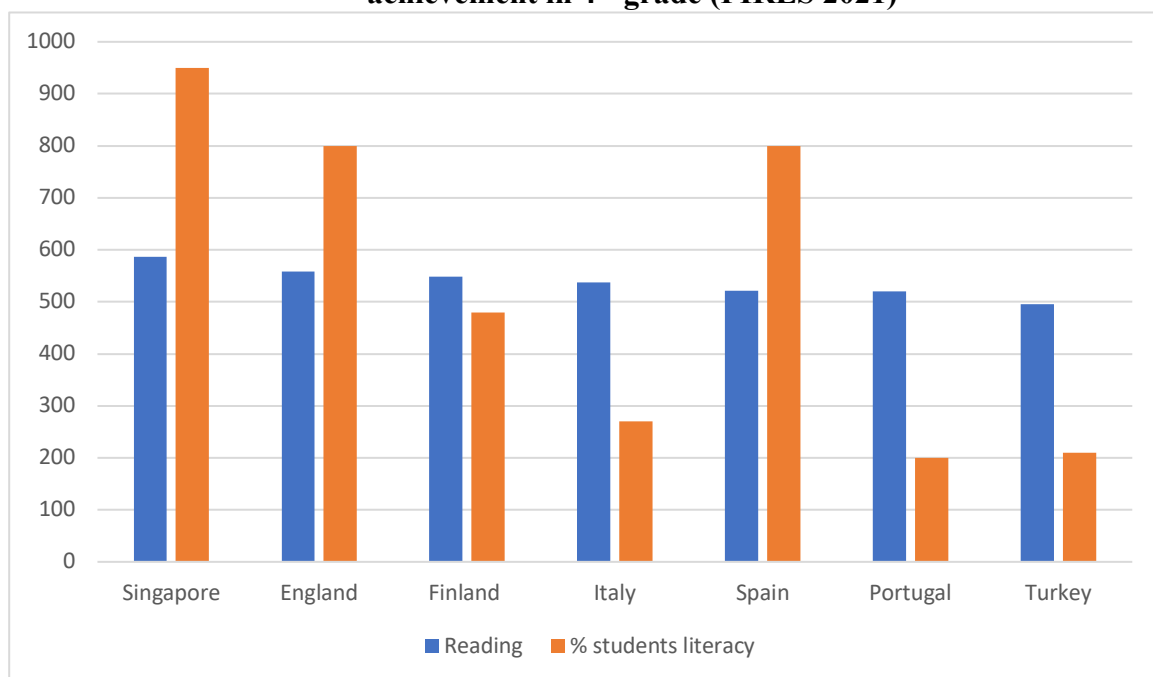
The comparison between Spain and England is a telling example. While Spain belongs to the group of countries where schools were closed for shorter periods, England is at the opposite extreme. However, while England did measure delays in learning using national assessments and provided additional tutoring to students who had suffered the greatest learning losses, Spain did neither. Although grade inflation was widespread, partly due to the fact that external national assessments had to be cancelled and they were replaced by teacher assessments, over time most countries brought back the national assessments and increasingly demanding targets until pre-Covid levels were reached. As we have seen, Spain has no external national assessments at the end of educational stages and the reliance on teacher assessments had led to unprecedented levels of grade inflation since the law approved in 2020 (LOMLOE) facilitated the progress of students from one grade to the next, as well as obtaining the national degrees, even if they had failed several subjects (according to their teachers' criteria). The implementation of this education reform, combined with what was meant to be a temporary effort to lower standards in order to help students while they struggled through a major shock, became the new normal. For this reason, perhaps one of the most important conclusions from PIRLS 2021 is that **the gap between teachers' assessments under the new rules and how Spanish students perform when international metrics are used, has diverged to a much larger extent than ever before** (Gomendio 2023b). The contrast is sharp: while teachers' grades have become higher than ever before, PIRLS shows that actual levels of performance have declined.

The lowering of the standards promoted by the LOMLOE (2020) has affected the ability of teachers to assess the level of performance of their students. Thus, the comparative disadvantage that Spanish students have at such an early stage, does not seem to be perceived by teachers. If we compare three top performing countries (Singapore, England and Finland) with three low performing ones (Spain, Portugal and Turkey) we find that principals in Spain believe that the proportion of students who attend schools where most children start primary with literacy skills is similar to that of two of the highest performing countries (Singapore: 90%, England: 80%, Spain: 80%) and much higher than countries with similar levels of reading performance in primary (Portugal: 20%, Turkey: 21%). **This reveals one of the weaknesses of the current education system in Spain: low standards and lack of ambition for all.**

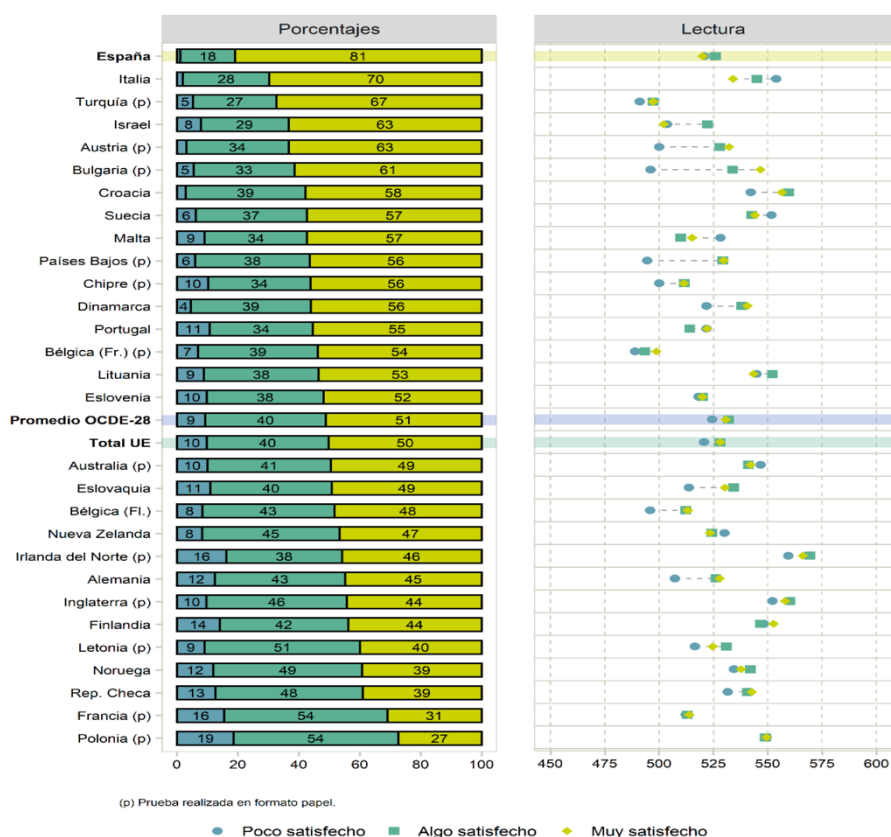
In addition, Spain is the country that ranks highest when teachers are asked about their level of satisfaction: 81% of teachers are satisfied with their profession, while among top performing countries a much lower proportion of teachers does (e.g., Finland and England 44%), a finding which is likely to reflect differences in how demanding the teaching profession is in different countries.

**Figure 19. Perceptions about students' reading skills and teacher satisfaction.**

**(a) Percentage of primary students who attend schools where, according to principals, most students begin primary with literacy skills vs reading achievement in 4<sup>th</sup> grade (PIRLS 2021)**



**(b) Teachers' degree of satisfaction with their profession and reading performance among primary students (PIRLS 2021)**



The poor results shown by Spanish students in primary are even more worrying if we take into account that Spain has one of the highest rates of enrolment in pre-school, as we have seen in the previous sections. However, these additional years of attending early childhood and care centers, do not seem to give them an advantage compared to their peers in other countries where children start attending pre-school much later. What PIRLS evaluates is the ability of students to understand what they read during the transition from “learning to read” to “learning by reading”. Thus, delays at this crucial stage could seriously limit the capacity of students to continue learning.

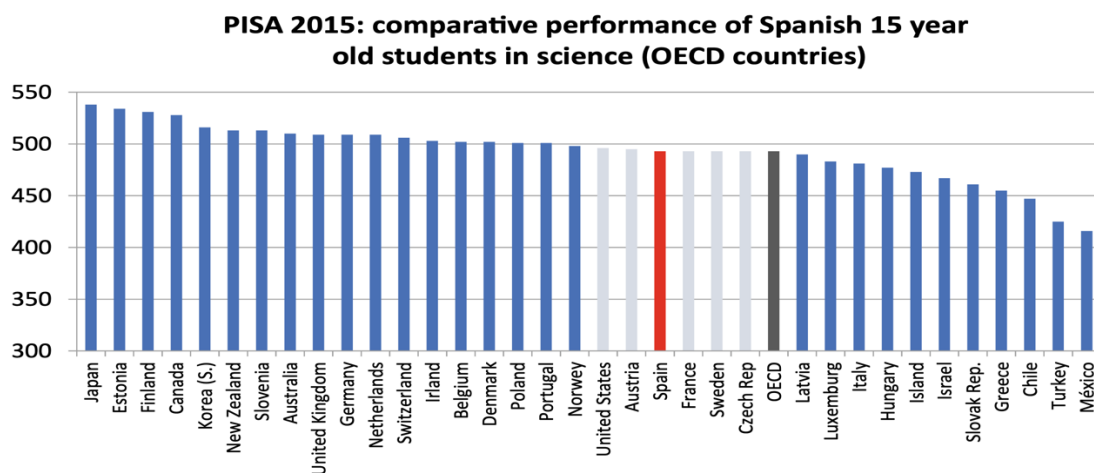
**4.2. Student outcomes among secondary students: an international perspective (PISA)**

Spain joined PISA much earlier than other ILSAs and has participated in every cycle from its inception, so the strongest body of evidence about student outcomes comes from PISA (OECD 2001, 2013a, 2016a, b). Furthermore, in the absence of national standardized assessments, regions have gradually turned to PISA to obtain information about how they perform in relation to other regions and other countries. For the last PISA cycles, all 17 regions have chosen to have extended sample sizes transforming PISA into a unique source of information for Spain. Given that this survey provides extensive advice on which policies should be followed to improve levels of student performance, PISA has acquired a powerful role as an “honest broker” in the polarized debate about education policies in Spain. Thus, PISA results have a huge media impact in Spain and promote heated debates about which policies have led to improvements or declines, as well as about the causes of major differences between regions.

Unfortunately, the OECD withdrew the results for Spain in the 2018 cycle (PISA 2019a, 2020a, b), because they were deemed unreliable due to inconsistencies detected by the regional governments. These are likely to have resulted from major changes in the design of the survey, after items from PISA for Development were integrated into the test (Gomendio 2020a, 2021a). Because the results were released by the OECD a few months after the international launch, with no corrections and a cautionary note (OECD 2020b), I will use the results from the previous cycle (PISA 2015).

The performance of Spanish students in 2015, when science was the main domain, was significantly below that of 18 OECD countries, and substantially below top performers such as Singapore. Thus, there seems to be ample room for improvement (OECD 2016a, b).

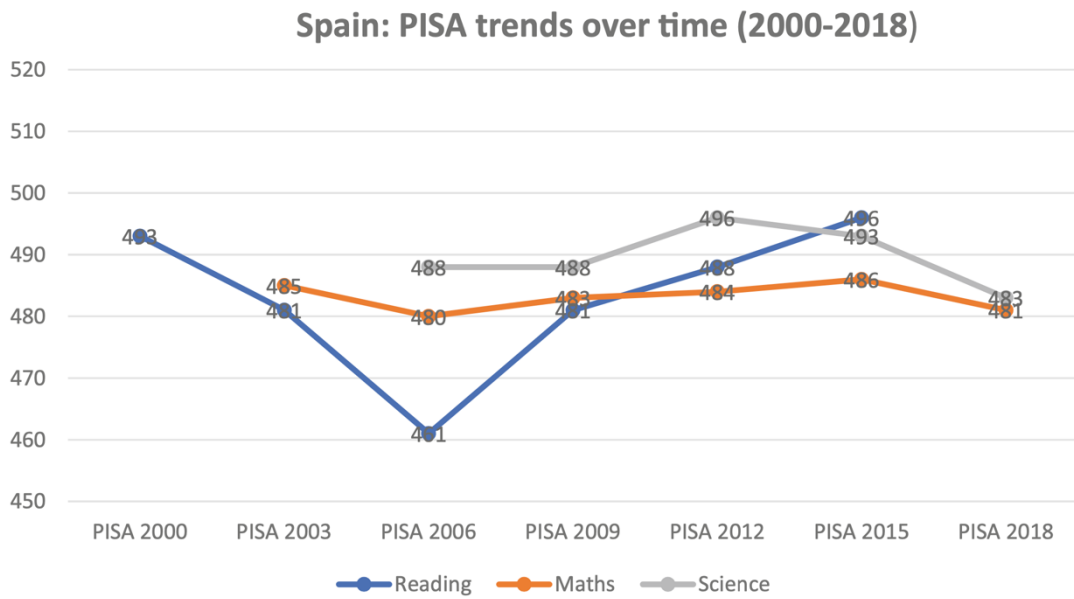
**Figure 20. PISA 2015: student performance in science among OECD countries**



When the three domains are considered separately, in 2015 Spain performed at the same level as the OECD average in science and reading, but below the OECD average in maths. Both in science and reading, Spain has a smaller proportion of both low performing and top performing students than the OECD average. However, in maths the proportion of low performing students is similar to the OECD average, while Spain has a substantially lower proportion of top performing students. Thus, the main reason why Spain tends to perform worse in maths is because so few students become top performers.

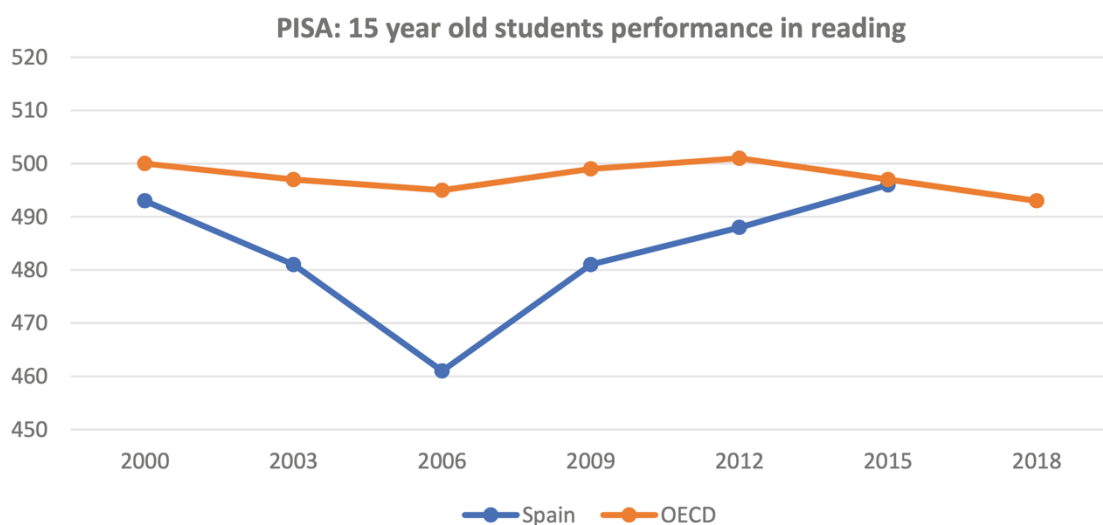
Trends over time follow different patterns for each domain. When we consider reading, over the years spanning from 2000 until 2006 performance levels seem to have experienced a decline, followed by a steady recovery afterwards. In contrast, student performance in science experiences a slight improvement in 2012 which remains in 2015, while mathematics shows a flat line.

**Figure 21. PISA: trends over time in the performance of students in Spain**



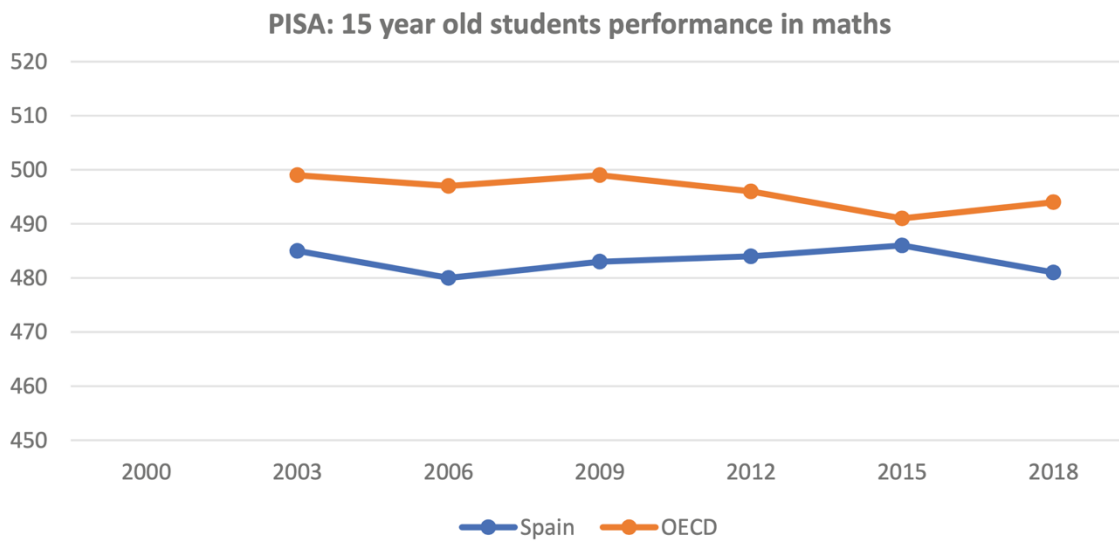
When trends over time for Spain are compared to those of the OECD average we find that, in the case of reading, OECD countries have not experienced major changes, showing first a slight decline until 2006, followed by a modest recovery until 2012. Thereafter, the OECD average started to decline in 2015 and seemed to drop further in 2018. Spain showed lower values in most cycles and followed a similar trend over time, but the changes in each cycle are much more dramatic. In Spain levels of performance in reading declined sharply between 2000 and 2006, when Spanish students performed at their lowest levels and the gap with the OECD reached its largest value. This trend was reversed in later cycles, since in Spain student performance improved in the three following cycles until converging with the OECD in 2015. This seems to be mainly the result of a decrease in the proportion of low performing students in 2015.

**Figure 22. PISA trends over time in reading: Spain vs OECD**

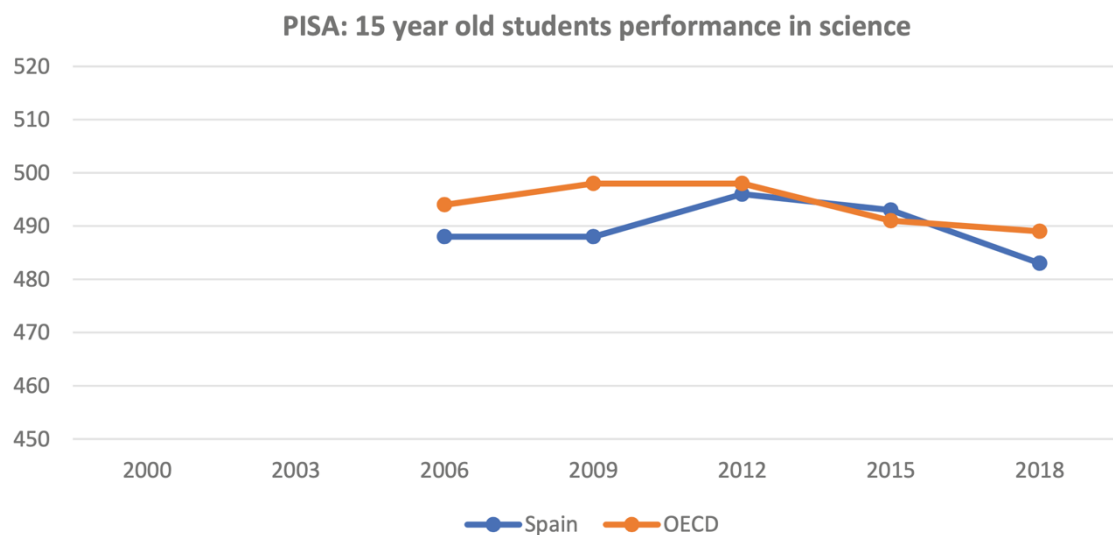


Mathematics is the domain in which Spanish students have performed much worse than the average for the OECD in all cycles, except in 2015 when it converged with the OECD average. The poor performance of Spain seems to be mainly due to the low proportion of top performing students in maths. Similarly to the trend for reading, OECD countries have not experienced major changes over time in maths and the highest value was reached in the first cycle in which maths was the main domain (2003). In subsequent cycles, there is a slight decline from 2009 until 2015, followed by a weak recovery in 2018. Similarly, Spain shows only slight changes, with an initial decline in 2006 followed by a gradual but slow recovery until 2015.

**Figure 23. PISA trends over time in maths: Spain vs OECD**



**Figure 24. PISA trends over time in science: Spain vs OECD**



Finally, in science Spain has performed slightly below OECD averages in the first two cycles and reached similar values from 2012 onwards. Over time Spain shows a moderate improvement in 2012 and then declines following a similar trend than the OECD. Once again in this domain OECD countries seem to show only slight changes and a decline after 2012. The lower values for Spain seem to arise due to the smaller proportion of top performers, and the

convergence experienced in 2012 and 2015 could be explained by the fact that Spain has a smaller proportion of low performing students than the OECD.

It is important to take into account the fact that grade repetition is much higher in Spain than in other countries (2015: 36.1% in Spain vs 13% OECD average). While this feature is unlikely to have a major impact on the results of PIRLS and TIMSS because these surveys target students in the same grade and in primary grade repetition is rare, it has a major impact on PISA results which has been largely overlooked. Since the PISA survey includes in the sample 15-year-olds irrespective of the grades in which they study, the proportion of 15-year-olds in Spain which are in 10<sup>th</sup> grade (the modal grade) is 67.9%, while 23.4% are one year behind and 8.6% two years behind (OECD 2016a). Thus, PISA evaluates with the same metrics students who are exposed to different curricula and teachers. PISA has claimed that this is the result of the Spanish education system imposing more stringent standards on students than other countries. However, the fact that students who repeat a grade score 99 fewer points in PISA, than those who do not, clearly shows that the problem does not lie with teachers being too harsh. The problem is that in the Spanish education system some students are lagging so far behind that their ability to learn what is being taught in the classroom becomes compromised. Although grade repetition is costly and critics argue that it is not effective, in a rigid system such as the Spanish teachers have no other choice when the gap becomes too large. As we shall see, the solution relies in implementing compensatory measures early on and making the system more flexible to adapt to the different needs of the student population.

### **4.3. Student outcomes in a broader time frame: harmonized learning outcomes**

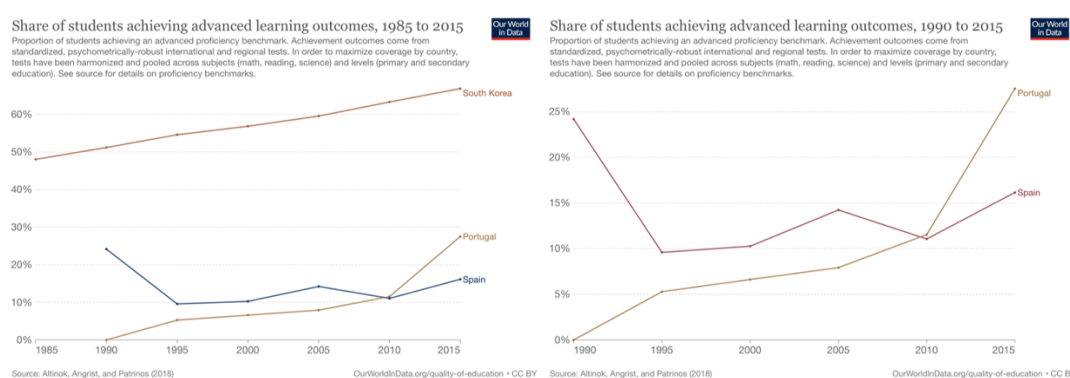
It is difficult to integrate further the information from the three main international surveys which have assessed levels of student performance in Spain, since their methodology, levels of difficulty, years in which the surveys were conducted and target population differ. To overcome this problem and allow comparisons between a much broader group of countries a new approach has been recently developed by Nadir Altinok, Noam Angrist, Harry Patrinos and several co-authors (Altinok *et al.* 2018, Angrist *et al.* 2021, Patrinos & Angrist 2018). Their methodology generates a common measure by integrating all information available from different tests administered in the same or nearby years, after adjusting their results for differences in difficulty. These estimates provide panel data with several observations for most countries that correspond to what they call *Harmonized Learning Outcomes* (HLOs). In addition to mean scores (overall and disaggregated by educational level, subject, gender and other characteristics), they also report data on the percentage of students who reach three different benchmark levels (minimum, intermediate and advanced), thus providing useful information on the distribution of skills. Average country scores in different assessments at each point in time are standardized and brought into a common scale by using a procedure the authors refer to as *pseudo-linear linking*. A similar procedure is used to homogenize results over time, using NAEP data for the US as an anchor. One of the latest versions of this database ([Global Data Set on Education Quality \(1965–2015\)](#)) provides data for 163 countries covering (unevenly) the period 1965-2015 at five-year intervals.

In the case of Spain, the main advantage is that data for HLOs go back one or two decades before the ILSAs that have been discussed start and provide an overall measure which summarizes all the information available. However, precisely because the data from these early stages represent the first attempts at comparing countries and in some cases such assessments did not continue in the long term, in the case of Spain the data before the year 2000 may be of

lower quality than the data after this date which come from the well established surveys which have already been described in detail. Despite these shortcomings, a few insights are worth mentioning.

When we analyze what seems to be one of the main deficiencies of the Spanish education system, i.e. the low proportion of top-performing students, we discover that the share of top performers seemed to experience a decline from 1990 to 1995. After such a sharp decline (from 25% to 10% in just 5 years) the proportion of top performers remains at such low levels for two decades, until improvements start in 2015, suggesting that deep underlying problems persisted for a long time, an issue which will be analysed in more detail later.

**Figure 25. Share of students achieving advanced learning outcomes (1985-2015) using “Harmonized Learning Outcomes”**



Over the same time period, high quality education systems (such as South Korea) saw the proportion of top performing students increase from 50% in 1985 to almost 70% in 2015. Meanwhile, laggards such as Portugal had a much more difficult starting point in 1990 (almost no top performing students) but managed to improve steadily over the years until eventually surpassing Spain.

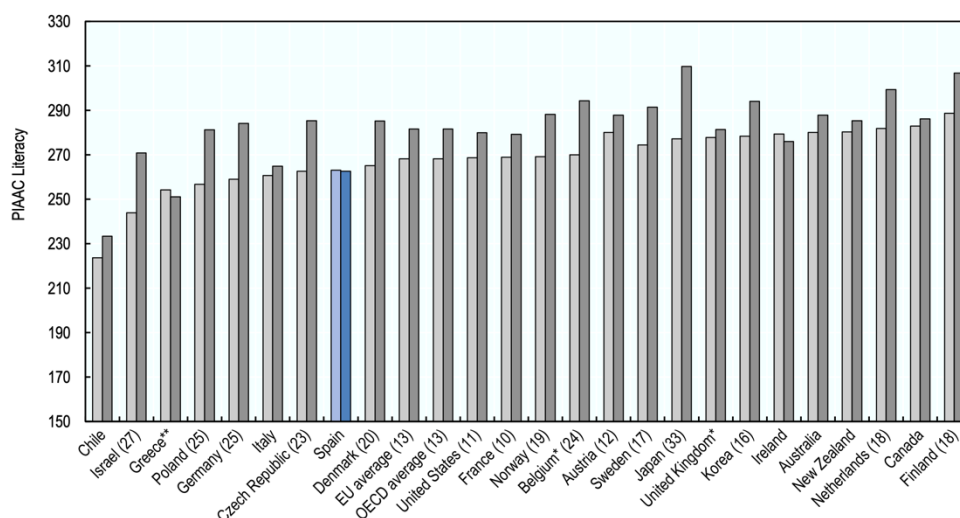
#### 4.4. Evolution of skills after compulsory education

The dearth of comparative information concerning levels of student performance in upper-secondary and tertiary education makes it difficult to understand what happens beyond compulsory education. Recently a new approach has been developed which compares the performance of students towards the end of compulsory education with the levels of skills they have a decade later when they become young adults (OECD 2021). Although the comparison by no means evaluates the same sample, it attempts to assess the same cohort by comparing the outcomes of fifteen-year-olds in PISA 2000/2003 with the outcomes of 27-year-olds in the survey of adult skills (PIAAC, 2012/2015, OECD 2013b). In other words, it attempts to follow the trajectory in terms of skills growth between the end of compulsory and the end of tertiary education. It focuses on literacy skills which are used by all the population to avoid confounding factors which would be more likely to affect numeracy skills (such as whether maths was studied in upper secondary and in the university degree studied).

Out of the 24 countries included in the analysis, 21 show improvements in the acquisition of literacy skills as teenagers become young adults, while in Spain, Greece and Ireland slight decreases take place.



**Figure 26. Achievement growth in literary skills between the ages of 15 and 27 years**



Notes: Countries are sorted in ascending level of achievement among 15-year-olds. Differences in literacy achievement between age 15 and ages 26-28 that are statistically significant at the 5% level are reported in parenthesis next to the country name. PISA reading scores are expressed in PIAAC literacy scores. PISA data for Chile and Greece refer to 2003. PIAAC data for Chile, Greece, Israel, New Zealand refer to 2015. How concordance scores between PISA and PIAAC were derived is described in Box 3.1 of the report.  
 Source: OECD (2000), *PISA database 2000*; <https://www.oecd.org/pisa/data/database-pisa2000.htm>; OECD (2003), *PISA database 2003*; <https://www.oecd.org/pisa/data/database-pisa2003.htm>; OECD (2012), (2015), *Survey of Adult Skills (PIAAC) databases*; <http://www.oecd.org/skills/piaac/publicdataandanalysis/>.

These results reveal patterns in the acquisition of skills at a key stage when learning trajectories become increasingly differentiated, since individuals can choose to continue studying beyond compulsory education or not and, if they do, which subjects they study in upper-secondary and which degrees in tertiary. On top of this, the transition to the labour market implies using the skills acquired to different extents and learning new ones.

It is disappointing that, despite the high rates of access to university that Spain enjoys, literacy achievement declined in Spain, in contrast to the growth observed in the vast majority of countries. If we compare individuals whose parents did or did not complete tertiary education, literacy achievement did not grow among the latter (compared to an OECD average growth of 10 points) and grew only slightly among the former (in Spain the average growth was 5 points, while the OECD average growth was 14 points) (OECD 2021). Thus, the level of education of parents, which tends to be a good predictor of access to university and levels of performance, did not seem to improve achievement growth in Spain.

#### 4.5. Summary

Taken together the findings from these international surveys seem to suggest the following. From 2000 until 2018 levels of performance in the OECD show a flat line, thus revealing an unexpected lack of progress. Overall Spanish students perform below the OECD average, particularly in maths, and levels of performance remain largely stagnated over a decade. The first signals of improvement appear in 2015 when primary students in maths, and to a lesser extent in science, markedly improve their performance (TIMSS 2015). One year later, primary students also show a clear boost in reading (PIRLS 2016). However, these positive trends do not continue after 2015. A similar pattern is found among secondary students, since

improvements were also seen among 15-year-old students in reading, and to a much lesser extent in science and maths in 2015 (PISA 2015). As a result, in this cycle Spanish 15-year-old students reached a similar level of performance than the OECD average in reading and science, but remained slightly below in maths. The main deficiency of the education system that explains these results seems to be the small proportion of top performing students. The three surveys also show that Spain performs below around 20 OECD countries and much lower than top performers in Asia such as Singapore, South Korea and Japan.

If we go back in time using Harmonized Learning Outcomes (HLOs) we find that, after 1990, there was a sharp decrease in the proportion of top performing students which remained low for the next two decades and only started to improve in 2015, suggesting that the education model implemented during this time prevented students from achieving excellence.

Despite a rapid expansion in access to tertiary education, which is unparalleled in Europe, there is no improvement in literacy skills between the end of compulsory education and the age at which tertiary education is over and individuals are expected to be integrated into the labour market (27 years). This is in sharp contrast to the achievement growth observed in the vast majority of OECD countries. Moreover, individuals whose parents have attained tertiary education, a group which shows major improvements at this stage in most OECD countries, only show very slight improvements.

**In conclusion, despite being a country which excels in terms of the proportion of young children attending pre-school and the rate of access to university, students in Spain show low levels of performance compared to the OECD average since primary, which remain low towards the end of lower-secondary, and no progress takes place in post-secondary education. Such poor levels of performance have remained stagnated for at least over a decade (when Spain joined PISA), until some improvements took place in 2015/16, which were followed by declines in the following cycles. Student performance is particularly poor in maths, an issue which will be addressed in the following section where the levels of skills of primary teachers in maths is analysed.**

## 5. Teacher quality

It is widely accepted that the quality of an education system depends to a large extent on the quality of its teachers. In the policy debate, the conclusion of an influential McKinsey report has become a *cliché*: “the quality of an educational system cannot exceed the quality of its teachers” (Barber & Mourshed 2007, Mourshed *et al.* 2010). What would seem a rather obvious statement has turned out to be quite controversial, since some academics and most teacher unions argue that teacher quality is either not what matters the most or is a concept which is impossible to define or measure (Gomendio 2017). This seems surprising given that few would argue that the importance of the level of skills of practitioners in other sectors (take your pick: Doctors, architects, engineers, and so on) is unquestionable, highlighting the unique nature of the debate surrounding education policies and the status of “untouchables” which unions attempt to gain for their constituents.

The best evidence that teacher quality matters comes from longitudinal studies, which have tracked student performance over time. These “value-added analyses” have shown that there are large differences between teachers in terms of classroom outcomes: differences in the learning progress made by students with weak teachers when compared to those with great

teachers may represent as much as one grade (Hanushek 1992, Hanushek and Rivkin 2006, 2010 and 2012, Rivkin *et al.* 2005, Rockoff 2004). In turn, differences in learning progress which are due to exposure to effective teachers have a large impact later on in life on key issues such as access to higher levels of education (university) and higher income (Chetty *et al.* 2014a, b).

In addition, small-scale studies in which teachers were video-recorded during their lessons and then rated according to several parameters (TIMSS 1995 Video Study, Stigler *et al.* 1999 and the TIMSS 1999 Video Study, Hiebert *et al.* 2003), revealed major differences in the quality of lessons. While teachers in Japan and Hong Kong gave lessons which were rated as high quality in a large proportion of cases, in the United States the vast majority of lessons were rated as low quality, very much in line with student outcomes in maths in these countries (Stigler and Hiebert 1997). Thus, we know that teachers make a difference, but what makes teachers different?

It seems surprising that, given the importance of this factor, it has proven so difficult to identify which traits make teachers effective. Both PISA's own analyses and others have found no relationship between traits which are easy to quantify, such as teacher education, certification or professional development, and student outcomes (Chingos and Peterson 2011, Glewwe *et al.* 2014, Hanushek and Rivkin 2006, Hanushek and Woessmann 2015, Harris and Sass 2011). This is probably due to the fact that in most countries teachers hold university degrees and have some form of professional development, but these similarities mask large differences in the quality and content of degrees and in-service training.

Perhaps the greatest constraint is that it has been surprisingly difficult to assess the obvious: the level of skills of teachers. To my knowledge, there is only one international survey which directly evaluates teachers' skills and it focuses exclusively on maths: TEDS-M (Teacher Development Study in Mathematics) (Tatto 2014, Tatto *et al.* 2012). It was developed by the IEA and the survey was conducted in 17 participating countries in 2008. The aim of the study was to understand to what extent teachers' selection processes and teacher training programmes contribute to differences in the levels of knowledge of maths of future teachers. Thus, the sample includes graduates of education degrees who have not become teachers yet, therefore excluding potential confounding factors such as the impact of learning from the experience of teaching in the classroom.

Although the survey included both primary and secondary teachers, Spain decided to limit the assessment to primary teachers. Spain belongs to the group of countries where primary teachers study an education degree and are generalists, meaning that they teach all subjects to their students. Other countries have specific courses to train mathematics specialists. If we consider only the group of 6 countries in which primary teachers are generalists, Spanish future teachers have a poorer mathematics content knowledge than all others except the Philippines. Thus, Spanish future teachers have a lower performance not only than East Asian countries (which would be expected give the excellent performance of their students in maths), but also countries such as Switzerland and the United States. In addition, Spain ranks below all countries which train maths specialist teachers including Germany, Poland, Malaysia, and Thailand.

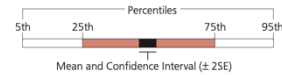
**Table 3. Future primary teachers' mathematics knowledge (TEDS-M)**

Exhibit 5.10: Future primary teachers' mathematics content knowledge

Program-Group	Country	Sample Size	Valid Data (N)	Percent Missing (Weighted)	Percent at or above Anchor Point 1 (SE)	Percent at or above Anchor Point 2 (SE)	Scaled Score: Mean (SE)	Mathematics Content	
								200	300 400 500 600 700 800
Group 1. Lower Primary (to Grade 4 Maximum)	Georgia	506	506	0.0	11.9 (1.4)	0.9 (0.5)	345 (4)		
	Germany	935	907	2.4	86.4 (1.3)	43.9 (2.1)	501 (3)		
	Poland <sup>a</sup>	1,812	1,799	0.9	67.9 (1.3)	16.8 (1.2)	456 (2)		
	Russian Federation <sup>b</sup>	2,266	2,260	0.2	89.7 (2.3)	57.3 (4.6)	536 (10)		
Group 2. Primary (to Grade 6 Maximum)	Switzerland <sup>c</sup>	121	121	0.0	90.5 (2.7)	44.2 (5.4)	512 (6)		
	Chinese Taipei	923	923	0.0	99.4 (0.3)	93.2 (1.4)	623 (4)		
	Philippines	592	592	0.0	60.7 (5.1)	6.3 (0.9)	440 (8)		
	Singapore	263	262	0.4	100.0	82.5 (2.3)	586 (4)		
	Spain	1,093	1,093	0.0	83.4 (1.6)	26.2 (1.6)	481 (3)		
	Switzerland	815	815	0.0	97.2 (0.6)	70.6 (1.4)	548 (2)		
Group 3. Primary and Secondary Generalists (to Grade 10 Maximum)	United States <sup>1d</sup>	1,310	951	28.6	92.9 (1.2)	50.0 (3.2)	518 (5)		
	Botswana <sup>e</sup>	86	86	0.0	60.6 (5.3)	7.1 (2.8)	441 (6)		
	Chile <sup>f</sup>	657	654	0.4	39.5 (1.8)	4.0 (0.7)	413 (2)		
	Norway (ALU) <sup>g</sup>	392	392	0.0	88.5 (1.5)	46.9 (2.8)	509 (4)		
	Norway (ALU+) <sup>g</sup>	159	159	0.0	96.5 (1.4)	68.7 (3.8)	553 (6)		
Group 4. Primary Mathematics Specialists	Germany	97	97	0.0	96.0 (2.1)	71.7 (7.0)	555 (8)		
	Malaysia	576	574	0.4	88.7 (1.1)	28.1 (1.3)	488 (2)		
	Poland <sup>a</sup>	300	300	0.0	97.9 (1.0)	91.0 (1.6)	614 (5)		
	Singapore	117	117	0.0	98.3 (1.2)	87.3 (2.8)	600 (8)		
	Thailand	660	660	0.0	91.7 (0.9)	56.2 (1.4)	528 (2)		
	United States <sup>1d</sup>	191	132	33.2	94.9 (1.7)	48.1 (6.5)	520 (7)		

**Notes:**

1. This table and chart must be read with awareness of the limitations annotated on page 134 of this chapter and denoted in the above by footnote letters.
2. The dagger symbol (†) is used to alert readers to situations where data were available from fewer than 85% of respondents.
3. The shaded areas identify data that, for reasons explained in the limitations, cannot be compared with confidence to data from other countries.
4. The solid vertical lines on the chart show the two anchor points (431 and 516).

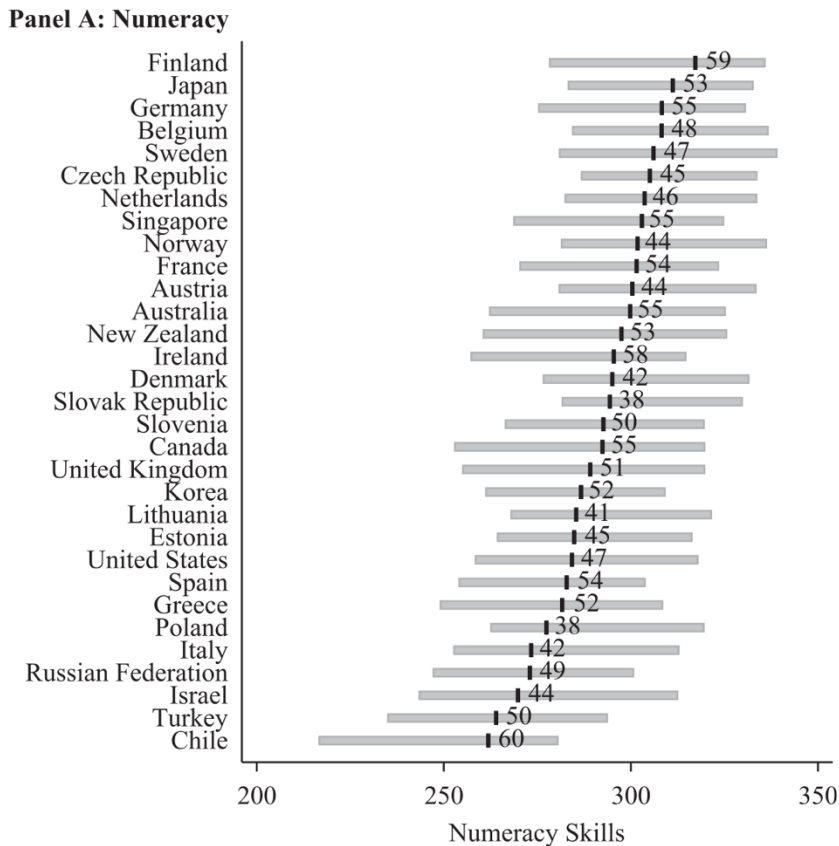


**The factors associated with this low level of knowledge of maths among future teachers seem to be low standards set to enter education degrees and, consequently, prior poor levels of performance while they studied secondary.** Thus, while in Spain prior achievement in maths is rarely considered when entering an education degree, in Singapore it is one of the main factors. The lack of demanding selection processes results in students who report low levels of performance in secondary becoming the future teachers. To understand the magnitude of the problem, suffice it to say that in Spain only 2,5% of future teachers are among the top 20% students of their age group; in contrast, in Singapore this figure is 75%.

The study concludes that top performing education systems have excellent teachers because selective procedures to enter the university degree ensure that only high performing students are admitted, and university degrees are designed in such a way that the training is demanding and the knowledge content strong. In many cases further evaluations are put in place to allow candidates to enter or remain in the profession.

A different approach has been used by Hanushek and colleagues (Hanushek *et al.* 2019) to investigate further the origin of such major differences between countries in skill level of teachers. Since the survey of adult skills (PIAAC) shows that there are large differences between countries in terms of skill levels of adult populations, teachers' skills could be merely a reflection of these population differences. In other words, teachers may be more skilled in some countries just because they are part of an adult population with higher skill levels. Alternatively, teachers in different countries may represent different levels of skills within their country's range: in some countries the education system may allow university graduates with relatively low skill levels to become teachers, while more demanding education systems may ensure that (among those with a university degree) only those who have achieved high skill levels can become teachers.

**Figure 27. Position of Teacher Cognitive Skills in the Skill Distribution of College Graduates**



Data sources: PIAAC (2012, 2015).

Notes: The vertical bars indicate the median cognitive skills of teachers in a country. Horizontal bars show the interval of cognitive skill levels of all college graduates (including teachers) between the 25th and 75th percentile. Numbers with vertical bars indicate the percentile position of teacher cognitive skills in the cognitive skill distribution of college graduates. Countries are ranked by the median teacher skills in numeracy.

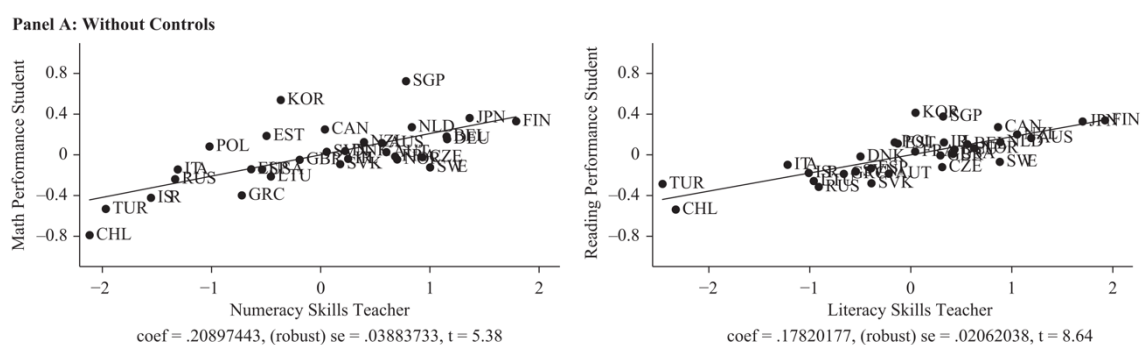
The findings reveal that differences between countries in terms of teachers' skill levels are mainly the result of policy choices on where teachers fall within the spectrum of a country's university graduates. Out of thirty-one countries included in this analysis, teachers in Finland have the highest skill levels because they score highly amongst Finnish graduates, who already perform higher than many other countries. In contrast, Denmark has a similar skills distribution, but teachers have lower skill levels than other university graduates. If we consider countries at the opposite end of the skills distribution, such as Chile, teachers have relatively high skill levels compared to other university graduates, while in Italy teachers come from the lower range of the skills distribution spectrum. **In the case of Spain, the level of skills of university graduates is poor and teachers fall around the middle of the skills distribution. Thus, little effort is done to ensure that high performing students who attain higher levels of skills are selected and trained to become the future teachers.**

The findings also show that in no country do teachers fall at the very top of the national distribution of graduates. However, this finding should be treated with caution, since the PIAAC survey assesses the adult population from the age of sixteen to sixty-four. Countries which have started to implement policies to attract highly skilled graduates into the profession during the last decades may only see the impact of this selective approach among young

teachers. If these countries have a large proportion of old teachers included in the overall sample, the effects of new policies may be diluted. Thus, these results do not dispute the fact that in countries like Singapore and Finland, in the last decades only 20% of secondary school students who apply to teacher education programmes are accepted, and all applicants fall within the top range of student performance (Barber and Mourshed 2007).

Despite the wealth of data on student outcomes that ILSAs provide and the existence of information on teacher skills, as well as teacher practices generated by surveys such as TALIS (OECD Teaching and Learning International Survey, OECD 2013c, 2014a), there is a remarkable dearth of evidence on the relationship between teachers' skills and students' outcomes. One of the very few studies tackling this issue has found a clear relationship between the skill levels of teachers and student performance across countries, by using data from the survey of adult skills (PIAAC) on teachers' basic skills (numeracy and literacy) and PISA data on student outcomes (Hanushek *et al.* 2019).

**Figure 28. Student performance and teacher cognitive skills**



**Figure 3**

*Student Performance and Teacher Cognitive Skills*

Data sources: OECD, PIAAC (2012, 2015), and PISA (2009, 2012).

Notes: The two graphs in Panel A do not include any controls. The two graphs in Panel B are added-variable plots that control for country-specific average skills in numeracy and literacy, respectively, of all adults aged 25–65. The two graphs in Panel C are added-variable plots that control for all variables included in the baseline OLS specification in Columns 3 and 6 of Table 2.

These findings clearly show that teachers' skill levels differ to a large extent, and that these differences do matter, since they are associated with levels of student performance. They also show that degrees and certificates are not good indicators of the real skill levels of teachers, because of large differences in the quality of those degrees between countries. Thus, they highlight the importance of establishing mechanisms and incentives to ensure that good candidates are attracted into the teaching profession and that their education and training is demanding. In Spain the criteria to enter the education degree are not demanding, so many students who performed poorly at school gain entrance, and the university degree is weak on subject content. As a result, the skills of teachers are average within an adult population which has comparatively low skills levels. As would be expected, teachers with such levels of skills can only achieve low student outcomes.

**6. The non-problems that monopolize the political debate**

As in most countries, in Spain the political debate on education revolves around inputs, more specifically levels of investment. It is assumed both that higher levels of investment result in better student outcomes and that declines will lead to a deterioration in performance. Despite the deeply held belief, the evidence suggests otherwise.

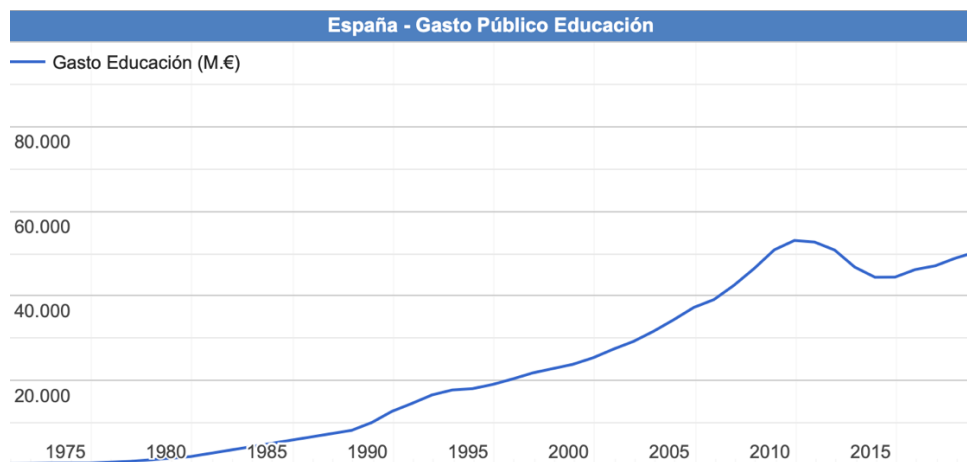
Most reviews of the vast amount of work which has analysed in different ways the impact of educational expenditure on student outcomes concludes that this lack of relationship is a very robust finding (Hanushek 2003, Hanushek and Woessmann 2011, Woessmann 2007). In fact, the evidence showing that investment *per se* is unrelated to student outcomes is the most solid evidence available about what does not work in education. This conclusion is reached using very different approaches.

On the one hand, comparative studies, including PISA's own analyses, conclude that there is no relationship between levels of investment and student outcomes in different countries (OECD, 2013a and 2016b). The most revealing finding is the fact that, above a threshold which represents a relatively low level of investment, there is no relationship whatsoever between investment per student and student performance. These countries represent a wide range of levels of investment, from just over 50,000 to almost 200,000 USD (PPP) invested per student between the ages of six and fifteen. Thus, countries that invest up to four times more than others do not achieve better student outcomes. The group of countries which is above this threshold is large and diverse: all of Europe (including the UK), the United States, Canada, Australia, New Zealand and most countries in East Asia. Some countries which are just above the threshold in terms of investment are top performers (such as Estonia), while others invest much more and obtain poor results (such as Luxembourg). Spain crossed this threshold a long time ago but has worse levels of student performance than other countries with similar levels of investment such as Estonia, Canada or South Korea.

An alternative approach is to look at increases or decreases over time in levels of investment and examine whether they are aligned with changes in student outcomes. In the 2012 cycle, PISA found no relationship between changes in investment from 2003 until 2012 and changes in PISA scores (OECD 2013a). Although the vast majority of countries significantly increased education investment over this period, many of them experienced a decline in student performance. An independent analysis of changes in expenditure per student from 2000 until 2010 and changes in PISA reading scores from 2000 until 2012 also suggests no relationship between the two (Hanushek and Woessmann 2015).

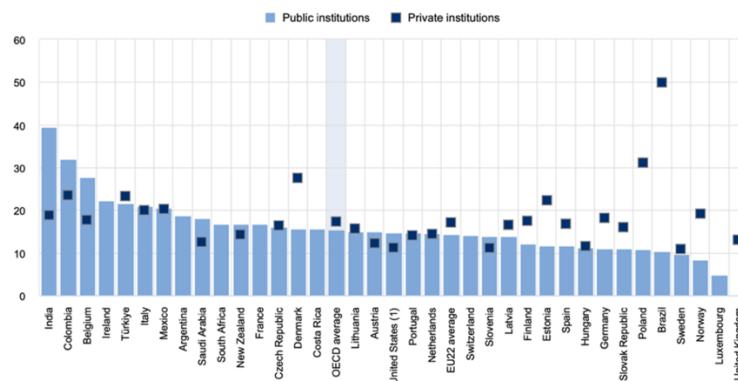
In Spain, the education budget increased steeply from 1990 until 2011 when the financial crisis hit (Gomendio 2021, Gomendio & Wert 2023, Wert, 2019). After the global financial crisis, regions in Spain started to reduce the budgets assigned to education and did not increase them again until 2016. Contrary to all expectations, as we have already seen, student outcomes remained stagnated during the long period in which funds allocated to education more than doubled, and improved during a period of budget declines: student performance improved in mathematics and science in TIMSS 2015, further improvements in reading were detected in PIRLS 2016, and PISA 2015 also detected improvements of a lesser magnitude (Gomendio, 2021, Gomendio & Wert 2023). Obviously decreases in investment *per se* cannot account for improved student outcomes, but the evidence suggests that the system became more efficient in the use of resources and that other policy changes that took place at the time also played a role (see next section).

**Figure 29. Public funds allocated to education in Spain**



To explain why the total amount of resources is not a determinant of student outcomes, it has been argued that what matters the most is how resources are invested. To analyse this claim in more detail, it is important to understand how investment in education is allocated. More than 90% of total expenditure on education is devoted to current expenditure (average across OECD countries) given that education is labour-intensive. In primary and secondary education, around 61% of current expenditure is allocated to funding teachers, about 16% is allocated to compensating other staff and 23% to other expenditure, such as meals and transportation for students (OECD 2014b, 2016c). Thus, the majority of resources assigned to education depend on two factors: the number of teachers (which is, in turn, the product of the number of students and the ratio of students per teacher) and teacher salaries.

**Figure 30. Ratio of students to academic staff, by type of institution (Education at a Glance 2022)**



1. Tertiary includes staff and students from post-secondary non-tertiary level.  
 Countries are ranked in descending order of the ratio of students to teaching staff in public institutions  
 Source: OECD/UIS/Eurostat (2022), Table D8.1. See Source section for more information and Annex 3 for notes ([https://www.oecd.org/education/education-at-a-glance/EAG2022\\_X3-D.pdf](https://www.oecd.org/education/education-at-a-glance/EAG2022_X3-D.pdf)).

Since the ratio of students to teachers determines the number of teachers which are needed for a student population of a given size, this variable explains to a large extent overall levels of investment. When compared to other countries, in Spain the student/teacher ratio is among the lowest in the OECD.

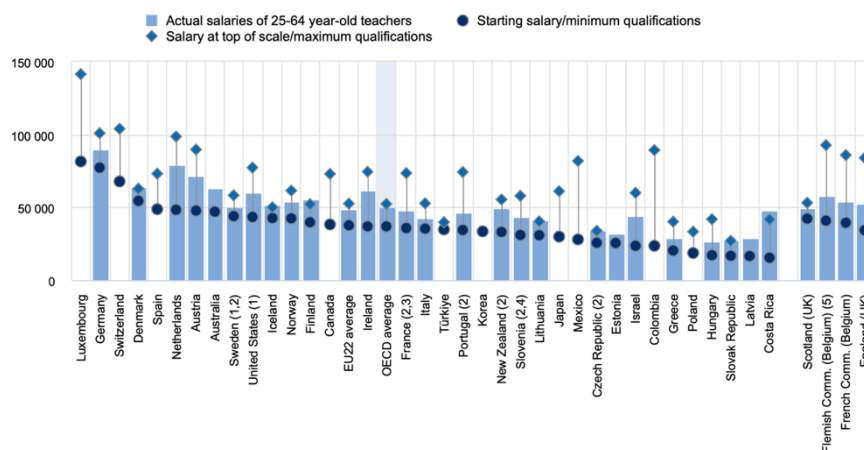


When teacher salaries are compared with those of other countries, we find that starting salaries are quite high in Spain (5<sup>th</sup> highest ranking among OECD countries), but the margin of improvement when the top of the scale is reached is quite small.

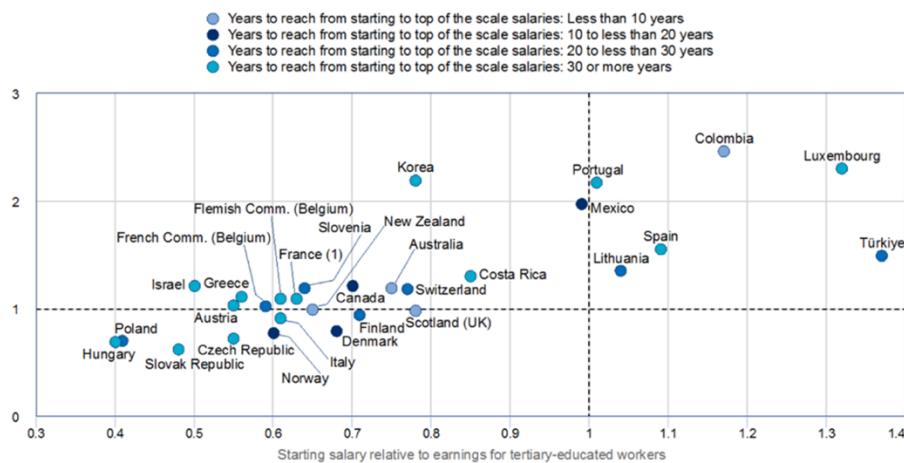
**Figure 31. Lower secondary teachers' average actual salaries compared to statutory starting and top of the scale salaries (Education at a Glance 2022)**

**Figure D3.2. Lower secondary teachers' average actual salaries compared to the statutory starting and top of the scale salaries (2021)**

Annual salaries of teachers in public institutions, in equivalent USD converted using PPPs



**Figure 32. Lower secondary teachers' relative statutory starting and top of the scale salaries and years taken to reach the top of the scale (Education at a Glance 2022)**



**Note:** Statutory salaries of teachers refer to teachers with most prevalent qualification level.  
 1. Includes the average of fixed bonuses for overtime hours.  
**Source:** OECD (2022), Education at a Glance Database, <http://stats.oecd.org>. See *Source* section for more information and Annex 3 for notes ([https://www.oecd.org/education/education-at-a-glance/EAG2022\\_X3-D.pdf](https://www.oecd.org/education/education-at-a-glance/EAG2022_X3-D.pdf)).

StatLink <https://stat.link/27d6ri>

In addition, when compared to the relative earnings of other tertiary educated workers, teacher salaries in Spain are among the highest, but it takes a long time until the top of the scale can be reached.

There is plenty of evidence that neither student/teacher ratios, nor teacher salaries, are related to student outcomes (Hanushek and Woessmann 2015, OECD 2016b, c, 2019b). The reason is rather obvious: if teacher quality is low, as seems to be the case in Spain, hiring more teachers

to deal with smaller classrooms makes no difference, because what would really lead to improved learning outcomes is improving teacher quality. In addition, increasing teacher salaries across the board, irrespective of levels of performance, has also proven to be an ineffective strategy to improve teacher quality.

In the case of Spain, teachers have high initial salaries but flat trajectories (i.e. small increases thereafter), a model which turns teaching into a low-risk/low-returns profession that is unattractive for highly skilled and ambitious individuals as many studies have shown (Bruns and Luque 2015, Corcoran, Evans and Schwab 2004, Eide, Goldhaber, and Brewer 2004, Fredriksson and Ockert 2007, Hernani-Limarino 2005, Hoxby and Leigh 2004). So far, no incentive-based policies that enhance teacher accountability have been implemented, although they have been shown to improve student outcomes at a fraction of the cost of reforms that uniformly increase teacher salaries across the board (Atkinson *et al.* 2009, Bruns *et al.* 2011, Bruns and Luque 2015, Hanushek and Woessmann 2015, Podgursky and Springer 2007, Woessmann 2011).

Most of the increases in funding have been allocated to decreases in student/teacher ratios which, as a result, are among the lowest of the OECD. This has been a generalized political response to the widespread assumption that large classes may constrain the degree of attention that teachers may devote to each of their students and that this may lead to less support for struggling students. As a result, large class sizes are assumed to lead to poor student outcomes. Unions piggyback on these misguided, yet strongly held, beliefs to exert pressure on governments to hire more teachers and in this way increase their membership and sphere of power. As a result, governments have made huge financial investments to decrease class size over time. Between 2005 and 2014, the average class size among OECD countries decreased and, despite the 2008 financial crisis, class size continued to decrease between 2010 and 2014 (OECD 2016b). However, robust analyses using data from a variety of ILSAs to compare different countries have found that class size does not impact student performance (Bruns and Luque 2015, Cordero *et al.* 2018, Hanushek 2002, Hanushek and Woessmann 2015, Woessmann 2007, Woessmann and West 2006). As Nobel Prize winner Michael Kremer bluntly put it, adding “more-of-the-same inputs” (whether teachers, textbooks or other resources) has no impact on student performance (Kremer *et al.* 2013).

It seems to have gone largely unnoticed that the costs of investing resources in reducing class size are profound and long-term, since they involve major trade-offs regarding teacher quality. Top-performing countries in East Asia, such as Singapore and South Korea, have very large class sizes because they choose to invest the resources in teacher selection, training and professional development. Thus, investment goes to a smaller, more selective, better-trained and higher-paid teaching force, which achieves much better student outcomes. To put it in simple terms: high quality teachers can achieve rapid learning gains in a class with many students, but decreasing class size while keeping the quality of the teaching force low will not improve student performance. Thus, governments must choose between investing resources in high-quality teachers or decreasing class size. Spain seems to have made the wrong choice to avoid the high political costs associated with improving teacher quality.

## **7. Education reforms, policies and ILSAs**

The most common and misguided mantra about the Spanish education system identifies as its main problem too many reforms which, according to this view, have generated a great deal of

instability. The fact is that, since the transition to democracy, eight education laws have been approved. Conventional wisdom has it that, as socialists and conservatives have alternated in power, each has ensured that they have approved an education reform aligned with their ideological agendas when they have come to power. Nothing could be further from the truth.

The first major education reform approved and implemented in democracy which changed the architecture of the education system and transformed the general rules of the game (which had been established during the Franco regime) was the LOGSE approved by a socialist government in 1990. The impact of this law has been far reaching since it defined the pillars of the model that has prevailed in Spain since it was approved. Although socialist governments approved other laws, these addressed minor issues which complemented the LOGSE. In contrast, although other education laws were approved by parliament when different political parties were in power (UCD: “Ley Orgánica Reguladora del Estatuto de Centros Docentes Escolares” LOECE 1980, and Conservative Party-PP: “Ley Orgánica de la Calidad de la Educación” LOCE 2002) these were never implemented, since the socialist party halted the process and reversed the changes with its own reforms as soon as they were back in power. The only exception to the clear predominance of the socialist model established by the LOGSE has been the design by a conservative government of the LOMCE, its approval by parliament in 2013 and its brief implementation until 2017. In this case, implementation came to a standstill as part of an agreement by the following conservative government to try to reach consensus with other political parties which turned out to be a complete failure. Eventually all the changes were reversed when the following coalition government between the socialist party and the new far-left antisystem party Podemos approved the following education reform (LOMLOE, 2020) which basically implied going back to the old socialist model. Thus, education policies in Spain have been dictated almost exclusively by the socialist party.

It is beyond the scope of this paper to examine in detail the changes implemented by each reform and the impact they had. Therefore, I will only attempt a fairly broad-brush summary of the main features of each reform and the most striking links that can be established with the results and policy recommendations of ILSAs.

As in many other countries, in Spain the left has traditionally identified equity as the main priority, while the right has singled out quality as its main goal (Gomendio & Wert 2023). These choices represent the main ideological divides. The potential pitfalls of selecting only one of these two dimensions are well known. When equity is considered separately from quality, the easiest and most pernicious way to achieve it is by lowering standards. The other side of the coin is that when quality is considered in isolation the system runs the risk of ignoring the compensatory measures that children from disadvantaged backgrounds need, given their difficult starting points, in order to have equal opportunities.

**The major education reform approved in 1990 (*Ley Orgánica General del Sistema Educativo* or LOGSE) therefore elevated to the status of dogma the idea that the main (if not exclusive) goal of the education system was to achieve equity. Following the steps taken earlier by other social democrats in Europe, the strategy was to copy so-called *comprehensive education policies* implemented in Nordic countries which are well known for enjoying high levels of equity. But the comprehensive system designed was quite radical and went far beyond the usual delay of tracking between academic and VET paths. Thus, any measure that could be regarded as leading to segregation, which was (mis)understood as differential treatment, was eliminated: students could not be grouped according to their ability**

(either within or between classes) and during compulsory education, which now encompassed students from the age of 6 until the age of 16, almost no subject choices were available. Mere exposure to the same teacher, the same curriculum, the same learning pace, the same classroom, was regarded as the epitome of equity. **Uniformity and rigidity became the overriding rules for the sake of equity.**

**Table 4. Education reforms implemented in Spain: a brief history**

<b>Laws</b>	<b>General approach</b>	<b>Student Assessments</b>	<b>Curriculum</b>	<b>School Autonomy</b>	<b>VET</b>	<b>Charter Schools</b>
<b>LODE (1985)</b>  <b>LOGSE (1990)</b> <b>Socialist</b>  <b>LOPEG (1995)</b> <b>Socialist</b>  <b>LOE (2006)</b> <b>Socialist</b>	Comprehensive education; rigidity and uniformity  Equity as the main goal	No national standardized  Regional: diagnostic, no common standards	Content of all subjects decided by both central & regional governments with responsibilities defined as percentages	No  School Councils	Low priority  Upper-secondary VET dead-end	Support
<b>LOMCE (2013)</b> <b>Conservative</b>	Flexible and diversified system  Quality and equity as compatible goals	National standardized and external  Evaluation standards set by central government	Central government: core subjects and evaluation standards  Regions: other subjects  Contents updated	Yes  More responsibility to principals	High priority  Diversification towards the end of lower-secondary  Bridges built between upper-secondary and tertiary VET	Support
<b>LOMLOE (2020)</b> <b>Coalition Socialist &amp; Podemos</b>	Back to comprehensive system  Equity as the main goal  Lower standards	End of stage: general evaluation of the system by assessing a sample of students; every three years; few basic skills  Regions: no exit exams	Back to content of all subjects decided separately by central & regional governments with the latter becoming responsible for a larger share for each subject  “Competence-based curriculum” weaker on content	Diluted  Principals no real power (return to school councils)	Continuity	No support through change in admission policies

The lack of national (and standardised regional) evaluations was regarded as a key element to avoid segregation and stress among students, because the fact that students from disadvantaged grounds tend to perform worse was taken as evidence that standardized assessments are discriminatory. Thus, no national (or regional) standardised student assessments at the end of educational stages were implemented. Regions were granted the freedom to decide whether they implemented diagnostic evaluations, but some regions did while others did not, and no common standards were agreed among regions.

This model prevailed for twenty-three years so there was plenty of time to evaluate its impact. It is shocking that this was never done. The system lacked any means to evaluate the impact of the policies implemented. I will therefore turn to the evidence generated by ILSAs, as well as national metrics, to examine whether improvements or declines in terms of equity and quality took place. All the findings show that for most of this time Spanish student outcomes were below OECD levels, both in primary and secondary. Spanish students performed particularly badly in maths. **Student outcomes stagnated while this education model remained in place. More granular analyses (particularly those using PISA data) show that the system became flat:** a small proportion of top-performing students and a similar proportion of low performers to the OECD average led to overall mediocre results (Gomendio 2021, Gomendio & Wert 2023).

**Many studies have interpreted the flatness as proof that in Spain quality was sacrificed for the sake of equity and PISA has openly supported this interpretation** (Calero, 2005, OECD, 2001). However, this conclusion does not take into account that, as we have seen, the implementation of the LOGSE led to an increase in rates of early school leaving, which remained high (around 30%) while this model prevailed. The best proxy for early school leaving is the high rate of grade repetition in Spain at age fifteen (around 40% from 2000 until 2011) which such studies consistently ignore. Thus, **the model implemented by the LOGSE led to the worst type of inequality: one in every three students was excluded from the education system.** A blind system given the lack of standardized evaluations, is unable able to detect underperforming students early enough to provide the additional support they need. In addition, a rigid system does not offer the flexibility required to adapt to the needs of a diverse student population, ensuring that all students have a range of options that allow them to reach their maximum potential. As a consequence, struggling students lagged further and further behind as they grew older until they started repeating grades when they became unable to learn what was being taught. As soon as they reached the age of sixteen (when compulsory education ends), they abandoned a system which had failed them well before they were legally entitled to leave. High rates of grade repetition and early school leaving became prevalent among disadvantaged students and migrants. **Thus, the dimension in which this radical comprehensive system failed more clearly was precisely equity.** These endemic problems had major consequences upon the skills of the adult population as will be discussed later.

The LOMCE (2013) was the only education reform which followed a drastically different approach, albeit for a short period of time. It injected flexibility into the system by allowing choices between applied and academic subjects towards the end of lower secondary, it modernized VET in an attempt to attract more students with a wider range of levels of performance, built bridges between upper-secondary and tertiary VET, and it introduced national evaluations in order to identify students lagging behind early on when compensatory measures are most effective, and to set clear targets that all students had to achieve towards the end of educational stages. **Under this lens, diversifying the education system could no**

**longer be seen as discriminatory. Raising standards for all could no longer be seen as unfair. Quality and equity could no longer be seen as exclusive.**

Shortly after implementation started, these changes in educational policies led to clear and rapid improvements in some areas: the proportion of students enrolled in vocational education and training at the upper-secondary level increased dramatically, leading to a historic decline in the rate of early school leaving between 2011 and 2015 (down from 26.3% to 20.0%) and a marked decrease in the rate of grade repetition (Gomendio 2021, Gomendio & Wert 2023, Wert 2019). Most of these variables remain outside the scope of what PISA measures and taking them into consideration radically changes the overall perception of levels of quality, equity and progress over time.

The curricular changes were implemented in primary schools and were associated with improvements in mathematics and science among primary-level students (TIMSS) and even more substantial improvements in reading (PIRLS) (Gomendio 2021, Gomendio & Wert 2023). More subtle improvements were detected in PISA 2015, as would be expected given that the implementation calendar was designed so that changes in lower-secondary education would take place later (after changes to primary education).

Despite these clear indications that improvements were taking place, the following government (a coalition between the socialists and far-left Podemos) approved a new law (LOMLOE, 2020) which reversed most of the changes. The latest reform not only returns to the failed model which had been prevalent for over two decades. It actually goes even further: national standardised evaluations at the end of lower- and upper-secondary education for all students have been replaced with so-called ‘general evaluations of the education system’ which include only a sample of students and take place once every three years. Regional governments can implement diagnostic evaluations, but the law stipulates that these cannot take place at the end of educational stages, and no common standards between regions are agreed. In an unexpected move, students who are failed by their teachers (according to the teachers’ own standards) will be promoted to the next grade (since grade repetition has been almost forbidden) and can eventually obtain a national degree. In addition, students who fail several subjects at the end of upper-secondary level can still take the university entrance exam (Gomendio 2020b, 2021b, 2022b). **Lowering the standards has led to the highest levels of grade inflation ever. The logic here seems perverse: grade repetition is avoided, not because all students achieve pre-defined levels of performance at the end of each grade, but rather because performance no longer matters.**

The current government has defended these measures on the grounds that they promote equity. All students will advance and obtain degrees irrespective of their levels of performance, therefore eliminating the impact of family socio-economic background and migrant status, but also of effort and ability. But creating such a disconnect between levels of performance, grades, and degrees, will not solve any of the real problems. In fact, they will worsen because degrees will be devalued and it will de-incentivise effort. The approval of this education reform represents an open capitulation by central government of the responsibility it has to implement policies that improve student performance and, in particular, mechanisms to allow disadvantaged students to perform well. No education system has improved under these circumstances. **It is just a mirage to pretend that equity can be achieved when those who learn are treated exactly the same as those who do not. A system which intends not to leave anyone behind will ultimately leave everyone behind.**

In contrast, the current government has maintained most of the elements of the previous reform (LOMCE) which made VET (and Dual VET) an attractive option for an increasing number of students. Given that in Spain rates of early school leaving and youth unemployment remain high when compared to other European countries, and that these statistics are relevant for the European Commission, the current government seems to have taken a more practical approach and buried all the harmful but effective ideological arguments against VET which was fiercely criticized for being discriminatory. As a consequence, the number of students choosing VET continues to increase and their levels of employability are improving.

## **8. International surveys on adult skills: a comparative perspective (PIAAC)**

### **8.1. Level of skills of the adult population**

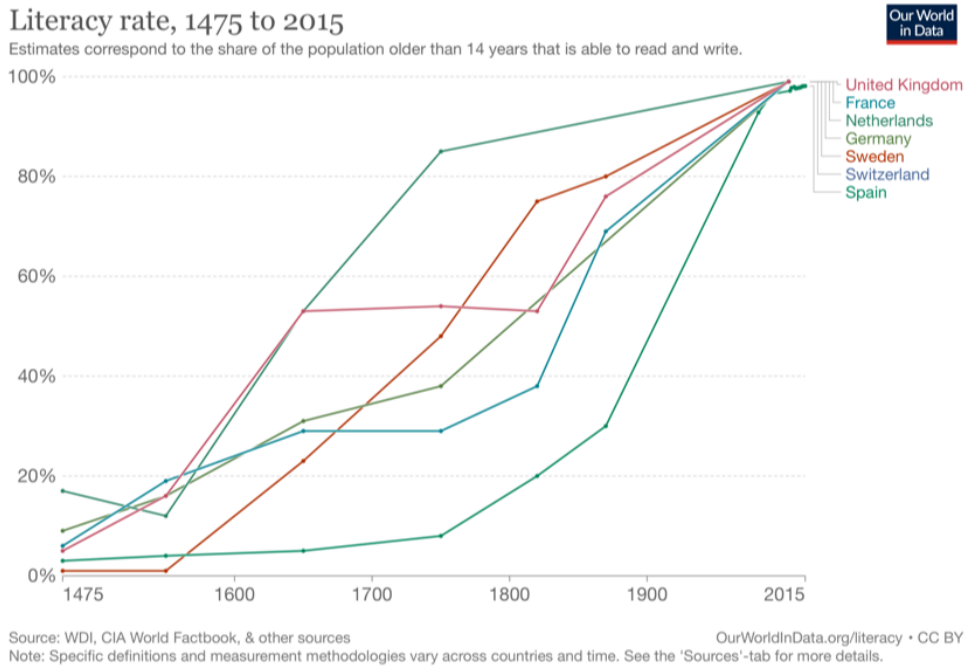
The delays suffered in Spain in relation to access to schooling and the growth in the number of years spent at school have had a major impact on the level of skills of the adult population. If we look at the evolution of the literacy rate over time, we find that, while in many European countries literacy rates improved rapidly from 1500 onwards, in Spain literacy rates remained very low (less than 10% of the population) until 1750. By 1900 most of the population in European countries such as Germany, France, Netherlands and Sweden was literate, while in Spain only around 30% of the population was literate. These trends are well aligned with the different rates at which the process of industrialization took place which had a major impact on the needs of the labour market in many European countries, while Spain's economy remained based on agriculture. In other words, the transformation of most European economies by the development of industries led to the demand for workers with higher levels of skills, while the lack of progress in the Spanish economy continued to require only low levels of skills.

The OECD survey of adult skills (PIAAC) is the most detailed assessment so far of the level of basic skills (numeracy and literacy) of adults between the ages of 16 and 65. There have been three rounds with twenty-four countries participating in 2011 (including Spain) (OECD 2013b), nine additional countries in 2014 (OECD 2016d) and six more in 2017 (OECD 2019c). Previous surveys include the International Adult Literacy Skills Survey (IALS) and the Adult Literacy and Life Skills Survey (ALL) (OECD 2019d).

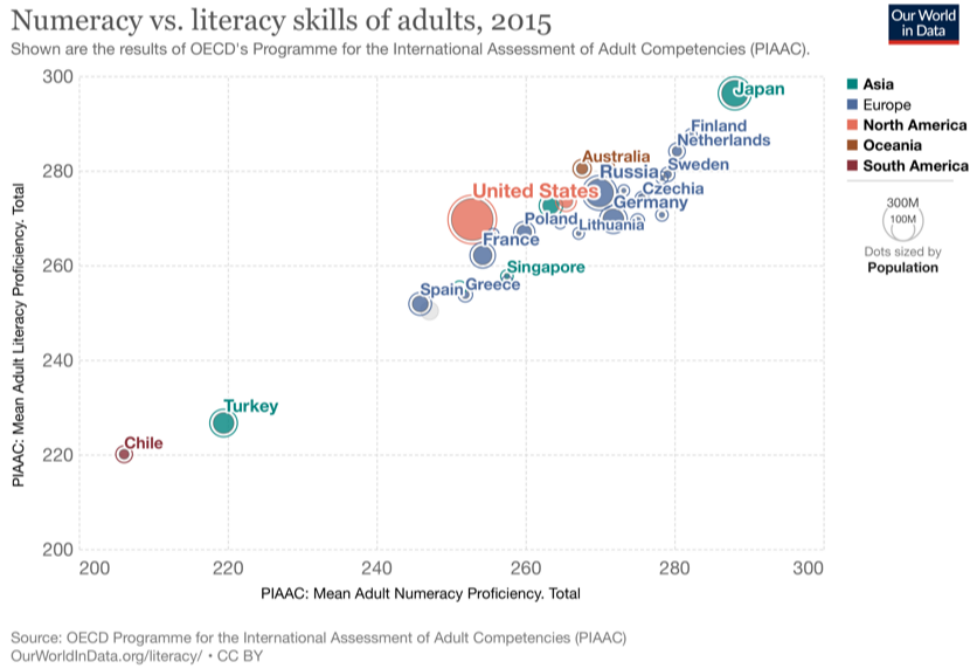
**When all participating countries are compared, the level of skills of the adult population in Spain is the lowest of all with the exception of Chile and Turkey.** It is worth pointing out among countries where universal access to good quality compulsory education was achieved a long time ago, such as Japan or Finland, this has resulted in an adult population with high levels of skills. However, others where the process of expanding access to education and improving quality has happened more recently have on average lower levels of skills, as is the case of Singapore.

When we compare the distribution of skills levels within the population for the first round of participating countries in PIAAC we find that in countries such as Japan, Finland and Sweden around 60% of the population have high or very high levels of skills. At the opposite end of the spectrum, in Italy and Spain around 70% have low or very low levels of skills.

**Figure 33. Trends in literacy rates in several European countries**



**Figure 34. Numeracy versus literacy skills of adults (PIAAC data)**

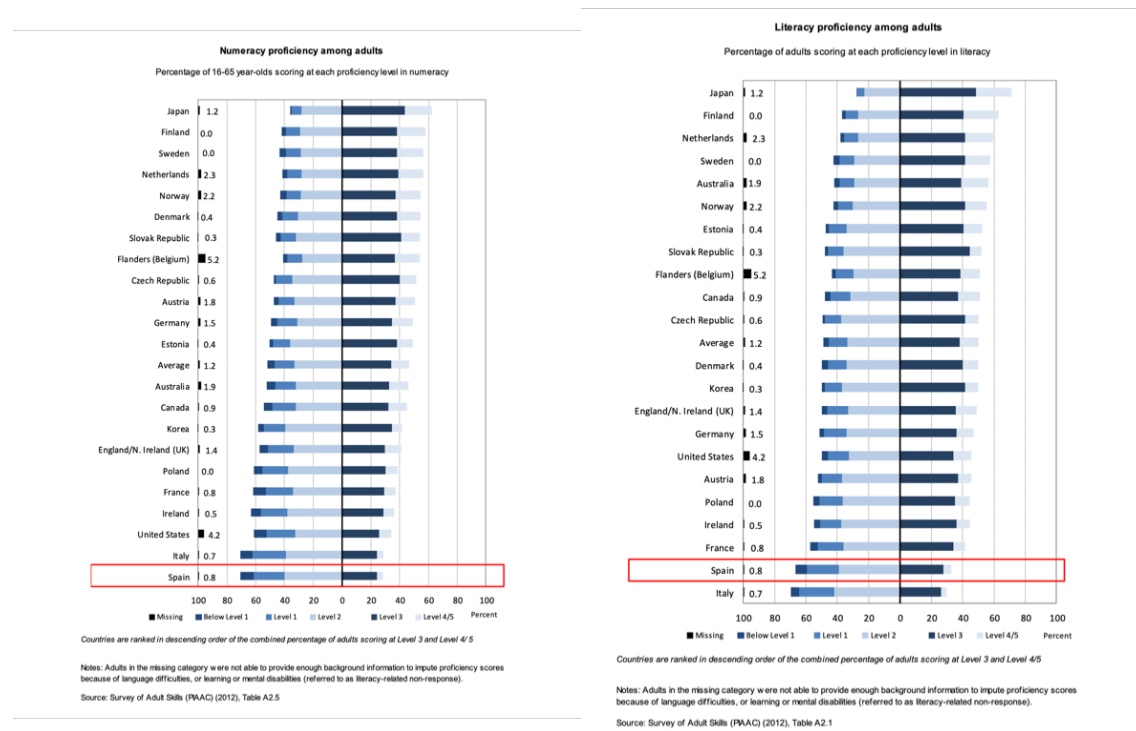


In most participating countries, the largest proportion of adults score at Level 3 in literacy (38.2%), except Spain, France, Ireland, Italy and Poland, in all of which the largest proportion of adults concentrate in Level 2. Similarly, in most countries, the largest proportion of adults (34.4%, on average) scores at Level 3 in numeracy; however, in Spain, France, England/Northern Ireland (UK), Italy, Ireland, Korea, Poland and United States, the largest proportion of adults scores at Level 2. When we take into account all countries, on average



around one-third of adults (33.0%) scores at Level 2 in numeracy. Spain follows a different patterns because it has the highest proportion of adults at this level (40.1%) followed by Korea (39.4%) and Italy (38.8%).

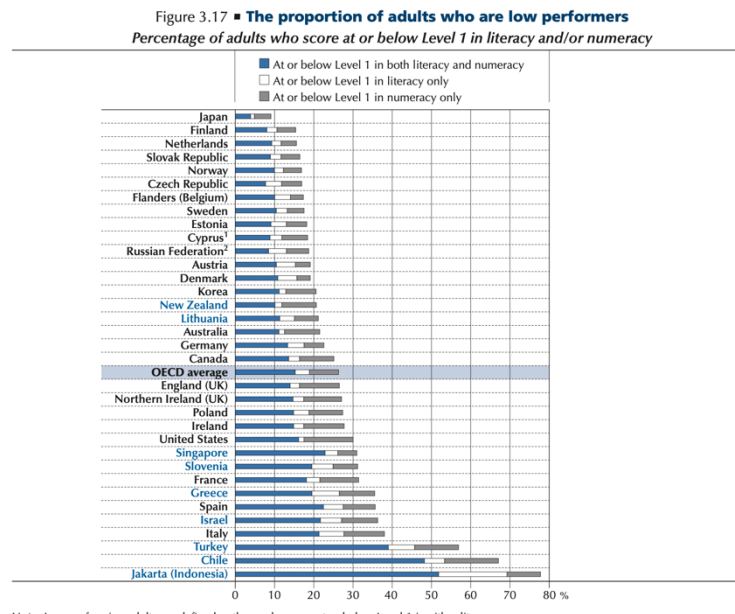
**Figure 35. Distribution of levels of numeracy and literacy skills among adults (PIAAC data)**



When we look at the proportion of the population which scores at the highest and lowest levels of skills, in the case of Spain no adults score at the highest levels in literacy or numeracy. At the other end of the spectrum, a comparatively high proportion scores at the lowest levels: about one in four adults in literacy and almost one in three in numeracy. To put this data in a comparative perspective, 0.7% of adults in all countries that participated in the survey are proficient in literacy at the highest level, Level 5, while in Spain, as well as in other 10 participating countries, no adult scores at this level. Some 12.4 % of adults across all participating countries score at Level 4/5 in numeracy; Spain (4.1 %) and Italy (4.5%) show the lowest proportion of adults at this level.

Thus, of all the countries which participated in the first round of PIAAC Spain, together with Italy, has the smallest proportion of the population with high skills levels and the largest with low skills levels. In addition, most of the population has lower levels of skills than the level of skills which prevails in the majority of countries. Further rounds of PIAAC showed that the level of skills of the adult population is even lower in Turkey, Chile and Jakarta.

**Figure 36. Proportion of adults who are low performers (PIAAC data)**



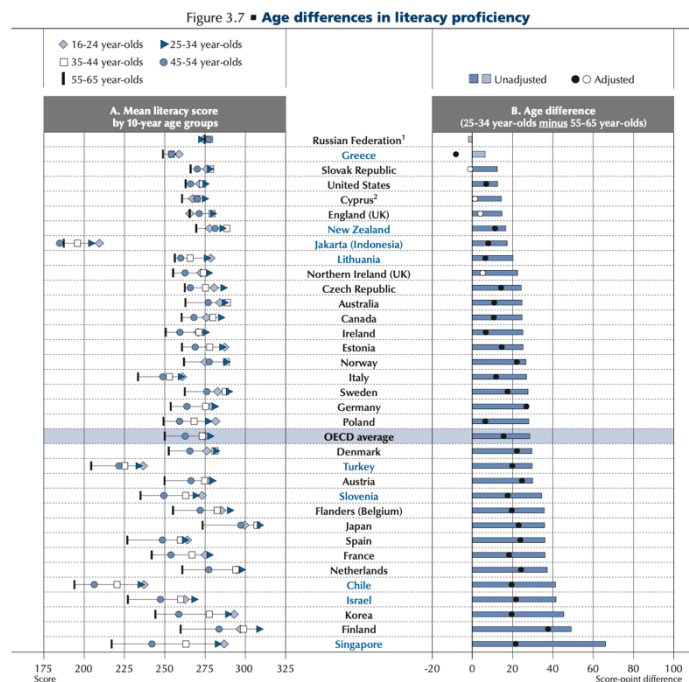
## 8.2. Level of skills in relation to age

The Survey of Adult Skills (PIAAC) covers an age range extending from the end of compulsory schooling (16 years) to retirement (65 years) at the time they were surveyed, in other words, people born between 1947 and 1996. Therefore, the survey represents a snapshot of the proficiency of adults of different ages at a particular point in time rather than a picture of the proficiency of an age cohort at different points in time. Despite this limitation, comparing age cohorts gives a good idea of the impact over time of a range of factors such as the rate of expansion of the education system, its quality, demographic shifts and immigration, the acquisition of skills at work and skills decline over a lifetime due to obsolescence.

In most countries the level of skills increases from the age of 16 until the age of 25 and then declines gradually with age. Thus, older generations have lower levels of skills than younger ones. This finding strongly suggests that access to different levels of educational attainment tends to have a stronger impact on the level of skills, than the acquisition of skills at work.

The extent to which young and older cohorts differ in their levels of skills varies across countries. Thus, countries where the expansion of education, including tertiary education, took place early (such as the US) show small differences between age cohorts. In contrast, other countries had more difficult starting points (shown by the low level of skills of the older generations) but expanded access to education rapidly over the last 40-50 years and improved the quality of its education system beyond what other countries have managed to achieve. This is the case of Singapore a country where the older generations have one of the lowest levels of skills, but these have improved in every age cohort to the extent of becoming one of the top performing countries among young generations.

**Figure 37. Age differences in literacy proficiency (PIAAC data)**



The most common pattern is for progress to occur in each generation due to expanding access to education and improvements in its quality, except for the youngest two (16-24 and 25-34-year-olds) where the youngest has lower levels of skills (or they both overlap) because their education has not finished at this age. **Spain follows an unusual pattern. The starting point is difficult since the older generations (55-65 year-olds) show one of the lowest levels of skills of all countries. While improvements occur in the next two cohorts (45-54 and 35-44 year-olds) there is no progress after that. In other words, for the last 30 years no further advancement has taken place among adults. As a consequence, young adults in Spain have lower levels of skills than their peers in all other participating countries except Turkey, Chile and Indonesia.**

### 8.3. Level of skills in relation to level of educational attainment

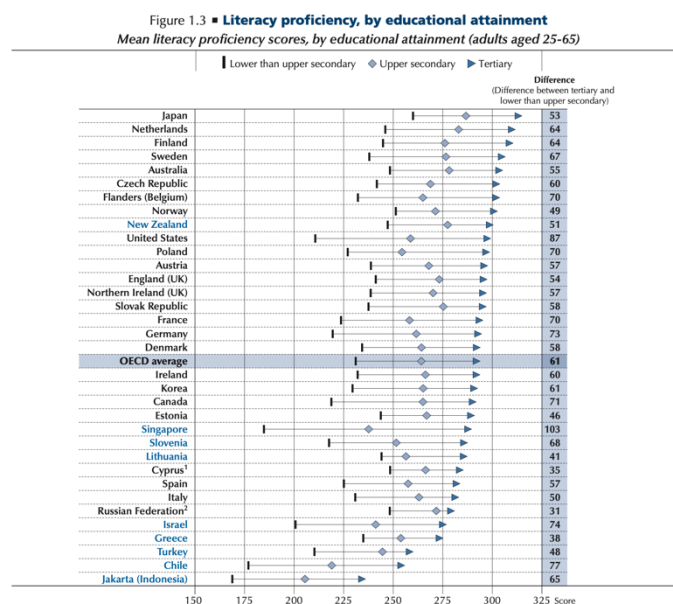
The findings from the Survey of Adult Skills (PIAAC) clearly show that education has a major impact on the level of skills of adults. This includes access to education, the level of education attained, as well as the quality of the education system. As expected, the higher the level of educational attainment the higher the level of skills. Thus, adults who have not attained upper secondary education have lower levels of skills than those who have; and the latter group, in turn, has lower levels of skills than adults who have attained tertiary education.

It should be taken into account that adults of different ages have experienced education systems at different developmental stages as these have evolved over time. To highlight the extent of the differences, suffice to say that for most of the participating countries the majority of people born in the 1950s (i.e. aged 53-62) left school without completing upper secondary education, whilst for those born in the 1980s and 1990s completion of upper secondary education became the norm. In addition, as we have already seen the architecture and curricular contents of secondary schooling have evolved considerably since the 1960s, as has the quality of some education systems. But this is by no means the whole story.

Two other findings stand out. First, differences in skill levels related to educational attainment vary considerably among countries. The gap in average proficiency between adults with tertiary education and those who have not attained upper secondary education is considerably larger in some countries than in others. Thus, Singapore and United States stand out as having a particularly large gap between these two groups in both literacy and numeracy proficiency. In contrast, in Norway, Estonia and Greece, individuals who have attained tertiary education have a level of skills which is much closer to the level of skills of individuals who have not achieved upper secondary education. This could be either because they all have a comparatively high and uniform level of skills (Norway), or because they all have a rather low level of skills (as is the case in Greece).

Second, the proficiency of adults who share the same level of educational attainment varies substantially among countries. The extent of the differences between countries are of such a magnitude that in some countries the average proficiency of adults who have completed secondary education exceeds that of tertiary graduates in others. Differences in the level of skills acquired at the end of different educational stages are likely to be due mainly to differences between countries in the quality of the education systems. It is also possible that countries which have implemented more selective mechanisms to enter tertiary education have graduates with higher levels of skills, than those who offer broad access to students with all levels of performance.

**Figure 38. Differences in literacy proficiency by level of educational attainment for adults aged 16-24 (PIAAC data)**



**In Spain the difference in levels of skills between tertiary graduates and those who have not reached upper secondary is average. It is worth highlighting that the level of skills is comparatively low at all levels of educational attainment, but perhaps more so among tertiary graduates. Thus, the proficiency of a tertiary graduate in Spain is similar to that of people who have completed secondary education in the Netherlands or Japan. This points to a low quality of the education system overall, including tertiary, since most adults with tertiary education are rather young.**

Countries differ to a large extent in the level of proficiency of low-educated adults, with the lowest scores found in Canada, France, Italy, Spain and the United States. In contrast, in countries like Japan low-educated adults show high levels of proficiency, suggesting that skills can also be acquired in the social environment and at the workplace. **Once again, in Spain a unique feature is that adults with low levels of education perform very poorly when compared to other European countries, and this not only includes older generations who did not attend school for long, but also people from younger generations who dropped out of school.**

#### **8.4. Types of mismatch: qualifications, skills and field of study**

In general, higher levels of skills are associated with higher quality jobs, better salaries and a range of other positive outcomes such as better health and greater civil engagement (OECD 2013b, 2016d, 2019c, d). As usual, higher is better than lower. However, different types of mismatches can occur when the level of skills that people have are not well aligned with the needs of the labour market.

There are three different types of mismatches:

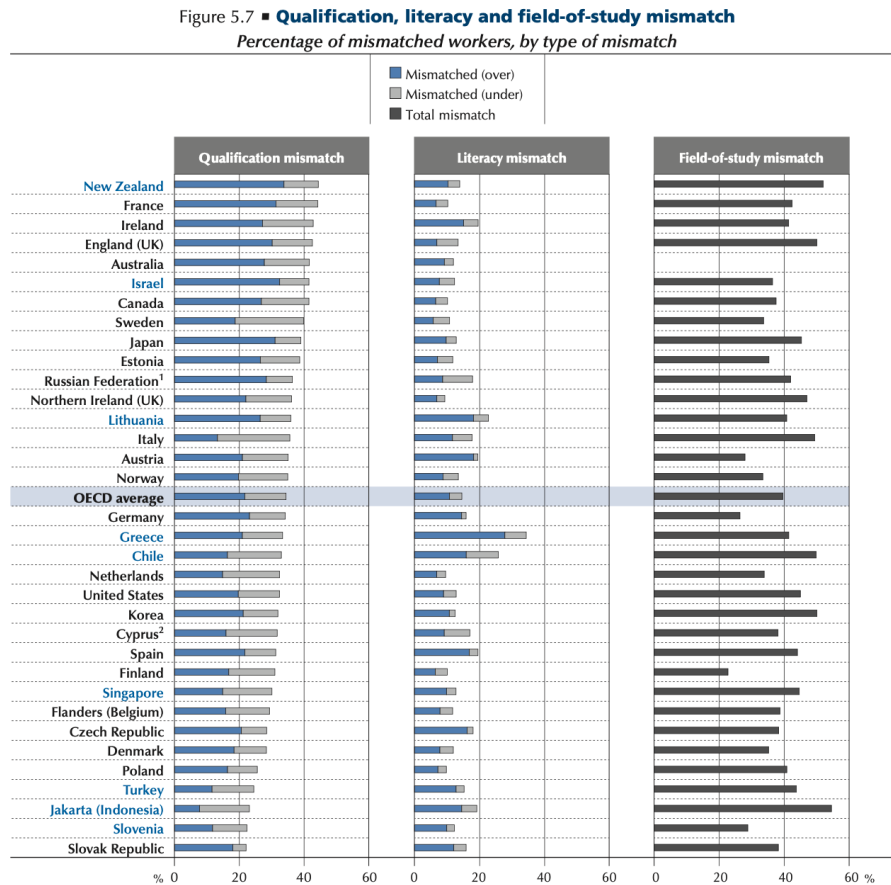
- Qualifications mismatch: when people hold a different level of qualification from that required to get that job today.
- Skills mismatch: when people have a different level of actual skills from that that required by their jobs; over-skilling occurs when a worker's proficiency is above the maximum required by his or her job and under-skilling when it's below the minimum required by the job.
- Field of study mismatch: when people work in a sector which is different from the field of study in which they have specialized.

The survey of adult skills shows that, on average, 22% of workers are overqualified while about 13% are underqualified. There are major differences between countries in the prevalence of qualifications mismatch, with the share of overqualified workers ranges from around one in three workers in France, Israel and Japan, to less than one in seven in Italy, Slovenia and Turkey.

The survey's measure of skills mismatch shows that about 11% of workers are overskilled while about 4% are underskilled, with Austria, Greece and Lithuania showing the highest prevalence of overskilling, and Canada, Finland and France the lowest.

Finally, on average across OECD countries 40% of workers are mismatched by field of study, with the highest share (reaching between 50 to 60% of the population) found in countries such as Chile, England, Italy and New Zealand, where around one in two workers are mismatched by field of study.

**Figure 39. Qualification, skills and field of study mismatches (PIAAC data)**



Note: Field-of-study mismatch is unavailable for Australia due to the unavailability of ISCO 3-digit information for Australian workers in the Survey of Adult Skills (PIAAC).

Overall, we can conclude that field of study mismatch is the most prevalent type, although this only leads to employability and wage penalties if the skills are non-transferable. The next most common type is qualifications mismatch (ranging from 20 to over 40% of the population) with overqualification being much more prevalent than underqualification. In contrast, skills mismatch seems to be much less common (in the vast majority of countries under 20% of the population) with overskilling being more common than underskilling. In summary, although a substantial proportion of workers (between 20-30%) hold higher qualifications than their jobs demand at present, the proportion of them who have higher skills than the job demands is much lower. Thus, it should not be assumed that overqualification always entails a major waste of talent, since the level of mismatch when the actual level of skills is taken into account is actually much lower.

It is therefore worth asking to what extent are the overqualified genuinely mismatched in terms of skills. The answer is that only 14% of overqualified workers are also overskilled, meaning that the majority of overqualified workers is well-matched in terms of the skills required at work. This lends further support to the conclusion that qualifications are an imperfect proxy for skills.

In the case of Spain, the data show that the rate of overqualification is similar to the OECD average (slightly over 20%), while underqualification is very rare. However, not all overqualified workers are overskilled, since the proportion is lower (below 20%). Field of study

mismatch is higher than the average for the OECD, reaching almost 50% of the population. **One plausible interpretation combines two factors: first, many students choose fields of study which are not demanded by the labour market and have to accept jobs with lower levels of qualifications in other sectors; second, as we have seen the level of skills of tertiary graduates is low compared to other countries and, therefore, a proportion of those workers who have higher qualifications than those demanded by the job actually have the right level of skills.**

## 8.5. Employability by level of educational attainment

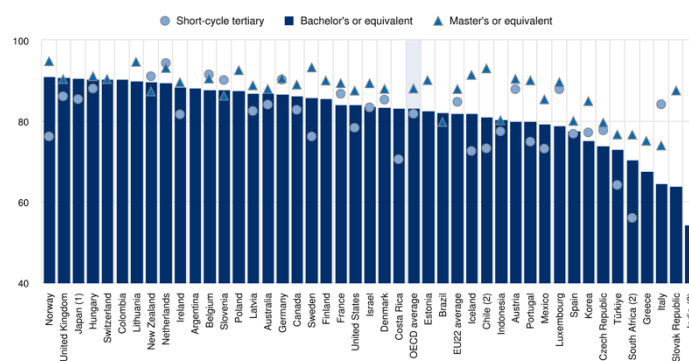
Higher levels of educational attainment are associated with better labour-market outcomes (OECD 2022). Across OECD countries, the employment rates of tertiary-educated young adults (25-34 year-olds) are 8 percentage points higher than those who have attained upper secondary or post-secondary non-tertiary education and 26 percentage points higher than those who have attained below upper secondary education (data for 2021, OECD 2022). Although the rate of tertiary attainment has increased over the last decades, there is no sign that this is leading to a decline in its labour market value. The differences in unemployment rates between tertiary-educated young adults and those with lower levels of educational attainment were almost identical in 2000 and 2021.

In Spain this is also the case, but the employment rate of tertiary students is lower than in most European countries and lower than the OECD average.

**Figure 40. Employment rate by level of tertiary attainment (25-34 year-olds)**

Figure A3.2. Employment rate of 25-34 year-olds, by level of tertiary attainment (2021)

Percentage of employed 25-34 year-olds among all 25-34 year-olds



1. Data for tertiary education include upper secondary or post-secondary non-tertiary programmes (less than 5% of the adults are under this group).  
 2. Year of reference differs from 2021. Refer to the source table for more details.  
 Countries are ranked in descending order of the employment rate among 25-34 year-olds with a bachelor's or equivalent degree.  
 Source: OECD (2022), *Education at a Glance Database*, <http://stats.oecd.org/>. See Source section for more information and Annex 3 for notes ([https://www.oecd.org/education/education-at-a-glance/EAG2022\\_X3-A.pdf](https://www.oecd.org/education/education-at-a-glance/EAG2022_X3-A.pdf)).

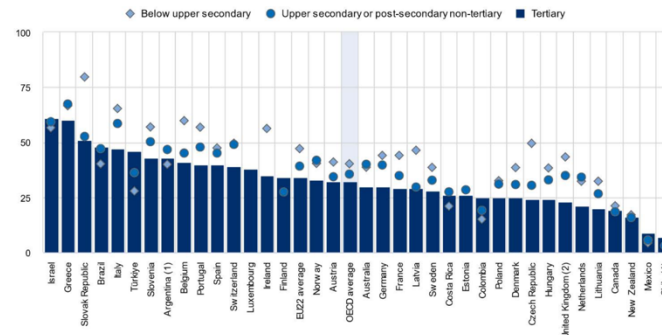
StatLink <https://stat.link/m8f65>

In addition, in Spain the rate of long-term unemployment is particularly high. When rates of long-term unemployment are compared across countries for people with similar levels of educational attainment, the data show that in Spain tertiary graduates suffer a higher rate of long-term unemployment than the OECD average, and so do individuals with other levels of educational attainment. It is somewhat unusual that in Spain individuals who have attained upper secondary or below upper secondary show almost identical rates of long-term unemployment and that tertiary education offers limited protection.

## Figure 41. Long-term unemployment by educational attainment

Figure A3.5. Long-term unemployment (12 months or more) among 25-64 year-olds, by educational attainment (2021)

As a percentage of all unemployed 25-64 year-olds in the labour force



1. Data for upper secondary attainment include completion of a sufficient volume and standard of programmes that would be classified individually as completion of intermediate upper secondary programmes (12% of adults aged 25-64 are in this group).  
 2. Year of reference differs from 2021. Refer to the source table for more details.  
 Countries are ranked in descending order of the share of tertiary-educated 25-64 year-olds who have been unemployed for 12 months or more.  
 Source: OECD (2022), Table A3.5. See Source section for more information and Annex 3 for notes ([https://www.oecd.org/education/education-at-a-glance/EAG2022\\_X3-A.pdf](https://www.oecd.org/education/education-at-a-glance/EAG2022_X3-A.pdf)).

StatLink <https://statlink.e7x01>

### 8.6. Summary

According to the Survey of Adult Skills (PIAAC) when we compare the skills of the adult population in the first round of the assessment, Spain and Italy show the lowest levels of skills of all participating countries. Thus, while in countries such as Japan, Finland and Sweden around 60% of the population have high or very high levels of skills, in Italy and Spain around 70% have low or very low levels of skills. In addition, the most prevalent level of skills in Spain is lower than that found in most other countries.

When we compare different age cohorts, it emerges that Spain follows an unusual pattern. While in most countries improvements in the level of skills occur at every step, i.e. from each generation to the next, in Spain no further progress has taken place among adults for the last 30 years. The starting point is difficult since the older generations (55-65 year-olds) show one of the lowest levels of skills of all countries. While improvements occur in the next two cohorts (45-54 and 35-44 year-olds) no further advancements take place. As a consequence, young adults in Spain have lower levels of skills than their peers in all other participating countries except Turkey, Chile and Indonesia.

**The low level of skills of the Spanish population is explained by a combination of delays in access to higher levels of educational attainment, high rates of early school leaving and the low quality of the education system.** Thus, at all education levels, adults in Spain have lower levels of skills than in most other countries. As a consequence, a tertiary graduate in Spain has a similar level of skills as a person who has attained secondary education in countries such as Japan and the Netherlands.

**Mismatches also represent a major problem in Spain. Thus, field of study mismatch is higher than in most other countries, i.e. students choose to study in fields that are not demanded by the labour market, reaching almost half of the population. In addition, overqualification is slightly over 20%, while underqualification is very rare. However, not all overqualified workers are overskilled, since the proportion is lower.**



One plausible interpretation combines two factors: first, many students choose fields of study which are not demanded by the labour market and have to accept jobs with lower levels of qualifications in other sectors; second, as we have seen the level of skills of tertiary graduates is low compared to other countries and, therefore, a proportion of those workers who have higher qualifications than those demanded by the job actually have the right level of skills.

Finally, the returns of tertiary education in Spain in terms of employability are lower than in other countries.

## 9. CONCLUSIONS

From a historical perspective, Spain has lagged behind most European countries regarding the rate at which access to education has been granted to a larger proportion of the population, more years of schooling have been achieved and higher levels of educational attainment reached over time. Only Portugal has shown even slower rates of progress in terms of access to education. Since education systems have traditionally responded to the increasing demands of the labour market for higher levels of skills, this pattern is well aligned with the fact that most European countries went through the process of industrialization earlier, while Spain's economy remained based on agriculture for longer. It is well known that, as economies transform due to industrialization in the early stages, more recently due to digitalization, globalization and demographic trends, the labour market requires more human capital which translates into increases in the demand for more education as a first step and better education as the next one (Frey 2019, Frey & Osborne 2017, Goldin and Katz 2009, OECD 2019d, e). When countries succeed at improving human capital through better education for all, it boosts economic growth, prosperity and social mobility. When they fail, the consequences are dire: these economies cannot adapt to the changing landscape, they lose out in an increasingly competitive environment and social mobility stagnates.

Despite falling behind for most of the 20<sup>th</sup> century, during the last decades Spain undertook a major effort to expand access until it eventually reached convergence. In fact, the focus on increasing access to higher levels of educational attainment became the prime goal to the extent that, once universal access to compulsory education was achieved, the rate of access to non-compulsory levels such as tertiary education and pre-school continued to grow so fast that today it exceeds that of other European countries and is well beyond the goals set by Europe. This is an unusual pattern for two main reasons.

First, the most common developmental pattern is to move from an initial stage of “expansion” during which achieving universal access to education is the main goal, to a second phase termed “performance-based” or “quality-enhancing reforms” where the emphasis shifts to quality and improving student performance becomes the main objective (Grindle 2004, Jakoby *et al.*, 2010, Moe and Wiborg, 2017a, b). The transition between these two stages is complex because it is at this point (which was reached by different countries at different times) that conflicts of interest start to emerge. The reason is that during the phase in which the education system is expanding, an increasing amount of public funds is allocated to building more schools, hiring more teachers, and providing all the necessary resources. Targets are mostly quantitative, including enrolment rates, years of schooling and levels of educational attainment. During this process the education system acquires gargantuan dimensions and a growing number of stakeholders receive an increasing amount of resources as more children enter the education

system and remain in school for longer. Thus, the interests of governments, teachers, providers and stakeholders are well-aligned. In addition, ideology does not play an important role since reaching more and more children is the shared and simple goal. In contrast, once universal access has been achieved the system (and the resources it distributes) ceases to grow and governments start looking for improved efficiency and quality, focusing efforts on improving student outcomes. Most education reforms of this kind are likely to affect how resources are distributed between teachers and many other stakeholders, so those changes that may be perceived as a threat to the resources that they receive, their privileges or the balance of power, are likely to elicit opposition (Grindle, 2004; Moe, 2011; Moe and Wiborg, 2017a, b). It is worth noting that performance-based reforms to improve quality need to address two particularly controversial issues: teacher quality and students' assessments. **The evidence suggests that Spain has failed to make the full transition from improving access to improving quality. Instead, it has never managed to overcome the inertia of ever-expanding access and in line with this policy Spain made the choice to set new goals in terms of increased access to non-compulsory levels of education, reaching record figures in these quantitative targets. This path ensures that resources invested in education continue to grow and avoids the conflicts associated with "performance-based reforms". The drawback, of course, is that quality does not improve, which means that the returns of the continued expansion of education are low for individuals and for society.**

**The second atypical pattern in the development of the Spanish education system is the high prevalence of early school leaving.** In most countries as access expanded and students spent more years at school, early school leaving declined gradually and steadily over time. It seems odd that, in Spain, despite the huge efforts undertaken to increase access to all levels of education, so little has been done to address this endemic problem. **In this case, the underlying problem is of an ideological nature and the direct cause is the bad timing of changes in the architecture of the system. The ideological belief that guided the decisions to change the architecture of the education system at the wrong stage, was to identify equity as the only goal, to assume (wrongly) that a trade-off with quality was necessary, and to engage in policy-borrowing from countries which had more mature education systems in terms of both quality and equity.**

Thus, in most developed economies, as universal schooling became consolidated both in primary and secondary, and the rate of early school leaving reached low levels, the duration of compulsory education was gradually extended and the age at which students could choose between the academic and VET paths delayed step by step. In this context, roughly during the 1980s and 1990s, once students had achieved higher levels of proficiency and education systems had managed to overcome major disparities in performance between students, social-democrats in Europe supported the development of 'comprehensive' education, meaning a uniform track for all students up to the end of compulsory education (Moe and Wiborg 2017, Wiborg, 2009). In Spain, after the transition to democracy, the first reform which implemented changes in the architecture of the education system was undertaken by a socialist government (LOGSE 1990) and emulated what other governments had done, particularly in Nordic countries, but it failed to take into account that the context was very different. Spain was still not ready. The reason is that, in 1990, Spain was still lagging behind regarding the proportion of the population that had achieved secondary education, a large proportion of students were dropping out (40%) and many of those who stayed (over 30%) were choosing VET in lower secondary. The adoption of a "comprehensive system" in Spain involved extending compulsory education, eliminating any flexibility during this stage, delaying the tracking

between academic and VET paths for two years, and transforming VET into a dead end, since upper-secondary VET students could no longer progress into the next VET level.

**In other words, Spain copied a system which had been designed for countries in which the student population had achieved higher levels of proficiency and skill gaps had been minimised. As a consequence, a model designed for rather uniform student populations (in terms of performance) was imposed upon a heterogeneous student population in which the share of students with low levels of proficiency was still relatively high. The consequences were dire and the impact was felt for a long time.** The rate of early school leaving, which had been declining for years, started to increase again as students with low levels of performance were not offered any options and fell through the cracks. The rate of early school leaving remained at around 30% for the next twenty years while policy makers consistently labelled VET as a “discriminatory” path which prevented disadvantaged students from attending University. Such was the stigma that students chose to leave the education system (mostly without a degree) rather than to choose VET. Little was done to address the problem, until the next major reform implemented briefly by a conservative government (LOMCE, 2013) reverted the situation by modernizing VET, allowing more flexibility at the end of lower secondary, building bridges between secondary and tertiary VET, as well as the academic track. As a consequence, early school leaving declined sharply and continues to decrease today.

This harmful ideological stance is based on a misleading interpretation of the education policies followed in the Nordic countries and in particular Finland. It is widely accepted that inclusive education policies in Finland led to high levels of equity, which in turn led to improved levels of student performance, a conclusion elaborated by PISA based on its excellent performance in reading during the very first PISA cycle (2000) (Grubb *et al.* 2005, OECD 2001, OECD 2013a, Schleicher 2018, 2020, Valijarvi *et al.* 2002). However, this explanation has a number of flaws (Ahonen 2021, Gomendio & Wert 2023, Oates 2015, Rautalin 2018, Sahlgren 2015).

First, Finland was already a country with high levels of equity before PISA started, so it is plausible that the direction of causation is the other way round: comprehensive policies can be implemented in countries that already enjoy high levels of equity (at the economic, social and skills levels) because they do not have to deal with a large degree of student heterogeneity in levels of performance. However, when the same policies are implemented in countries with a much more diverse student population, they lead to major problems, among which the most damaging is that the large pocket of low performing students become more prone to abandon a system that fails to adapt to their needs, leading to an increase in early school leaving. This is what happened in Spain as well as in many Latin American countries (Gomendio 2023c, Gomendio & Wert 2023, OECD 2018). In fact, as the student population in Finland became more diverse due to the arrival of migrants, levels of student performance declined, supporting the view that the education system requires more flexibility in terms of choices of subjects and alternative paths to deal properly with the diverse needs of heterogeneous student populations (Ahonen 2021, Hanushek and Woessmann 2015, Harju-Luukkainen and McElvany 2018, Oates 2015, Rautalin 2018, Rautalin and Pertti 2007, Sahlgren 2015).

Second, in order to interpret correctly the underlying causes of levels of student performance at any point in time, it is crucial to take into account time lags, i.e. how far back did changes in policy take place which affected students through their long journey along the education system (Oates 2010). In the case of Finland improvements in student performance were mostly the result of reforms that took place in the 1960s, which were centralised, at a time when strong

control by the state was exerted over accountability, a detailed national curriculum was in place, the inspection system played a powerful role, and the trend to implement inclusive systems had not emerged yet (Frassinelli 2006, Oates 2010 and 2015, Sahlgren 2015, Simola 2005). Relaxation of these measures only took place once curriculum coherence and a highly skilled teaching force were in place. Finally, Finnish society has traditionally placed great emphasis on literacy and early family learning plays a very important role, making it difficult to disentangle the effects of family and school (Aunio *et al.* 2006, Oates 2010 and 2015, Sahlgren 2015).

**An influential narrative has been built based on a few top performing countries which have become legends in the education debate, with little regard for those which evolved from being the lowest performers to becoming the real top performers. However, it is precisely these countries that should be emulated by poor performing countries in order to improve. In particular, little attention has been paid to the fact that their education systems evolve over time, adapting as the student population changes. This is the case of Singapore, the top performer in most international surveys.** After independence in the 1970s, the country had very low levels of literacy and high drop-out rates. The New Education System (NES), introduced in 1979, implemented three tracks both in primary and secondary schools according to students' academic ability, so that they could learn at different paces according to their needs, and maximise their chances of reaching their full potential and obtaining jobs (Lee *et al.* 2008, Norrudin 2018, Soon 1988, Turnbull 2009, Wilson 1978). This streaming system was implemented in secondary schools in 1980 and led to huge improvements: the proportion of students who passed the national exams increased from 60% to 90% and drop-out rates decreased both in secondary education (from 36% to 6%) and in primary education (from 29% to 8%). The streaming system has subsequently been modified to ensure that all students reach their full potential. In 2017 it was replaced in primary education with ability grouping. But tracks remain in place today in lower-secondary education, with students following different tracks from the age of twelve, depending on the grades they obtain in the Primary School Leaving Examination (PSLE). The success of this model in an international context is reflected in the fact that Singapore emerged as a top performer in TIMSS in 1995 (Harmon *et al.* 1997) and has remained a top performer in different ILSAs ever since.

**From this comparative approach, we can conclude that the right age at which tracking should take place depends on a number of factors, such as the level of proficiency and the degree of heterogeneity of the student population, the rates of early school leaving, whether the system is designed in a flexible way which allows students to move between tracks, and whether VET is responsive to the actual needs of the labour market in each country and prepares students for jobs which require at least low and medium levels of skills. In any case, decisions as to when tracking between the academic path and VET should take place, and how to re-design VET, should be finely tuned to the gradual evolution of the student population in each country. It seems that Spain skipped over these consecutive steps and decided to take a shortcut. Clearly, it did not work.**

**As mentioned before, Spain also avoided the two measures associated with performance-based reforms which entail high political costs: improved teacher quality and student assessments.** All top performing countries, including Finland and Singapore, share the emphasis on teacher excellence (Gomendio 2017 Hanushek *et al.* 2019, OECD 2013c, Tatto 2014, Tatto *et al.* 2012). This involves selection procedures which ensure that the best performing students enter education degrees, strong emphasis on subject content during

training, high standards for teacher qualifications, and professional development. Efforts to increase the quality of the existing and future teaching force inevitably creates conflicts as the education system becomes more demanding towards its own constituents and enhanced transparency results in a loss of power for many stakeholders. In particular, in countries where teachers have not achieved high standards, teacher unions may oppose accountability and performance-related incentives to defend the interests of their membership. The strategy to protect job security, as well as good and uniform working conditions for all teachers, irrespective of performance levels, clearly benefit teachers, but it clashes with the interests of students (Moe 2011, Moe and Wiborg 2017). This is the case in Spain where the demands from unions have led to comparatively high starting teacher salaries, flat trajectories, and no performance-related benefits. In fact, performance is not even measured. In addition, the process to enter education degrees is non-selective and the training is weak on subject content. **As a result, comparative surveys show that in Spain teachers have very low levels of skills and knowledge (at least in maths), which are associated with poor student outcomes** (Tatto *et al.* 2012).

In the case of student assessments, these were eliminated during the Franco regime in a misguided attempt to decrease high rates of school failure and early school leaving. **This perverse logic has permeated the education system ever since: in order to decrease rates of early school leaving, the trick is to lower standards, rather than adopting the only real solution which is exactly the opposite: to improve standards for all students.** The truth is that education systems cannot improve if they avoid implementing student assessments because they lack objective measures to identify struggling students and to evaluate the impact of different policies. A blind system cannot detect problems and act upon them. It is true that external standardized exams have been criticised on a number of grounds, such as that they limit the autonomy of teachers, they lead to “teach to the test” instruction and they discriminate students from disadvantaged background who tend to perform worse (Baker and O’Neil 1994, Popham 2001, Steiner-Khamsi 2003). These arguments are often overstretched to suggest that external standardised evaluations should be replaced with continuous evaluations by teachers, who know their students better. This is precisely what Spain has done since 1970 and it has not prevented disadvantaged students from performing worse (according to data from ILSAs) and dropping out of school at high rates; it has also created abysmal differences between regions in levels of student performance which are the source of major inequities. The reason is that, while it is obvious that teachers know their students well, it is also crystal clear that without the uniform metrics that assessments represent, they have no way to compare their small student population to those in other schools or regions. Thus, it should not be concluded that standardized assessments are “discriminatory” because disadvantaged students tend to perform worse; rather they act like thermometers which provide valuable information which help to identify problems that the education system needs to address. While many studies have shown the benefits for students of implementing standardized assessments as a fair tool to measure their levels of performance and incentivize the effort to reach pre-defined targets (Bergbauer, Hanushek and Woessmann 2019, Bishop 1997 and 2006, Fuchs and Woessmann 2007, Hanushek and Woessmann 2011 and 2015, Woessmann 2018), the few efforts undertaken in Spain to implement them during the LOMCE (2013) were fiercely rejected.

As has already been mentioned, within the European context, historically Portugal has lagged even further behind than Spain in terms of the rate of expansion of access to education, years of schooling, and the proportion of the population achieving higher levels of educational attainment. According to international surveys, levels of student performance have traditionally been lower than in Spain, but over time Portugal has steadily improved to the extent that in the

last years it has surpassed Spain in terms of student performance. Such progress has been the result of education reforms which implemented national standardized student assessments and teacher evaluations, which remained in place for longer than the LOMCE did in Spain (Crato 2020, Maroco 2021).

**Overall, the policies followed in Spain which focus on inputs rather than outcomes, have led to substantial increases in levels of investment in education until the financial crisis, which have had no impact whatsoever on student performance. This is because most of the investment has gone into reducing class size and increasing teacher salaries across the board. As we have seen, all the evidence shows that neither have an impact on student outcomes and Spain is a telling example.** When teacher quality is poor, reducing class size and hiring more teachers with low levels of skills will not lead to any improvements. The only strategy which has been shown to be effective is to provide more and better quality training to teachers, to put in place incentives linked to performance and to implement more demanding standards. For decades, no government has addressed this crucial issue due to the high political costs associated to the level of resistance shown by unions.

All international surveys provide consistent results for Spain: levels of student performance were below the OECD average in the first cycles and remained stagnated for decades. This clearly shows that the education system was delivering poor results and unable to improve over time. However, improvements did take place in 2015/2016 which coincides with the implementation of the LOMCE (2013), but the fact that the changes were halted soon after and then reversed by the next education reform (LOMLOE, 2020) makes it difficult to draw any firm conclusions. It is worth noting that declines in student performance took place after the implementation of the LOMLOE, supporting the idea that the core elements of the LOMCE were in the right direction.

**Comparative data also show that Spain suffers from a very small proportion of excellent students. This flatness has led to the fallacy that Spain has prioritised equity over quality, an idea which has been used by some policy makers to justify mediocre results.** Obviously, a country where for decades one in every three students has dropped out of school without the minimum levels of literacy or numeracy cannot possibly be labelled as equitable. But this fact has been conveniently ignored.

**Another widespread misbelief is that because Spain has lagged behind most other European countries it is still in the process of catching up. This interpretation is refuted by the long period of stagnation revealed by international surveys which evaluate both primary and secondary students, as well as adults.** More specifically, the survey of adult skills shows that, if we look at progress over time by comparing different age cohorts, we find that in Spain the level of skills of the older cohort (aged between fifty-five and sixty-four) is very low compared to other countries, and the levels of skills have improved as a larger proportion of the population gained access to education and remained in school at least until the end of compulsory education (forty-five to fifty-four-year-olds). Below this age range, the levels of skills stagnated. Thus, the skills of the sixteen to twenty-four cohort are similar to those of previous cohorts (twenty-five to thirty-four and thirty-five to forty-four), which means that no further progress has been made in over twenty years. This stagnation happened despite the fact that access to higher levels of education, particularly university, increased very rapidly in the last decades. **Thus, a huge effort to expand access to university had very poor returns in terms of actual skills, due to the poor quality of the education system as a whole.**

The evidence provided by the survey of adult skills shows that tertiary graduates in Spain have a comparatively low level of skills, which is equivalent to that of people who have attained secondary education in countries such as Japan or Finland. The consequence is that, despite having a higher rate of access to university than most other European countries, the younger generations who have benefited mostly from this expansion have not improved their levels of basic skills. Indirect evidence linking PISA and PIAAC data shows that Spain is one of the very few countries where skills do not improve between the end of compulsory education until the age at which most students end a university degree. The returns of the major expansion have therefore been very low.

This evidence, together with the fact that most students choose fields of study at university which are not demanded by the labour market, explains the degree of overqualification present in Spain. **Conventional wisdom has it that the education system in Spain has evolved more rapidly than the labour market, so university graduates suffer high levels of unemployment because the economy is still not ready to absorb them. The evidence suggests a different interpretation. The level of skills mismatch is actually rather low, so even though university graduates do tend to accept jobs that do not require a university degree, their skills are right for the job. This is the result of a combination of a high field of study mismatch and the low skills acquired at university.**

In the context of the knowledge economy, human capital is required to lead the transformation required to adapt and to take advantage of the technological changes in a way that benefits most people. At present, the risk of automation due to digitalization and AI is paramount and many studies have shown that the tasks that can be automated more easily are those which require low levels of skills and involve routine actions (Frey 2019, Frey & Osborne 2017, Goldin and Katz 2009, Lassébie & Quintini 2022). This will lead to the loss of some jobs (which can be fully automated) and to the profound transformation of many which, in turn, will increase the demand for people who can perform non-routine high skilled tasks (OECD 2019d, e). The evidence presented shows that Spain is unprepared to overcome these challenges because the low skills of the population make most adults and many young people very vulnerable to these challenges. Thus, **Spain seems to be in the so-called “low skills trap” where the economy cannot undertake the digital and green revolution due to the lack of human capital, so the country remains stuck in a dangerous equilibrium between low skilled jobs and a mediocre education system.**

## REFERENCES

- Ahonen, A.K. (2021) Finland: Success Through Equity-The Trajectories in PISA Performance, in Crato, N. (ed.), *Improving a Country's Education. PISA 2018 Results in 10 Countries*, Cham: Springer Nature, pp. 121–136, [https://doi.org/10.1007/978-3-030-59031-4\\_6](https://doi.org/10.1007/978-3-030-59031-4_6).
- Altinok, N., Angrist, N. and Patrinos, H.A. (2018) Global data set on education quality (1965-2015) *World Bank Policy Research Working Paper* No. 8314. Washington, DC. <https://documents.worldbank.org/en/publication/documents-reports/documentdetail/706141516721172989/global-data-set-on-education-quality-1965-2015>
- Angrist, N., Djankov, S., Goldberg, P.K. *et al.* (2021) Measuring human capital using global learning data. *Nature* 592, 403–408. <https://doi.org/10.1038/s41586-021-03323-7>
- Atkinson, A., Burgess, S., Croxson, B., Gregg, P., Propper, C., Slater, H. and Wilson, D. (2009) Evaluating the impact of performance-related pay for teachers in England, *Labour Economics*, 16/3, 251–261.
- Aunio, P., Aubrey, C., Godfrey, R., Yuejuan, P. and Liu, Y. (2006) Children's early numeracy in England, Finland and People's Republic of China, *International Journal of Early Years Education*, 16/3, 203–321.
- Baker, E.L. and O'Neil, H.F. (1994) Performance Assessment and Equity: A view from the USA, *Journal of Assessment in Education*, 1/1, 11–26.
- Barber, M. and Mourshed, M. (2007) *How the world's best-performing school systems come out on top*, McKinsey & Company, <https://www.mckinsey.com/industries/public-and-social-sector/our-insights/how-the-worlds-best-performing-school-systems-come-out-on-top>.
- Barro, R. and Lee, JW. (2013) A New Data Set on Educational Attainment in the World (1950-2010). *Journal of Development Economics*, 104, 184-198 (web site: <http://www.barrolee.com>)
- Bergbauer, A., Hanushek E.A. and Woessmann, L. (2019) Testing, *NBER Working Paper* No 24836, <http://hanushek.stanford.edu/sites/default/files/publications/BHW%20assessments%20191107.pdf>.
- Bishop, J.H. (1997) The effect of national standards and curriculum-based examinations on achievement, *American Economic Review*, 87/2, 260–264.
- (2006) Drinking from the fountain of knowledge: Student incentive to study and learn — Externalities, information problems, and peer pressure, in Hanushek, E.A. and Welch, F., *Handbook of the Economics of Education*, Vol. 2, Amsterdam: North Holland, pp. 909–944.
- Bruns, B., Filmer, D. and Patrinos, H.A. (2011) *Making Schools Work: New Evidence on Accountability Reforms*, Human Development Perspectives. Washington, DC: World Bank.
- Bruns, B. and Luque, J. (2015) *Great Teachers: How to Raise Student Learning in Latin America and the Caribbean*. Washington, D.C.: World Bank Group.
- Calero, J. (2005) *Equity in Education. Thematic Review: Country Analytical Report — Spain*. Paris: OECD Publishing.
- CEDEFOP (2023) Key Indicators on VET <https://www.cedefop.europa.eu/en/tools/key-indicators-on-vet/indicators>



- Chetty, R., Friedman, J.N. and Rockoff, J. (2014a) Measuring the Impacts of Teachers I: Evaluating Bias in Teacher Value-Added Estimates, *American Economic Review*, 104(9), 2593-2632.
- Chetty, R., Friedman, J.N. and Rockoff, J. (2014b) Measuring the impact of teachers II: Teacher value-added and the student outcomes in adulthood, *American Economic Review*, 104/9, 2633–2679.
- Chingos, M.M. and Peterson, P.E. (2011) It's easier to pick a good teacher than to train one: Familiar and new results on the correlates of teacher effectiveness, *Economics of Education Review*, 30/3, 449–465.
- Corcoran, S. P., Evans, W.N. and Schwab, R.M. (2004) Women, the Labor Market, and the Declining Relative Quality of Teachers, *Journal of Policy Analysis and Management*, 23/3, 449–470.
- Cordero, J.M., Crespo, E. and Pedraja, F. (2013) Educational achievement and determinantes in PISA: A review of literature in Spain, *Revista de Educación*, No. 362, 273–297, <https://doi.org/10.4438/1988-592X-RE-2011-362-161>.
- Cordero, J.M., Cristóbal, V. and Santín, D. (2018) Causal inference on education policies: A survey of empirical studies using PISA, TIMSS and PIRLS, *Journal of Economic Surveys*, 32/3, 878–915.
- Crato, N. (2020) Curriculum and educational reforms in Portugal: An analysis on why and how students' knowledge and skills improved, in Reimers, F.M. (ed.), *Audacious Education Purposes*, Cham: Springer Open, pp. 209–232. <https://doi.org/10.1007/978-3-030-41882-3>
- (2021a) Setting up the Scene: Lessons Learned from PISA 2018 Statistics and Other International Student Assessments, in Crato, N. (ed.), *Improving a Country's Education*, Cham: Springer Open, pp. 1–23 [https://doi.org/10.1007/978-3-030-59031-4\\_1](https://doi.org/10.1007/978-3-030-59031-4_1)
- (Ed.)(2021b). *Improving a Country's Education*, Cham: Springer Open, [https://doi.org/10.1007/978-3-030-59031-4\\_1](https://doi.org/10.1007/978-3-030-59031-4_1).
- De la Fuente, A. and Doménech R. (2014) Educational Attainment in the OECD, 1960-2010 (version 3.1.). *Barcelona School of Economics Working Paper 794*.
- De la Fuente, A. and Doménech R. (2016) The educational level of the Spanish population and regions: 1960-2011. *Investigaciones Regionales*, 2016, 73-94.
- De la Fuente, A. and Doménech R. (2021a) Cross-Country Data on Skills and the Quality of Schooling: A selective Survey. *Barcelona School of Economics Working Paper 1301*.
- De la Fuente, A. and Doménech R. (2021b) El nivel educativo de la población en España y sus regiones: actualización hasta 2019. *FEDEA, Estudios sobre Economía Española*.
- Diez Hochleitner, R., Tena Artigas, J., and García Cuerpo, M. (1977) *La reforma educativa española y la educación permanente*, Unesco, París.
- European Commission (2022) *Education and Training Monitor 2022*, Luxembourg: Publications Office of the European Union, 2022.
- Eide, E.G., Goldhaber, D. and Brewer, D. (2004) The Teacher Labour Market and Teacher Quality, *Oxford Review of Economic Policy*, 20/2, 230–244.
- Felgueroso, M. and Jiménez-Martín (2009) The New Growth Model. How and with Whom? *FEDEA, Working papers*, 2009-39.

- Felgueroso, F., Gutiérrez-Doménech, M. and Jimenez-Martin, S. (2014) Dropout trends and educational reforms: the role of the LOGSE in Spain. *IZA Journal of Labor Policy*, 3. 9, 10.1186/2193-9004-3-9.
- Fernández de Pedro, S., and González de la Fuente, A. (1975) Apuntes para una historia de la Formación Profesional en España, *Revista de Educación*, Madrid, julio-agosto, pp. 81-87.
- Formación Profesional Dual (2012) *Real Decreto 1529/2012, de 8 de noviembre, por el que se desarrolla el contrato para la formación y el aprendizaje y se establecen las bases de la formación profesional dual*. «BOE» núm. 270, de 9 de noviembre de 2012, pp. 78348 a 78365 <https://www.boe.es/buscar/doc.php?id=BOE-A-2012-13846>
- Fredriksson, P., and Ockert, B. (2007) *The Supply of Skills to the Teacher Profession*, Uppsala University, Uppsala, [https://www.researchgate.net/profile/Bjoern-Oeckert/publication/228433008\\_The\\_Supply\\_of\\_Skills\\_to\\_the\\_Teacher\\_Profession/links/02bfe510c15d20b945000000/The-Supply-of-Skills-to-the-Teacher-Profession.pdf](https://www.researchgate.net/profile/Bjoern-Oeckert/publication/228433008_The_Supply_of_Skills_to_the_Teacher_Profession/links/02bfe510c15d20b945000000/The-Supply-of-Skills-to-the-Teacher-Profession.pdf).
- Frassinelli, L. (2006) *Educational Reform in Finland*. East Lansing: Michigan State University.
- Frey, C.B. (2019) *The Technology Trap. Capital, Labor, and Power in the Age of Automation*. Princeton, NJ: Princeton University Press.
- Frey, C. and M. Osborne (2017) The future of employment: How susceptible are jobs to computerisation?, *Technological Forecasting and Social Change*, Vol. 114, pp. 254-280, <https://doi.org/10.1016/j.techfore.2016.08.019>.
- Fuchs, T. and Woessmann, L. (2007) What accounts for international differences in student performance? A re-examination using PISA data, *Empirical Economics*, 32, 433–464, <https://doi.org/10.1007/s00181-006-0087-0>.
- García de León, M.A. and García de Cortázar, M. (1991) *Estudios Universidades y Universitarios (1970-1990)*. Ministerio de Educación, España.
- Garrouste, C. (2011) 100 years of educational reforms in Europe: a contextual database. *MPRA Paper No. 31853, JRC Scientific and Technical Reports, European Commission*, Luxembourg: Publications Office of the European Union.
- Glewwe, P., Hanushek, E.A., Humpage, S.D. and Ravina, R. (2014) School resources and educational outcomes in developing countries: A review of the literature from 1990 to 2010, in Glewwe, P. (ed.), *Education Policy in Developing Countries*, Chicago: University of Chicago Press, pp. 13–64.
- Goldin, C. and Katz, L.R. (2009) *The Race Between Education and Technology*. Cambridge, MA: Harvard University Press.
- Gomendio, M. (2017) *Empowering and Enabling Teachers to Improve Equity and Outcomes for All, International Summit of the Teaching Profession*. Paris: OECD Publishing.
- (2020a) PISA y España: ¿Se ha roto el termómetro?, *El Mundo*, 8 August.
- (2020b) La educación a subasta, *El Mundo*, 26 November.
- (2021a) Spain: The Evidence Provided by International Large-Scale Assessments About the Spanish Education System: Why Nobody Listens Despite All the Noise”, in Crato, N. (ed.), *Improving a Country's Education*, Cham: Springer Open, [https://doi.org/10.1007/978-3-030-59031-4\\_1](https://doi.org/10.1007/978-3-030-59031-4_1).
- (2021b) ¿Evaluación o involución educativa?, *El Mundo*, 1 December.

- (2022a). La universidad española: una tubería llena de fugas, *The Objective*, 29 October.
- (2022b) Políticas maleducadas, *El Mundo*, 23 April.
- (2023a). PISA: mission failure, *Education Next*, 7 February.
- (2023b). El país de los sobresalientes suspende, *El Mundo*, 14 June.
- (2023c). Why Latin America needs to embrace a mixed tertiary model, *University World News*, 27 May.
- Gomendio, M. and Wert, J.I. (2023) *Dire Straits: Education Reforms, Ideology, Vested Interests, and Evidence*. Cambridge, UK: Open Book Publishers.
- Grindle, M.S. (2004) *Despite the Odds. The Contentious Politics of Education Reform*. Princeton, NJ: Princeton University Press.
- Grubb, N., Jahr, H.M., Neumüller, J. and Field, S. (2005) *Finland. Country Note. Equity in Education Thematic Review*. Paris: OECD Publishing.
- Gustafsson, J.E. and Rosen, M.R. (2014) Quality and credibility of international studies, in Strietholt, R., Bos, W., Gustafsson, J.E., and Rosen, M. (eds), *Educational Policy Evaluation through International Comparative Assessments*, Münster: Waxmann, pp. 19–49.
- Hanushek, E.A. (1992) The trade-off between Child Quantity and Quality, *Journal of Political Economy*, 100/ 1, 84–117.
- (2002) Evidence, politics and the class size debate, in Mishel L. and Rothstein R. (eds), *The Class Size Debate*, Washington DC: Economic Policy Institute, pp. 37-65.
- (2003) The failure of input-based schooling policies, *The Economic Journal*, 113/485, 64–98.
- Hanushek, E.A., Piopiunik, M. and Widerhold, S. (2019) The Value of Smarter Teachers. International Evidence on teacher Cognitive Skills and Student Performance, *The Journal of Human Resources*, 54, 857–899.
- Hanushek, E.A. and Rivkin, S.G. (2006) Teacher quality, in Hanushek, E.A. and Welch, F., *Handbook of the Economics of Education*, Amsterdam: North Holland, pp. 1051–1078.
- (2010) Generalizations about using value-added measures of teacher quality, *American Economic Review*, 100/2, 267–271.
- (2012) The distribution of teacher quality and implications for policy, *Annual Review of Economics*, 4, 131–157.
- Hanushek, E.A. and Woessmann, L. (2011) The economics of international differences in educational achievement, in Hanushek, E.A., Machin, S. and Woessmann, L. (eds), *Handbook of the Economics of Education Vol. 3.*, Amsterdam: North Holland, pp. 89–200.
- (2014) Institutional structures of the education system and student achievement: a review of cross-country economic research, in Strietholt, R., Bos, W., Gustafsson J.E. and Rosen, M. (eds), *Educational Policy Evaluation through International Comparative Assessments*, Münster: Waxmann, pp. 145–175.
- (2015) *The Knowledge Capital of Nations. Education and the Economics of Growth*. London: The MIT Press.
- Harju-Luukkainen, H. and McElvany, N. (2018) Immigrant student achievement and education policy in Finland, in Volante L. et al. (eds), *Immigrant Student Achievement and Education*

*Policy*, Springer International Publishing AG (pp. 87–102), [https://doi.org/10.1007/978-3-319-74063-8\\_687](https://doi.org/10.1007/978-3-319-74063-8_687).

Harmon, M., Smith, T.A., Martin, M.O., Kelly, D.L., Beaton, A.E., Mullis, I.V.S., González, E.J. and Orpwood, G. (1997) *Performance Assessment in IEA's Third International Mathematics and Science Study (TIMSS)*. Boston: TIMSS International Study Center, Boston College.

Harris, D.N. and Sass, T.R. (2011) Teacher training, teacher quality and student achievement, *Journal of Public Economics*, 95/7–8, 798–812.

Hernani-Limarino, W. (2005) Are Teachers Well Paid in Latin America and the Caribbean? Relative Wage and Structure of Returns of Teachers, in Vegas, E. (ed.), *Incentives to Improve Teaching: Lessons from Latin America*, Washington, DC: World Bank, pp. 63–99.

Hiebert, J., Gallimore, R., Garnier, H., Bogard Givvin, K., Hollingsworth, H., Jacobs, J., and Stigler, J. (2003) *Teaching mathematics in seven countries: Results from the TIMSS 1999 Video Study*. Washington DC: National Center for Education Statistics. Available online at <http://timssvideo.com/sites/default/files/TIMSS%201999%20Math%20Report.pdf>

Hoxby, C. M., and Leigh, A. (2004) Pulled Away or Pushed Out? Explaining the Decline of Teacher Aptitude in the United States, *American Economic Review*, 94/2, 236–240.

Jakoby, A.P., Martens, K. and Wolf, K.D. (eds) (2010) *Education in Political Science: Discovering a Neglected Field*. London: Routledge.

Kennedy, A. and Strietholt R. (2023) School closure policies and student reading achievement: evidence across countries. *Educational Assessment, Evaluation and Accountability*, 1-27. 10.1007/s11092-023-09415-4.

Klieme, E. (2013) The role of large-scale assessments in research on educational effectiveness and school development, in von Davier, M., Gonzalez, E., Kirsch, I. and Yamamoto, K. (eds), *The Role of International Large-Scale Assessments: Perspectives from Technology, Economy, and Educational Research*, Dordrecht: Springer, pp. 115–147.

Kremer, M., Brannen, C. and Glennerster, R. (2013) The challenge of education and learning in the developing world, *Science*, 13 April, 297–300, <https://doi.org/10.1126/science.1235350>.

Lassébie, J and Quintini, G. (2022) What skills and abilities can automation technologies replicate and what does it mean for workers? *OECD Social, Employment and Migration Working Papers*, No. 282. OECD, Paris.

Lee, J-W and Lee, H. (2016) Human Capital in the Long Run, *Journal of Development Economics*, vol. 122, pp. 147-169.

Lee, S. K., Goh, C.B. and Fredriksen, B. (2008) *Toward a Better Future: Education and Training for Economic Development in Singapore since 1965*. Washington, DC: The World Bank.

Lee, JW and Lee, H. (2016) Human Capital in the Long Run. *Journal of Development Economics*, 122, 147-169.

Ley de Instrucción Pública (1857) 10 de septiembre de 1857, BOE-A-1857-9551 <https://www.boe.es/datos/pdfs/BOE//1857/1710/A00001-00003.pdf>

LGE (1970) *Ley General de Educación y Financiamiento de la Reforma Educativa*, Ley 14/1970, BOE 187, de 6 de agosto de 1970, pp. 12525 a 12546 <https://www.boe.es/buscar/doc.php?id=BOE-A-1970-852>

LOCE (2002) *Ley de Calidad de la Educación*, Ley Orgánica 10/2002, BOE 307 de 24 de diciembre de 2002, pp. 45188 a 45220  
<https://www.boe.es/buscar/doc.php?id=BOE-A-2002-25037>

LOE (2006) *Ley Orgánica de Educación*, Ley Orgánica 2/2006, BOE 106 de 4 mayo 2006  
<https://www.boe.es/buscar/pdf/2006/BOE-A-2006-7899-consolidado.pdf>

LOECE (1980) *Ley Orgánica 5/1980 por la que se regula el Estatuto de Centros Escolares*, BOE 154 de 27 junio 1980, pp. 14633-14636  
<https://www.boe.es/boe/dias/1980/06/27/pdfs/A14633-14636.pdf>

LOGSE (1990) *Ley Orgánica 1/1990 de Ordenación General del Sistema Educativo*, BOE 238 de 4 de octubre de 1990, pp. 28927-28942  
<https://www.boe.es/boe/dias/1990/10/04/pdfs/A28927-28942.pdf>

LOMCE (2013) *Ley Orgánica 8/2013 para la Mejora de la Calidad Educativa*, BOE 295 10 de diciembre 2013, pp. 97858-97921  
<https://www.boe.es/buscar/doc.php?id=BOE-A-2013-12886>

LOMLOE (2020) *Ley Orgánica 3/2020 por la que se modifica la Ley Orgánica 2/2006 de 3 de mayo de Educación*, BOE 340, de 30 de diciembre de 2020, pp. 122868-122953  
<https://www.boe.es/buscar/doc.php?id=BOE-A-2020-17264>

Lockheed, M. E., and Wagemaker, H. (2013) International Large-Scale Assessments: Thermometers, Whips or Useful Policy Tools? *Research in Comparative and International Education*, 8(3), 296-306. <https://doi.org/10.2304/rcie.2013.8.3.296>

Maroco, J. (2021) Portugal: The PISA Effects on Education, in Crato, N. (ed.), *Improving a Country's Education*, Cham: Springer Open (pp. 159–174), [https://doi.org/10.1007/978-3-030-59031-4\\_6](https://doi.org/10.1007/978-3-030-59031-4_6).

Martin, M. O., Mullis, I. V. S., & Hooper, M. (Eds.) (2017) *Methods and Procedures in PIRLS 2016*. Retrieved from Boston College, TIMSS & PIRLS International Study Center website: <https://timssandpirls.bc.edu/publications/pirls/2016-methods.html>

Ministerio de Educación (1970/71, 1980/81, 1990/91, 2000/2001, 2005/2006, 2010/11, 2015/16, 2020/21, 2021/22) *Datos y Cifras*. Catálogo de publicaciones del Ministerio: <http://sede.educacion.gob.es/publiventa>; Catálogo general de publicaciones oficiales: <https://cpage.mpr.gob.es>

Ministerio de Universidades/Educación (1999/2000, 2020/21, 2021/22) *Datos y Cifras del Sistema Universitario Español*. Programa Editorial del Ministerio de Universidades. Catálogo general de publicaciones oficiales: <https://cpage.mpr.gob.es/>

Moe T.M. (2011) *Special Interest. Teachers Unions and American Schools*. Washington D.C.: Brookings Institution Press.

Moe, T.M. and Wiborg, S. (2017a) *The Comparative Politics of Education. Teacher Unions and Education Systems Around the World*, Cambridge: Cambridge University Press.

—— (2017b) Introduction, in *The Comparative Politics of Education: Teacher Unions and Education Systems Around the World*, Cambridge: Cambridge University Press (pp. 1–23).

Mourshed, M., Chijioke, C. and Barber, M. (2010) *How the World's Most Improved School Systems Keep Getting Better*, McKinsey & Company, <https://www.mckinsey.com/industries/social-sector/our-insights/how-the-worlds-most-improved-school-systems-keep-getting-better>.

- Mullis, I.V.S., Martin, M.O., González, E.J., Gregory, K.D., Garden, R.A., O'Connor, K.M., Chrostowski, S.J. and Smith, T.A. (2000) *TIMSS 1999 International Mathematics Report*. Boston: Boston College.
- Mullis, I.V.S., Martin, M.O., Foy, P. and Hooper, M. (2016) *TIMSS 2015 International Results in Mathematics*. Boston: Boston College.
- (2017) *PIRLS 2016 International Results in Reading*. Boston: Boston College.
- Mullis, I.V.S., Martin, M.O., Foy, P., Kelly, D.L. and Fishbein, B. (2020) *TIMSS 2019. International results in Mathematics and Science*. Boston: Boston College
- Mullis, I. V. S., von Davier, M., Foy, P., Fishbein, B., Reynolds, K. A., & Wry, E. (2023) *PIRLS 2021 International Results in Reading*. Boston College, TIMSS & PIRLS International Study Center. <https://doi.org/10.6017/lse.tpisc.tr2103.kb5342>
- Nielsen, T, Stancel-Piatak, A, and Gustafsson, J. (2022) *International Handbook of Comparative Large-Scale Studies in Education*. Springer International Handbooks of Education, Springer Nature Switzerland. <https://doi.org/10.1007/978-3-030-88178-8>
- Norrudin, N. (2018) *Ministry of Education*, SingaporeInfopedia, [https://eresources.nlb.gov.sg/infopedia/articles/SIP\\_2018-01-17\\_103146.html](https://eresources.nlb.gov.sg/infopedia/articles/SIP_2018-01-17_103146.html).
- Oates, T. (2010) Could do better: Using international comparisons to refine the National Curriculum in England, *The Curriculum Journal*, 22/2, 121–150, <https://doi.org/10.1080/09585176.2011.578098>.
- (2015) *Finnish Fairy Stories*. Cambridge: Cambridge University Press.
- OECD (2001) *Knowledge and Skills for Life. First Results from the OECD Programme for International Student Assessment (PISA) 2000*. Paris: OECD Publishing.
- (2013a) *PISA 2012 Results: What Makes Schools Successful? (Volume IV) Resources, Policies and Practices*. Paris: OECD Publishing.
- (2013b) *OECD Skills Outlook 2013: First Results from the Survey of Adult Skills*, Paris: OECD Publishing. <http://dx.doi.org/10.1787/9789264204256-en>
- (2013c) *Teachers for the 21<sup>st</sup> Century: Using Evaluation to Improve Teaching*. Paris: OECD Publishing.
- (2014a) *TALIS 2013 Results: An International perspective on Teaching and Learning*. Paris: OECD Publishing.
- (2014b) *Education at a Glance 2014*. Paris: OECD Publishing.
- (2015) *OECD Skills Strategy Diagnostic Report: Spain*. Paris: OECD Publishing.
- (2016a) *PISA 2015 Results (Volume I): Excellence and equity in education*. Paris: OECD Publishing.
- (2016b) *PISA 2015 Results (Volume II): Policies and practices for successful schools*. Paris: OECD Publishing.
- (2016c) *Education at a Glance 2016*. Paris: OECD Publishing.
- (2016d) *Skills Matter: Further Results from the Survey of Adult Skills*, OECD Skills Studies. Paris: OECD Publishing.
- (2017) *Getting Skills Right: Spain*. Paris: OECD Publishing.
- (2018) *Skills in Ibero-America. Insights from PISA 2015*, Paris: OECD Publishing.

- (2019a) *PISA 2018 Results (Volume I): What Students Know and Can Do*. Paris: OECD Publishing.
- (2019b) *PISA 2018 Results (Volume II): Where All Students Can Succeed*. Paris: OECD Publishing.
- (2019c) *Skills Matter: Additional Results from the Survey of Adult Skills*, OECD Skills Studies. Paris: OECD Publishing.
- (2019d) *OECD Skills Strategy 2019: Skills to Shape a Better Future*. Paris: OECD Publishing.
- (2019e) *OECD Skills Outlook 2019: Thriving in a Digital World*. Paris: OECD Publishing.
- (2020a) *PISA 2018 Results (Volume V): Effective Policies, Successful Schools*. Paris: OECD Publishing.
- (2020b) *PISA 2018 Annex A9. A note about Spain in PISA 2018: Further analysis of Spain's data by testing date (updated on 23 July 2020)*. Paris: OECD Publishing.
- (2021) *OECD Skills Outlook 2021. Learning for Life*. Paris: OECD Publishing.
- (2022) *Education at a Glance*. Paris: OECD Publishing.
- Patrinos, H.A. and Angrist, N. (2018) Global Dataset on Education Quality: A Review and Update (2000-2017), *Policy Research Working Paper Series* 8592, The World Bank.
- Podgursky, M.J. and Springer, M.G. (2007) Teacher performance-pay: A review, *Journal of Policy Analysis and Management*, 26/4, 909–949.
- Popham, W.J. (2001) Teaching to the Test?, *Educational Leadership*, 58/6, 16–20.
- Rautalin, M. (2018) PISA and the criticism of Finnish education: justifications used in the national media debate, *Studies in Higher Education*, 43/10, <https://doi.org/10.1080/03075079.2018.1526773>.
- Rautalin, M. and Pertti, A. (2007) The curse of success: The impact of the OECD's Programme for International Student Assessment on the Discourse of the Teaching Profession in Finland, *European Educational Research Journal*, 6/4, 348–363.
- Reimers, F.M. (2020) Thinking Multidimensionally About Ambitious Educational Change, in Reimers, F.M. (ed.), *Audacious Education Purposes. How Governments Transform the Goals of Education System*, Springer Open (pp. 1–46).
- Rivkin, S.G., Hanushek, E.A. and Kain, J.F. (2005) Teachers, schools, and academic achievement, *Econometrica*, 73/2, 417–458.
- Rockoff, J.E. (2004) The impact of individual teachers on student achievement: Evidence from panel data, *American Economic Review*, 94/2, 247–252.
- Sahlgren, G.H. (2015) *Real Finnish Lessons. The True Story of an Education Superpower*. Surrey: Centre for Policy Studies.
- Schleicher, A. (2018) *World Class. How to Build a 21st-century School System*. Paris: OECD Publishing.
- (2020) *The Secret to Finnish Education: Trust*. Paris: OECD Publishing.
- Simola, H. (2005) The Finnish miracle of PISA: historical and sociological remarks on teaching and teacher education, *Comparative Education*, 41/4, 455–470.

- Soon, T.W. (1988) *Singapore's New Education System: Education Reform for National Development*. Singapore: Institute of Southeast Asian Studies.
- Steiner-Khamsi, G. (2003) The Politics of League Tables, *Journal of Social Sciences Education*, 2/1, 1–6.
- Stigler, J. W., Gonzales, P., Kawanaka, T., Knoll, S., & Serrano, A. (1999) *The TIMSS Videotape Classroom Study: Methods and findings from an exploratory research project on eighth-grade mathematics instruction in Germany, Japan, and the United States*. Washington, DC: National Center for Education Statistics.
- Stigler, J. W., & Hiebert, J. (1997) Understanding and improving classroom mathematics instruction. *Phi Delta Kappan*, 79, 14–21.
- Striethold, R., Bos, W., Gustafsson, J.E., Rosen, M. (eds) (2014) *Educational Policy Evaluation through International Comparative Assessments*. Münster: Waxmann.
- Tatto, M. (2014) Teacher Education Development Study-Mathematics (TEDS-M), in Lerman, S. (ed.), *Encyclopedia of Mathematics Education*, Dordrecht: Springer, pp. 828–834, [https://doi.org/10.1007/978-94-007-4978-8\\_151](https://doi.org/10.1007/978-94-007-4978-8_151).
- Tatto, M.T., Schwille, J., Senk, S.L., Ingvarson, L., Rowley, G., Peck, R., Bankov, K., Rodríguez, M. and Reckase, M. (2012) *Policy, Practice, and Readiness to Teach Primary and Secondary Mathematics in 17 Countries. Findings from the IEA Teacher Education and Development Study in Mathematics (TEDS-M)*. Amsterdam: International Association for the Evaluation of Educational Achievement.
- Turnbull, C. M. (2009) *A History of Modern Singapore, 1819–2005*. Singapore: NUS Press.
- Valijarvi, J., Linnakyla, P., Kupari, P., Reinkainen, P. and Arffman, I. (2002) *The Finnish Success in PISA — and Some Reasons Behind It*. Jyväskylä: Institute for Educational Research, University of Jyväskylä.
- Wert, J.I. (2019) *La Educación en España. Asignatura Pendiente*. Córdoba: Almuzara.
- Wiborg, S. (2009) *Education and Social Integration. Comprehensive Schooling in Europe*. New York: Palgrave Macmillan.
- Wilson, H. E. (1978) *Singapore*: Singapore University Press.
- Woessmann, L. (2007) International evidence on expenditure and class size: A review, *Brookings Papers on Education Policy*, 2006/2007, Washington DC: Brookings Institution (pp. 245–272).
- (2011) Cross-country evidence on teacher performance pay, *Economics of Education Review*, 30/3, 404–418.
- Woessmann, Ludger (2018) Central exit exams improve student outcomes. *IZA World of Labor* 2018: 419.
- Woessmann, L. and West, M.R. (2006) Class-size effects in school systems around the world: Evidence from between-grade variation in TIMSS, *European Economic Review*, 50/3, 695–736.