



Starting Strong IV

Early Childhood Education and Care

Data Country Note

KAZAKHSTAN

This Data Spotlight note on Early Childhood Education and Care (ECEC) provides a summary of ECEC policy inputs, outputs and outcomes in Kazakhstan. It uses data available within the OECD Secretariat — *Education at a Glance*, the Programme for International Student Assessment (PISA) and the OECD Family Database — to make comparisons between Finland’s ECEC system and the systems in other OECD countries (see Box 1 for definition and comparability issues). This note complements the 2015 OECD publication, *Starting Strong IV: Monitoring Quality in Early Childhood Education and Care*.

Key characteristics of ECEC in Kazakhstan:

Resources that are invested in the ECEC system

- Increasing public investment together with a strong policy focus on ECEC in Kazakhstan is reflected in several indicators. In 2013, average public expenditure on ECEC (ISCED 0) in Kazakhstan as a percentage of gross domestic product (GDP) was close to the OECD average (0.6% compared with 0.7% on average across the OECD).
- Rapid expansion of ECEC may affect the quality of provision. There are unfavourable minimum regulatory standards, such as the number of pupils per staff in ECEC services, which is comparatively high compared with the equivalent ratio in a typical OECD country (15 compared with 12 across the OECD for ISCED 02).

Access and participation

- Kazakhstan has an ambitious participation goal of the full enrolment of over 3-year-olds by 2020. This goal is likely to bring some workforce challenges.
- In Kazakhstan, there is a legal entitlement to a place in ECEC for all children aged 1 to 6, and there is widespread access to pre-primary education programmes for 3-6 year-olds. As a result, the great majority of children over the age of 3 receive some form of early education.
- Participation rates for over 3-year-olds are high, with 73.4% of 3-6-year-olds enrolled in an ECEC programme. However, participation rates of 3-6 year-olds, though increasing, are still lower than the OECD average (73% and 88% respectively).
- Participation of 0-2 year-olds in formal care is lower and only half of the OECD average (16% and 33% respectively).

Teacher’s academic qualifications and working conditions

- In Kazakhstan, the duration of pre-service education is three to four years. The majority of staff are university trained (58%), while other teachers are vocationally trained (38%).
- Pre-primary teachers earn only around half of the average wage in Kazakhstan, which is the second lowest after agriculture. Their statutory salaries are also significantly lower compared with the OECD average (annual statutory starting salary of USD 2 891 compared with USD 29 494 on average in OECD area).

Monitoring Quality

- Monitoring of ECEC settings is a common practice in Kazakhstan. Despite important efforts to monitor quality in ECEC, some challenges remain. These include to develop an integrated approach to monitoring quality; to ensure results of monitoring practices inform policy making; and to make use of children’s views on monitoring practices and evaluations (see [Monitoring Quality in Early Childhood Education and Care Country Note: Kazakhstan](#)).

Student performance at age 15 by participation in pre-primary education

- The percentage of 15-year-olds in Kazakhstan who reported not attending pre-primary education in PISA 2012 was considerably high (65% compared with 7.1% across the OECD). Notably, children from a lower socio-economic background were less likely to have participated in pre-primary education (ISCED 02). Nevertheless, the benefits associated with pre-primary education, though smaller than in other OECD countries, remain statistically significant even after accounting for students’ socio-economic background. In Kazakhstan, the relationship between attending pre-primary education and mathematics performance of 15-year-olds is positive but well below the OECD average (11 and 31 score points respectively).

Introduction

Participation in ECEC can have a positive effect on children's early learning and development, as well as on subsequent outcomes, such as academic success, labour market performance and socio-economic mobility. The benefits of ECEC on child outcomes, however, depend on high quality. Settings and programmes that have a high level of quality are positively associated with children's cognitive, social and behavioural development, with disadvantaged children benefitting significantly from high-quality settings (OECD, 2011; Gambaro et al., 2014). Policy outcomes are associated with both policy inputs and policy outputs.

For simplicity purposes, this note uses the term early childhood education and care (ECEC) to refer to arrangements providing care and education for children under compulsory school age. This term differs from those used by other sources in this note, including the ISCED 2011 classification (see Box 1 for the ISCED 2011 methodological distinction between childcare and pre-primary education). Because of these differences in definitions, caution is needed when comparing data presented here.

The note is structured in three sections:

- **Policy inputs:** This section presents indicators of the resources that are put into a system, such as the level and type of sources that finance ECEC, and the regulations of staff-child ratios to achieve outputs or a result.
- **Policy outputs:** This section covers indicators that are the result of policy inputs put in place, such as enrolment rates by age. Trend data is presented to examine the changes in early childhood education in recent years.
- **Policy outcomes:** This section covers indicators on the outcomes of children that are associated with both policy inputs and policy outputs. For example, indicators on student performance at age 15 by participation in pre-primary education (drawn from PISA 2012 data).

Section 1. Policy inputs

Access to early childhood education and care services

The organisation of ECEC services varies greatly from country to country in terms of structure, but also regarding the age of children attending different types of settings or the intensity of child participation in different settings (see Box 1). Participation in ECEC services is partly supported by extended legal entitlements¹ to a place in ECEC and efforts to ensure free access, at least for some ages and selected population groups. Kazakhstan is among the few countries (with Finland, Norway and Sweden) where there is a legal entitlement to a place in ECEC for all children aged 1 to 6 years (starting age of compulsory school varies between 6 and 7). Public pre-school education is free, but parents must pay monthly for school meals. Sanatorium kindergartens and kindergartens for children with disabilities and/or special needs are completely free of parental costs (OECD, 2015a, Table 1.1).

Funding of early childhood education and care services

The level of governance responsible for early childhood education and care services (ISCED 0) differs according to the area concerned, such as funding of settings, and also across countries. In Kazakhstan, an integrated system for ECEC is in place whereby the same central authority is in charge of the different ECEC settings and age groups. All children aged 1-6 are under the responsibility of the Ministry of Education and Science. Children under the age of 1 are under the responsibility of the Ministry of Health Care and Social Development. Funding and monitoring responsibilities are shared

between the central, regional/state level and local level. Standard setting and curriculum development are under the sole responsibility of the central level (OECD, 2015a, Table 1.2).

Public expenditure on ECEC as a percentage of GDP is below the OECD average

The financial investment in ECEC settings and equipment is a key requirement for the development of good and high quality learning environments, and indicates that political priority is being given to the care and education of young children. Sustainable public funding is essential to recruit competent and qualified staff, ensure the quality of educational programmes and promote their development.

Box 1. Distinction between early childhood educational development and pre-primary education: The revised ISCED 2011 classification

There are many different ECEC systems and structures within OECD countries. Consequently, there is also a range of different approaches to identifying the boundary between early childhood education and childcare.

The International Standard Classification of Education (ISCED) defines internationally comparable levels of education. In ISCED 2011, level 0 covers early childhood education for all ages, including very young children. As the educational properties of ISCED 0 programmes can be difficult to assess directly, several criteria are used to come up with a technical definition. For a programme to be reported as ISCED level 0 it must have: adequate intentional educational properties; be delivered by qualified staff members; take place in an institutionalised setting; meet a minimum intensity/duration; and be targeted at children from age 0 until entry into ISCED level 1 (OECD, 2016).

Programmes classified at ISCED level 0 may be referred to in many ways nationally, for example: early childhood education and development, play school, reception, pre-primary, pre-school, Kindergarten, *Kita*, *Krippe* or *educación inicial*. For programmes provided in crèches, day-care centres, private homes, nurseries, *Tagespflege* or *guarderías*, it is important to ensure that they meet the ISCED level 0 classification criteria specified in ISCED 2011.

In ISCED 2011, programmes are sub-classified into two categories depending on age and the level of complexity of the educational content: early childhood educational development (ISCED 01) and pre-primary education (ISCED 02). ISCED 01 programmes are generally designed for children younger than 3 (OECD, 2016). This is a new category not covered by ISCED 1997. ISCED 02 is designed for children from age 3 years to the start of primary education. It corresponds exactly to level 0 in ISCED 1997.

The comparability of programmes at ISCED level 0 depends on each country's ability to report data according to the standard international definition. Early childhood programmes that are offered in some countries do not necessarily meet the criteria or definition of ISCED 01. This is the case of Belgium (except in the Flemish Community), the Czech Republic, France, Ireland, Italy, Japan, Luxembourg, the Netherlands, Poland, Portugal, the Slovak Republic, and Switzerland and the United States. On the other hand, the coverage of ISCED 02 (pre-primary education) is larger, with 32 countries reporting data on enrolment rates at ages 3 and 4. Because of these differences, caution is needed when comparing available data on ISCED 01 drawn from *Education at a Glance 2016*.

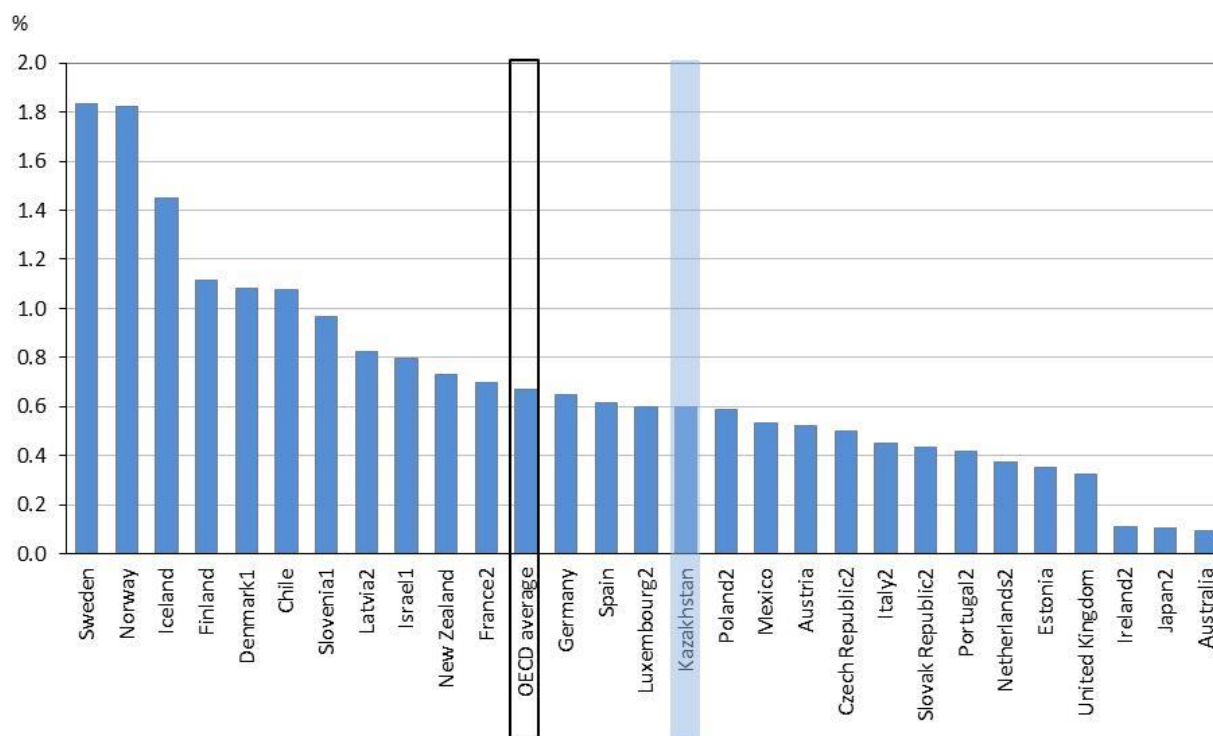
The definition of ECEC in the OECD's Starting Strong series differs from the ISCED 2011 definition. The OECD definition states that "the term early childhood education and care (ECEC) includes all arrangements providing care and education for children under compulsory school age, regardless of setting, funding, opening hours or programme content" (OECD, 2001). This means that settings considered an integral part of countries' ECEC systems, but not covered by the ISCED classification, still fall under the terminology of ECEC.

Data reported in *Education at a Glance 2016*, and presented here as ISCED level 0, use the ISCED 2011 classification (Figures 1, 2, 3, 4 and 6). PISA 2012 uses the ISCED 1997 classification (Figure 7). The OECD Family Database definition of "formal" childcare among children aged 0-2 years includes centre-based services, organised day care, pre-school and professional child-minders. That is, it includes ISCED 01 and other registered ECEC services (Figure 5).

Sources: OECD (2016), *Education at a Glance 2016: OECD Indicators*, OECD Publishing, Paris, <http://dx.doi.org/10.1787/eag-2016-en>; OECD (2001), *Starting Strong I: Early Childhood Education and Care*, OECD Publishing, Paris, <http://dx.doi.org/10.1787/9789264192829-en>.

In Kazakhstan, public spending on the early education and care (ISCED 0) of young children represented 0.6% of GDP in 2013, somewhat lower than the OECD average of 0.7% in 2013. Iceland, Norway and Sweden spent more than 1.4% of their GDP on ECEC services (see Figure 1).

Figure 1. Public expenditure on early childhood education and care services (ISCED 0), as a percentage of GDP, 2013



Notes: Countries are ranked in descending order of public expenditure on early childhood education services as a percentage of GDP.

1. Includes some expenditure on childcare.

2. Data on early childhood developmental programmes (ISCED 01) is missing or not reported.

Sources: OECD (2016), *Education at a Glance 2016: OECD Indicators*, Table C2.3, <http://dx.doi.org/10.1787/888933398316>. For Kazakhstan: National Centre for Education Statistics, 2014.

Quality of early childhood education and care services

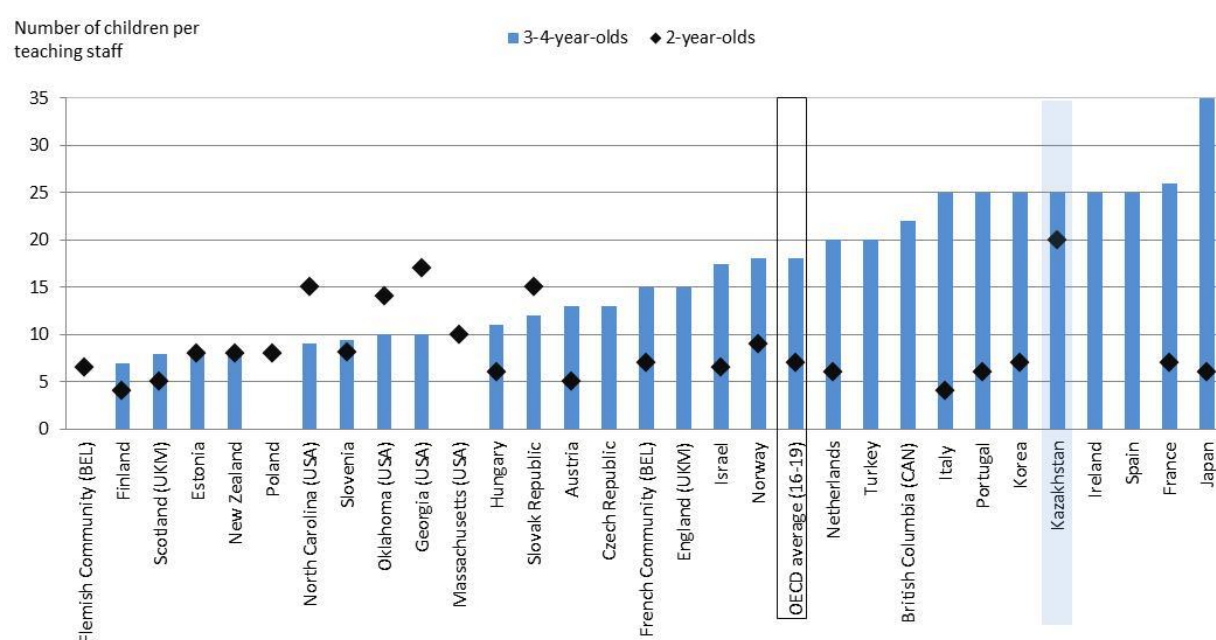
Curriculum frameworks can play a pivotal role in ensuring the quality of ECEC services. Kazakhstan has several national curriculum frameworks for different ECEC programmes and age groups. The State Programme of Preschool Preparation covers the age group 5 to 7 years, and therefore applies to both ECEC and primary school aged children, depending on the age children start primary school. This programme may foster the quality of, and continuity between, early education services. Kazakhstan has additional frameworks in place for other age groups: *Biz Mektepke Baramyz* (“We go to school”) for 5-year-olds; *Zerek Bala* (“Bright children”) for 3-4 year-olds; and *Algashky Kadam* (“First steps”) for 1-3 year-olds. Many OECD countries implement integrated curricula for the entire ECEC age group, such as in Australia, Chile, England, Finland, most German *Länder* (region), and New Zealand (OECD, 2015a, Table 1.3).

The number of pupils per staff is comparatively high

The pupil-to-staff ratio is an important indicator of the resources invested in early childhood education and childcare (ISCED 0), and also of the quality of these services. A low ratio of children per staff impacts staff working conditions, alongside other factors such as reasonable hours or workload and salary levels. These affect job satisfaction and staff retention, and can through this, contribute to the quality of early childhood education and care services.

Pupil groups in Kazakhstan are relatively large, with a maximum of 20 children in nursery groups for 2-year-olds and 25 children in pre-school groups for children aged 3 and older. The regulated staff-child ratio prescribes two teachers per pupil group, although teachers share their working time so that one teacher works the morning and the other works the afternoon. There is one teacher per pupil group, but there are also prescribed number of auxiliary staff (i.e. support staff). Each group is supposed to have one teacher and one auxiliary staff. As a result, the pupil-to-teaching staff ratio in Kazakhstan is high compared to OECD countries. The average ratio in OECD countries is 1 teacher to 7 pupils for children aged 2 years and enrolled in ISCED 01 and other registered ECEC services, which is far lower than the ratio of 1 teacher per 20 children in Kazakhstan. For older children (3-4 year-olds), the ratio is 1:18 in the OECD, which is also lower than the ratio of 1:25 for this age group in Kazakhstan (see Figure 2).

Figure 2. Regulated child-to-teacher ratio in ECEC for 2-year-olds and 3-4 year-olds



Notes: Assistant staff are excluded from the child-to-teacher ratios. Data for Kazakhstan refer to the number of teachers present in a nursery group operating for nine hours per day. Data for Flemish Community of Belgium refer to subsidised facilities only. OECD average for 3-4 year-olds is based on 16 OECD countries and regions, and for 2-year-olds on 19 OECD countries and regions. Countries and regions are ranked in ascending order of the maximum number of pupils per teaching staff for 3-4 year-olds. For those countries and regions where this figure is not available, the maximum number of children per teaching staff for 2-year-olds was used.

Sources: OECD (2011), *Starting Strong III: A Quality Toolbox for Early Childhood Education and Care*, OECD Publishing, Paris, <http://dx.doi.org/10.1787/9789264123564-en>; Resolution of the Government of the Republic of Kazakhstan dated 30 January 2008 No.77: on approval of the Model personnel establishment of public education institutions, and the list of positions of teachers and persons equated to them.

Pre-primary teachers' level of education is high, but their salaries are particularly low

In OECD countries, the duration of initial teacher training varies more in pre-primary education (ISCED 02) than at any other level of education: from two years for basic certification in Japan and Korea to five years in Austria, Chile, France, Iceland and Italy (OECD, 2014, Table D6.1a). Applicants also have to fulfil an entry requirement of either vocational training in the area of ECEC or a practical year in an ECEC setting. In most other OECD countries, academic training leading to a Bachelor's degree is common (OECD, 2015a).

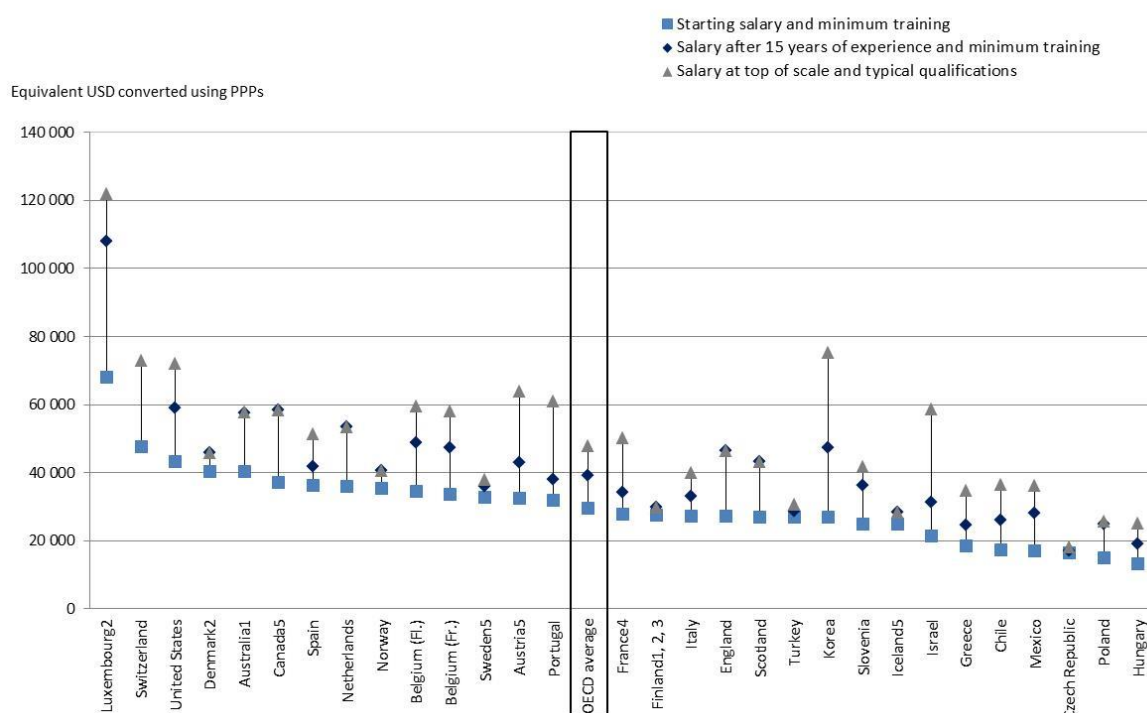
In Kazakhstan, the duration of pre-service education is three to four years. The majority of staff are university trained (58%), while other teachers are vocationally trained (38%). A strong network of professional development is in place in Kazakhstan (Litjens, Melhuish and Shmis, forthcoming).

Wages for teaching are low in Kazakhstan, especially in early childhood development programmes (ISCED 01). Pre-primary teachers earn only around half of the average wage in Kazakhstan, which is the second lowest after agriculture. In OECD countries, the wages of pre-primary teachers are above the minimum wage. Portugal, for example, pays pre-primary teachers almost four times the minimum wage, and Chile twice the minimum wage (OECD, 2011). It is estimated that ECEC teachers with minimum qualification earn almost 20% less than a primary school teacher in Kazakhstan (Litjens, Melhuish and Shmis, forthcoming). In most OECD countries, the remunerations, both starting and maximum salaries, of ECEC and primary school teachers with typical qualifications² are on a par, with pre-primary school teachers earning, on average, 93% of a primary school teacher's wage (OECD, 2016a, Table D3.1).

In most OECD countries, pre-primary teachers receive salary increases throughout their career (see Figure 3). Kazakh pre-primary school teachers can receive a salary increase of around 30% over the course of their career (difference between minimum and maximum salary). In OECD countries, the difference between the starting salary and the top salary for pre-primary and primary teachers is around 60% (OECD, 2016a, Table D3.3). The average salaries of ECEC teachers in Kazakhstan is the lowest compared to OECD countries, and is between 10 and 12 times lower than the OECD average.

Monitoring of early childhood education and care settings is a common practice

All 24 countries and jurisdictions surveyed for *Starting Strong IV: Monitoring Quality in Early Childhood Education and Care* monitor service and staff quality, but only 21 monitor child development and outcomes. Kazakhstan monitors child development and outcomes in all ECEC settings on a regular basis (more than once a year), and service and staff quality are monitored, on average, every five years. Internal monitoring is conducted on a regular basis. The state educational standard of pre-school education and training sets benchmarks for children's competencies at each developmental stage, for instance with regard to health behaviour, language and communication, creativity, cognitive and social skills. Standards for readiness for school and society and several development standards are also provided for each age group. These different aspects are monitored in various ways across settings (OECD, 2015a). Despite Kazakhstan's efforts to monitor quality, some challenges remain. Firstly, children's views are not monitored in Kazakhstan. These can be monitored to provide an additional source of information and can give valuable input on what aspects need additional resources. Secondly, ensuring that monitoring has effects on quality and policies can be challenging. Greater efforts in data and information collection on ECEC can contribute to evidence-based policy-making and implementing practices that are found to work. This is discussed in further detail in Kazakhstan's country note on Monitoring Quality in ECEC (OECD, 2016b).

Figure 3. Pre-primary teachers' salaries at different points in their careers, 2014*Annual statutory teachers' salaries, based on typical qualifications, in public institutions, in equivalent USD converted using PPPs*

Notes: The definition of teachers' typical qualification is based on a broad concept, including the typical ISCED level of attainment and other criteria. Typical qualifications generally involve the completion of requirements beyond teachers' typical educational attainment. PPP refers to the parity purchasing power. Countries are ranked in descending order of starting salaries for pre-primary teachers with minimum training.

1. Statutory salaries do not include the part of social security contributions and pension-scheme contributions paid by the employees.
2. Statutory salaries include the part of social security contributions and pension-scheme contributions paid by the employers.
3. Includes data on the majority, i.e. kindergarten teachers only for pre-primary education.
4. Includes average of fixed bonuses for overtime hours for lower and upper secondary teachers.
5. Actual base salaries for 2013.

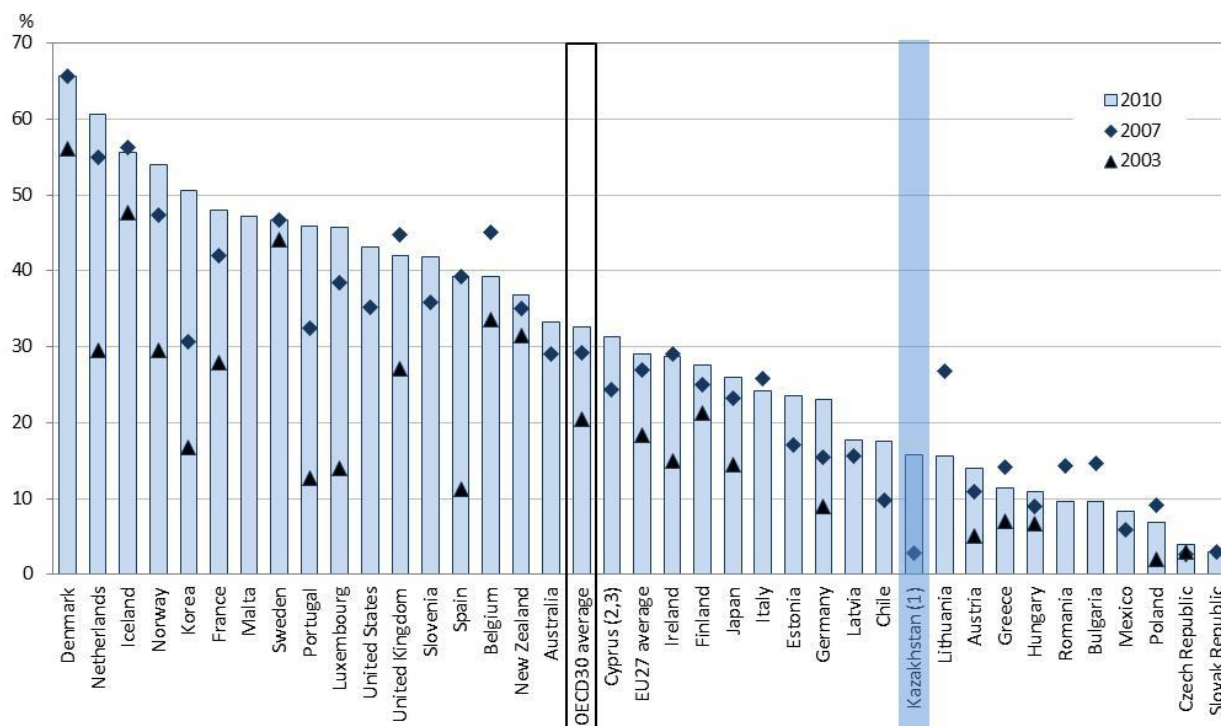
Source: OECD (2016), *Education at a Glance 2016: OECD Indicators*, Table D 3.1a, <http://dx.doi.org/10.1787/888933398940>

Section 2. Policy outputs

Comparatively low participation of 0-2-year-olds in formal childcare

On average across OECD countries, approximately 33% of 0-2 year-olds attend some form of formal ECEC (ISCED 0 and other registered ECEC services)³. However, in Kazakhstan, for the school year 2012/13, only 15.8% of children under the age of three participated in some form of ECEC (NCES, 2014). Participation of under 3-year-olds significantly increased in Kazakhstan and in most OECD countries between 2003 and 2010. In Denmark, Korea, Iceland, the Netherlands and Norway more than half of all young children under the age of three attend formal childcare in 2010 (see Figure 4).

Figure 4. Participation rate in formal childcare (ISCED 0 and other registered ECEC services) among 0-2 year-olds, 2003-2010



Notes: Countries are ranked in descending order of the percentage of children under 3 in formal childcare.

1. National Centre for Education Statistics, 2014. Data refers to 2006 and 2012.

2. Note by Turkey: The information in this document with reference to "Cyprus" relates to the southern part of the Island. There is no single authority representing both Turkish and Greek Cypriot people on the Island. Turkey recognises the Turkish Republic of Northern Cyprus (TRNC). Until a lasting and equitable solution is found within the context of United Nations, Turkey shall preserve its position concerning the "Cyprus issue".

Note by all the European Union Member States of the OECD and the European Commission: The Republic of Cyprus is recognised by all members of the United Nations with the exception of Turkey. The information in this document relates to the area under the effective control of the Government of the Republic of Cyprus.

Sources: NCES (2014), *National report on the status and development of education of the Republic of Kazakhstan*, National Centre for Education Statistics, Astana; OECD (2015b), *OECD Family Database*, Chart PF3.2.A, OECD Publishing, Paris, www.oecd.org/social/family/database.

Participation rates do not provide any information about the intensity of participation in childcare services (whether children participate full-time or part-time), which varies considerably across countries. In some countries children aged 0 to 2 attend ECEC for an average of at least 30 hours per week, which corresponds to full-time care. Average attendance hours per week are relatively low, with less than 20 hours, in Australia, Austria, the Czech Republic, the Netherlands, and the United Kingdom. In Iceland, Korea, Mexico, Poland, Portugal and Slovenia, children under the age of 3 attend formal childcare for an average of 35 hours or more per week (OECD, 2015b, Chart PF3.2.B). Children in Kazakhstan can attend childcare both part-time and full-time. Operation and opening hours of ECEC settings vary widely in Kazakhstan, from 45 hours up to 120 hours per week. In Kazakhstan, around 16% of 1-3 year-olds attend kindergarten for an average of 50 to 60 hours per week. This is above the OECD average and almost twice as much time as what is regarded as full-time participation in OECD countries (30 hours per week). As a result, Kazakh children benefit from a comparatively high number of hours of professional care (NCES, 2014; OECD, 2016a).

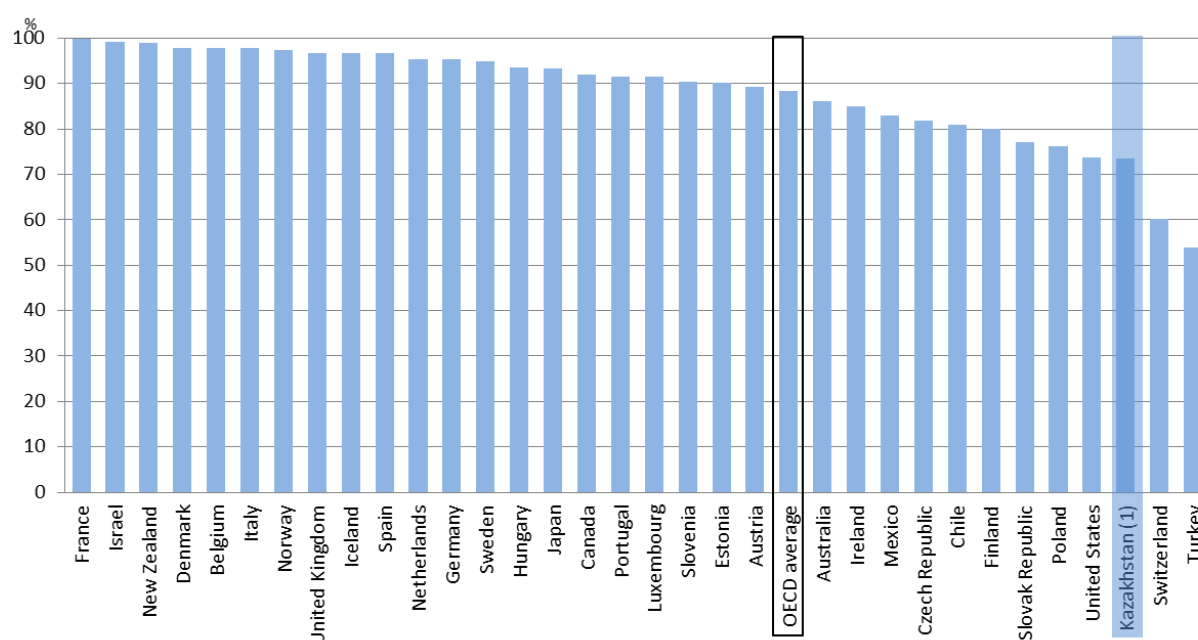
Young children may also be informally cared for, generally through unregulated care arranged by the child's parent, either in the child's home or elsewhere, and provided by relatives, friends, neighbours, babysitters or nannies. Participation and intensity rates in informal care vary widely between countries (OECD, 2015b, Chart PF3.3.B). In Kazakhstan, family day care is offered in homes, with small groups of usually 5-6 children. These small-capacity settings are considered part of the public ECEC system, but home-based care provision is not common (NCES, 2014; OECD, 2015a).

High participation rate in pre-primary education for 3-6 year-olds but still below the OECD average

Pre-primary education is the first stage of organised instruction for many children and can, as such, play an important role in their development. While enrolment in these programmes is usually not mandatory and children can enter these programmes at different ages, the majority of 3-4 year-olds in OECD countries are enrolled in pre-primary education. On average across OECD countries, 71% of 3-year-olds and 86% of 4-year-olds attended a pre-primary education programme (ISCED 02) in 2014. Nearly all 5-year-olds attend a pre-primary education (ISCED 02) or are already in primary school (ISCED 1) in most OECD countries (OECD, 2016a, Table C2.1).

Enrolment rates have increased since 2005 in most OECD and partner countries with available data. Participation rates in pre-primary education (ISCED 02) of children aged between 3 and 6 in Kazakhstan increased by more than 49 percentage points between 2005 and 2013 (NCES, 2014). No other country with available data has experienced similarly high increases in enrolment rates in pre-primary education. Nevertheless, participation rates of 3-6 year-olds were still low in comparison to OECD countries in 2013, 73% compared with 86%, respectively (Figure 5).

Figure 5. Enrolment rates at ages 3-6 in pre-primary education, 2013



Notes: Countries are ranked in descending order of enrolment rates.

1. Enrolment rates represent the unweighted mean average of the enrolment rates of 3 to 6 year-olds.

Source: OECD (2015c), *Education at a Glance 2015: OECD Indicators*, Table C2.1, <http://dx.doi.org/10.1787/eag-2015-25-en>.

Early childhood services are particularly important for at-risk and immigrant children, since participation in ECEC can strongly contribute to their social and cognitive development, as well as their social inclusion. Moreover, ECEC services can fulfil an early screening purpose by detecting any special needs of children that can be treated at an early age. Participation in quality care and early education is therefore highly relevant for these children.

Kazakhstan's state programme aims to increase the number of ECEC settings and the enrolment of children in pre-schools and care settings. Clear targets for the future have been set for participation, such as the objective to reach the universal enrolment of all 3-6 year-olds by 2020. This is also expected to decrease the issue of equity in access and participation in this age group (Litjens, Melhuish and Shmis, forthcoming).

Section 3. Policy outcomes

The association between pre-primary education attendance and mathematics performance of 15-year-olds is statistically significant but below the OECD average.

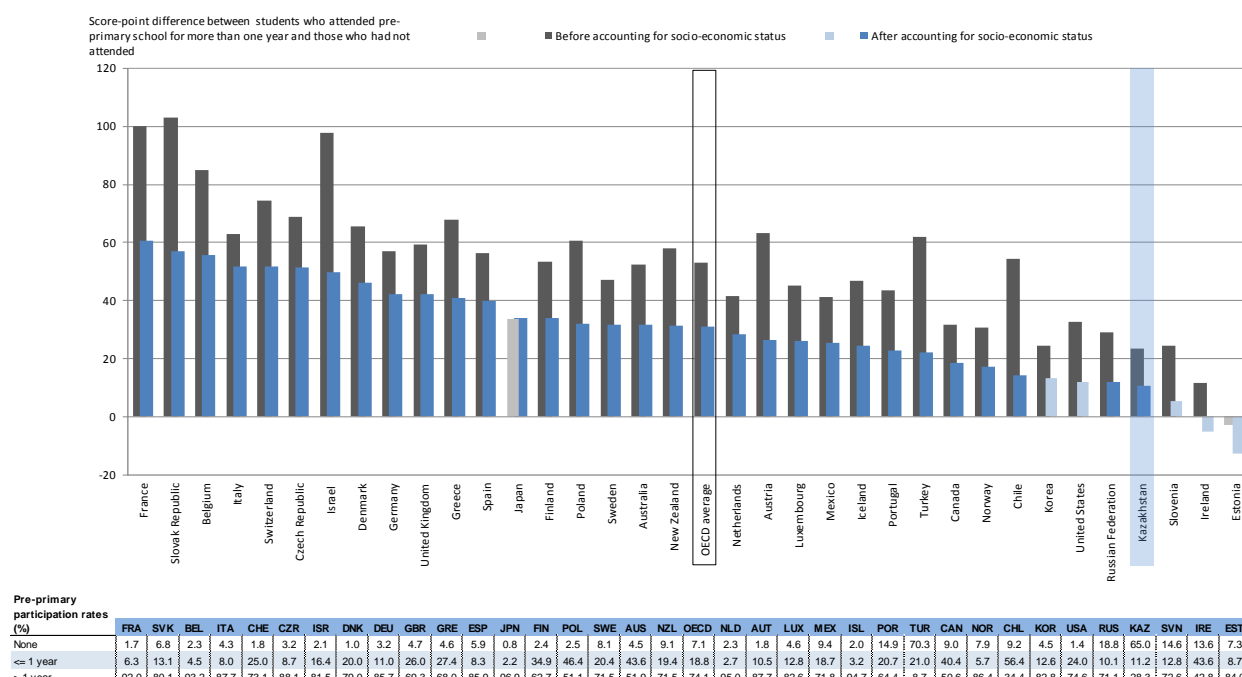
Research in neurosciences has shown that the brain sensitivity of highly important developmental areas, such as emotional control, social skills, language and numeracy, peak in the first three years of a child's life (Gambaro et al., 2014). These findings indicate that the first years of children's life are crucial for their later development and learning. High quality ECEC can stimulate the development of these skills, which highlights the importance of early development programmes and their level of quality (OECD, 2006, 2011).

A strong start in education through ECEC is associated with higher performance in adolescence. PISA results show that 15-year-olds who attended a pre-primary education programme (ISCED 02) tended to perform better than students who did not attend pre-primary education. The percentage of 15-year-olds in Kazakhstan who reported not attending pre-primary education in PISA 2012 was significantly high (65% compared with 7.1% across the OECD, see Figure 6). Notably, children from a lower socio-economic background were less likely to have participated in pre-primary education (ISCED 02) and children from more advantaged socio-economic backgrounds were more likely to have attended pre-primary education for more than one year.

On the other hand, PISA 2012 data show that the share of 15-year-olds in Kazakhstan who reported to have attended pre-primary education (ISCED 02) for more than one year is significantly higher among students from more advantaged socio-economic backgrounds. Three times more students in the top quarter of the index of economic, social and cultural status (ESCS)⁴ reported to have attended a pre-primary education programme for more than one year than students in the bottom quarter of ESCS. The share of students that reported to have attended pre-primary education is also larger among students that attend schools located in a city (OECD, 2013, Table IV.3.34). This indicates a certain inequity regarding access to, and participation in, ECEC in Kazakhstan, where children from more advantaged backgrounds have better opportunities to participate.

The benefits associated with pre-primary education remain statistically significant even after accounting for students' socio-economic background. In Kazakhstan, the difference in PISA mathematics scores between 15-year-old students who had attended more than one year of pre-primary education and those who had not was 11 score points after accounting for socio-economic background – the equivalent of one third of a year of formal schooling⁵ (see Figure 6). The association between attending at least one year of pre-primary education and students' mathematics performance after controlling for socio-economic background is below the OECD average (OECD average difference of 31 score points) (NCES, 2014), but there is still an improvement of performance associated with the attendance in pre-primary education programmes (see Figure 6).

Figure 6. Difference in mathematics performance of 15-year-olds, by attendance in a pre-primary education programme, 2012



Note: Score-point differences that are statistically significant are marked in a darker tone.

Countries and economies are ranked in descending order of the score-point difference in mathematics performance between students who reported that they had attended pre-primary education (ISCED 0) for more than one year and those who had not attended pre-primary education, after accounting for socio-economic status.

Participation rates in pre-primary education are drawn from reports of 15-year old students participating in PISA 2012.

Source: OECD (2013a), *PISA 2012 Results: Excellence through Equity (Volume II): Giving Every Student the Chance to Succeed*, Figure II.4.11, <http://dx.doi.org/10.1787/9789264201132-en>

PISA data also show that the correlation between enrolment in pre-primary education (ISCED 02) and performance at the age of 15 is generally stronger in education systems where participation in pre-primary education lasts more than one year, and the link is more pronounced in settings where the student-to-teaching-staff ratio and public expenditure per child are higher (OECD, 2013). In other words: input policies, such as the student-to-teaching-staff ratio, may be associated with learning outcomes. Despite increased participation and public investment in early childhood education and care services in OECD countries, little comparative data exists to determine under what conditions ECEC services are most beneficial for children, and what aspects are the most beneficial to the child. The OECD is developing a study that will provide information on the factors that support quality and equity in the early years (see Box 2).

Box 2. The development of international data on quality in early education and care

The OECD programme of work on ECEC includes a series of projects to develop the extent of available data on ECEC. These include:

The TALIS Starting Strong Survey: is an international survey of ECEC staff and the quality of the learning and well-being environment in different ECEC settings across OECD member and non-member economies. The objective is to collect data on staff characteristics, pre-service and in-service education, pedagogical practices and beliefs, organisation and management, and working conditions to give countries an internationally framed assessment of what actually happens in their ECEC settings, i.e. the quality of the learning and well-being environment children experience (instrument development and pilot study in 2011/6, field trial in 2017, main study in 2018 and reporting in 2019).

The International Early Learning (for Child Well-being) Study seeks to provide reliable, comparative information on the social, emotional and cognitive development of children to assist countries to improve children's outcomes. It will measure children's early learning outcomes, at approximately five years of age, in the context of their ECEC experiences and home environments. The study will include a child assessment component as well as a parent questionnaire to gather information about the home learning environment. The study will be conducted in 3-6 countries from 2016 to 2019. Results on the study will be released in 2020.

A thematic study on transitions from ECEC to primary school will analyse country policies and practices in stimulating quality transitions from ECEC to primary education. This study will be based on existing literature and country background notes, which will form the basis of a comparative analytical report in 2017.

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NOTES

1. Universal legal entitlement refers to a statutory duty for ECEC providers to secure publicly subsidised ECEC provision for all children living in a catchment area whose parents, regardless of their employment, socio-economic or family status, require an ECEC place.
2. Typical qualifications generally involve the completion of requirements beyond teachers' typical educational attainment (OECD, 2016a, Table D3.1).
3. The OECD Family Database definition of "formal" childcare among children aged 0-2 years includes centre-based services, organised day care, pre-school and professional child-minders.
4. The ESCS was created on the basis of the following variables: the International Socio-Economic Index of Occupational Status (ISEI); the highest level of education of the student's parents, converted into years of schooling; the PISA index of family wealth; the PISA index of home educational resources; and the PISA index of possessions related to "classical" culture in the family home.
5. 39 score points in mathematics correspond to the equivalent of one year of formal schooling (OECD, 2013).

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Table 1. Summary of ECEC indicators, Kazakhstan and OECD average

Indicator	Kazakhstan	OECD average	Reference year	Table	Source
Policy inputs					
Expenditure					
Total expenditure on early childhood educational development as a percentage of GDP (%)	m	0.2	2013	Table C2.3	OECD (2016)
Total expenditure on pre-primary education as a percentage of GDP (%)	m	0.6	2013	Table C2.3	OECD (2016)
Total expenditure on all early childhood education as a percentage of GDP (%)	0.6	0.8	2013	Table C2.3	OECD (2016)
Proportion of total expenditure on early childhood educational development (ISCED 0.1) from public sources (%)	m	68.6	2013	Table C2.3	OECD (2016)
Proportion of total expenditure on pre-primary education (ISCED 0.2) from public sources (%)	m	82.9	2013	Table C2.3	OECD (2016)
Proportion of total expenditure on early childhood education (ISCED 0.1 & ISCED 0.2) from public sources (%)	m	81.2	2013	Table C2.3	OECD (2016)
Annual expenditure per student in pre-primary education (in USD)	1 252	8 070	2013	Table C2.3	OECD (2016)
Quality of early childhood education and care services					
Ratio of pupils to teaching staff (in full-time equivalents)	20 - 25	14	2014	Table C2.2	OECD (2016)
Ratio of pupils to contact staff (teachers and teachers' aides) (in full-time equivalents)	15	12	2014	Table C2.2	OECD (2016)
Teachers' salaries					
Annual starting salary, typical training of pre-primary teachers in public institutions (in USD)	2 891 ¹	29 494	2014	Table D3.1a	OECD (2016)
Annual salary after 10 years of experience, typical training of pre-primary teachers in public institutions (in USD)	3 506 ¹	36 491	2014	Table D3.1a	OECD (2016)
Annual salary after 15 years of experience, typical training of pre-primary teachers in public institutions (in USD)	3 635 ¹	39 245	2014	Table D3.1a	OECD (2016)
Annual salary at top of scale, typical training of pre-primary teachers in public institutions (in USD)	3 749 ¹	47 826	2014	Table D3.1a	OECD (2016)
Pre-primary teachers' salaries relative to earnings for full-time, full-year with tertiary-education workers based on teachers' attainment level (25-64 years-old) (%)	m	0.74	2014	Table D3.2a	OECD (2016)
Pre-primary teachers' salaries relative to earnings for full-time, full-year similarly-educated workers based on teachers' attainment level (25-64 years-old men) (%)	m	0.65	2013	Table D3.2a	OECD (2015a)
Pre-primary teachers' salaries relative to earnings for full-time, full-year similarly-educated workers based on teachers' attainment level (25-64 years-old women) (%)	m	0.90	2013	Table D3.2a	OECD (2015a)

Table 1. Summary of ECEC indicators, Kazakhstan and OECD average (continued)

Indicator	Kazakhstan	OECD average	Reference year	Table	Source
Teachers characteristics					
Total duration of initial pre-primary teacher education (in years)	3.4	m	2013	Table D6.1a	OECD (2014a)
Annual net teaching time of pre-primary teachers (in hours)	m	1005	2014	Table D4.1	OECD (2016)
Number of annual days of teaching (in days)	194	191	2014	Table D4.1	OECD (2016)
Policy outputs					
Participation in early childhood education and care services					
Participation rate in formal care and pre-school services for children under 3 years (%)	16	33	2013	Chart PF3.2.A	OECD (2015c)
Participation rate in formal care and pre-school services for children under 3 years, full-time equivalent (%)	m	35	2013	Chart PF3.2.B	OECD (2015c)
Average weekly hours in childcare among children under 3 years of age (in hours per week)	50-60	30	2013	Chart PF3.2.B	OECD (2015c)
Participation rates for 3 year olds in pre-primary education (%)	m	74	2013	Table C2.1	OECD (2015a)
Participation rates for 3-6 year olds in pre-primary education (%)	73	m	2013	NCES (2014)	
Policy outcomes					
Average mathematics performance of students with					
No pre-primary education attendance (score points)	425	451	2012	Table II.4.12	OECD (2013)
Pre-primary education attendance for one year or less (score points)	434	475	2012	Table II.4.12	OECD (2013)
Pre-primary education attendance for more than one year (score points)	449	504	2012	Table II.4.12	OECD (2013)
Difference in mathematics performance between students (after accounting for students' economic, social and cultural status)					
Difference between those who reported having attended pre-primary school for one year or less and those who had not attended pre-primary education (score points)	-1	15	2012	Table II.4.12	OECD (2013)
Difference between those who reported having attended pre-primary school for more than one year and those who had not attended pre-primary education (score points)	11	31	2012	Table II.4.12	OECD (2013)

Notes: a - data are not applicable because the category does not apply; m – data are not available.

1. Annual starting salary of pre-primary teachers in public institutions with minimum training; year of reference 2012.