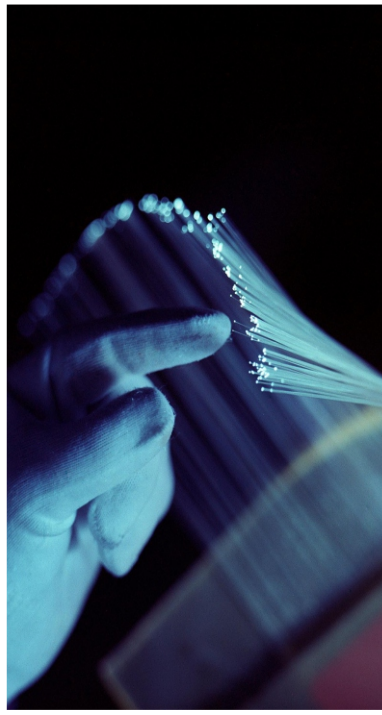
EDUCATION AND SCIENTIFIC DEVELOPMENT

IN THE OIC MEMBER COUNTRIES 2012 / 2013



ORGANISATION OF ISLAMIC COOPERATION

STATISTICAL ECONOMIC AND SOCIAL RESEARCH AND TRAINING CENTRE FOR ISLAMIC COUNTRIES (SESRIC)

EDUCATION AND SCIENTIFIC DEVELOPMENT IN OIC COUNTRIES 2012/2013

EDITOR

SAVAŞ ALPAY

LEAD RESEARCHERS

NABIL M. DABOUR KENAN BAĞCI

RESEARCHERS

UMUT ÜNAL NADI SERHAN AYDIN ZEHRA ZÜMRÜT SELÇUK

MAZHAR HUSSAIN AHMET AKIF DEMIRBAŞ

ORGANISATION OF ISLAMIC COOPERATION
STATISTICAL ECONOMIC AND SOCIAL RESEARCH AND TRAINING CENTRE FOR ISLAMIC COUNTRIES (SESRIC)

Kudüs Cad. No: 9, Diplomatik Site, 06450 Oran, Ankara –Turkey

Telephone +90–312–468 6172

Internet www.sesric.org

E-mail pubs@sesric.org

ISBN: 978-975-6427-15-6

Cover design by Publication Department, SESRIC.

SESRIC hereby expresses its profound appreciation to the Turkish Statistical Institute (TurkStat) for providing printing facilities.

For additional information, contact Research Department, SESRIC through: research@sesric.org

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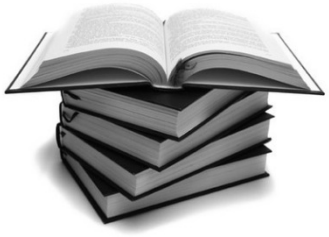


PART I
EDUCATION

Education is the core of human capital formation and central to development of a society. It is widely accepted that investment in education and quality research at various national institutions are vital in achieving higher economic growth. Quality education generates benefits to the society that go beyond the gains secured by the individuals involved. There is overwhelming evidence that education improves personal health, encourages stronger national identity and promotes peace and stability. The development literature has also drawn attention to the role of education in reducing inequalities that exist in many countries, particularly in developing societies with lower levels of income. The high correlation between the level of education and income or wealth is considered from the equity perspective as a justification for public intervention when the conventional market mechanisms do not function efficiently to ensure equality. Therefore, public intervention in the education sector, particularly in primary education, is universally acknowledged today.

The benefits from investing in human capital are not necessarily linked with attaining higher enrolment ratios, since poor quality may decrease

returns of education and lead to high dropout rates. With a comprehensive approach to education, it is important that the education policy should provide people with learning opportunities that will assist them in developing skills to embark on new undertakings.

This report consists of two main parts. This first part is devoted to analyses on the developments in education in the OIC member countries and it discusses the progress made to ensure participation, progression and completion in education. It also examines the developments in educational resources, quality of education and state of libraries. The part goes on to explore the public expenditures on education in comparison with its counterparts. Finally the part contains a section analysing the relationship between education and socio-economic development in the member countries.

1 Background

Human capital theory rests on the assumption that formal education is highly instrumental to improve the production capacity of a society. Better education improves the production process in several ways. Educated, or skilled, workers are able to perform complex tasks and thereby contribute to producing more technologically sophisticated products. Especially in developing countries, skilled workers increase the absorptive capacity of the country by acquiring and implementing the foreign knowledge and technology, which is of crucial importance in successful economic diversification and development.

In this regard, the quality of education carries significant importance in building productive capacities. Skill levels of labour force are generally classified according to specific level of education they attained. As the share of labour force with secondary and tertiary education increases, the ability to adopt new skills and absorb new knowledge increases.

"The OIC represents one fifth of the world's population and more than one fourth of the developing world; Islam's first divine message was "Read." But in some countries of the region more than half the adult population is illiterate and more than 70% of women are illiterate."

UNICEF (2005)

This section provides some preliminary information on the status of education under three main subsections. The first one deals with school age population at different levels of education. Then a brief analysis is made on average years of schooling to show the progress on the overall schooling in OIC countries. Finally, to draw a loose picture on the achievement of education, literacy rates for both adult and young population are depicted.

1.1 School Age Population

According to the definition of UNESCO, school age population is the population of the age group theoretically corresponding to a given level of education as indicated by theoretical entrance age and duration.

Figure 1.1 compares the total number of population at different levels of education for different country groups. The total number of population at different levels of education is closely related to the duration of the education at that level. Clearly, school age population at official entrance level and at pre-primary level are comparably lower than the population at other levels of education. In 2011, there were more than 35 million children at official entry age and around 94 million at pre-primary school age in OIC countries. While 183 million children were at the age of primary schooling, 201 million children were at the age of secondary schooling and additional 148 million were at the level of tertiary schooling.

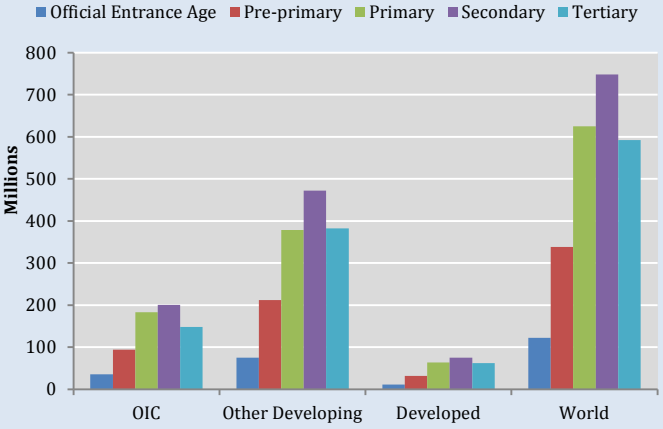
These figures on school age population become more insightful when the share of OIC countries in world is calculated for each level of schooling (Figure 1.2). According to the *Annual Economic Report on the OIC Countries 2012* of SESRIC, the share of OIC in total world population in 2011 was 22.8%. Figure 1.2 clearly depicts that in all levels of education OIC countries account for higher share of schooling age population than their share in total world population. At entrance age level and primary school level, this share exceeds 29%. Even at tertiary level, OIC countries account almost 25% of total world population at tertiary education. This indicates that OIC countries have younger population compared to other regions, and as also identified in the *SWOT Outlook on the OIC Countries 2012* of SESRIC, this constitutes an important field of strength for the OIC countries.

A further interesting outcome of the analysis on school age population is observed in its evolution during the last decade. The overall trend since 2001 shows that the highest increase in school age population took place for tertiary level, from 128 million in 2001 to 149 million in 2011, indicating 16.5% increase (Figure 1.3). The lowest increase has been observed for the population at secondary school level with 7.4%, increasing from 187 million in 2001 to 201 million in 2011. While increases at other levels are higher than that in secondary level, they are still lower than the increase in tertiary level. This result indicates that, while young population is an asset in OIC countries, population dynamics in OIC countries point at slowly aging population in the member countries. Importance of education for an aging population is even more crucial for long-term prospects for socio-economic development.

1.2 Average Years of Schooling

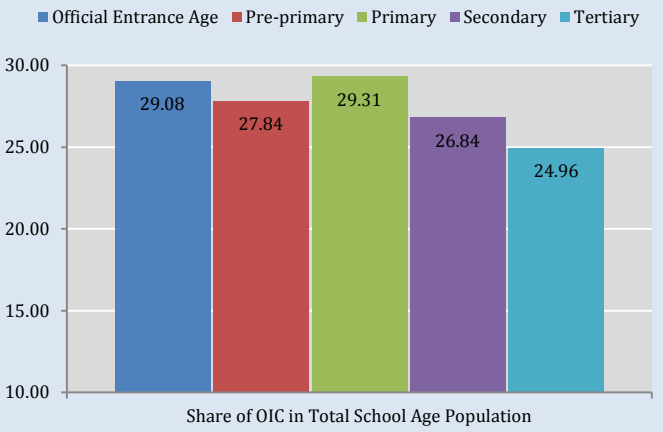
In OIC member countries, average years of schooling have substantially increased over the last 40 years (Figure 1.4). In 1970, the number of countries with average years of schooling more than 6 years was only 4. This number increased to 26 in 2010. There are already quite a few countries with average years of schooling exceeding 10 years. In 1970, Albania

Figure 1.1: School Age Population (2011)



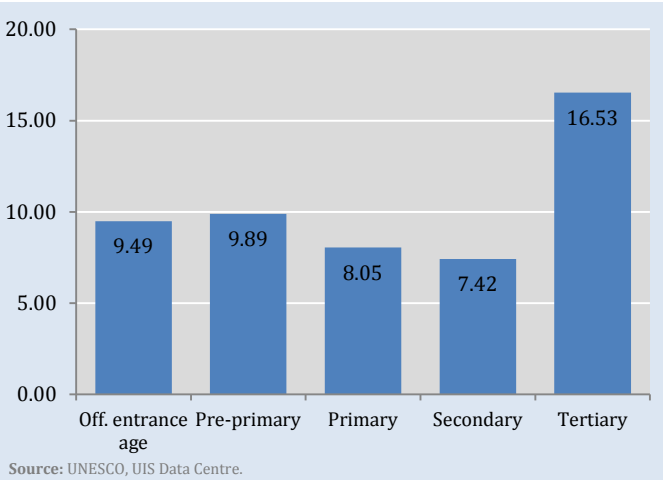
Source: UNESCO, UIS Data Centre.

Figure 1.2: Share of OIC Countries in Total Worldwide School Age Population (2011)



Source: UNESCO, UIS Data Centre.

Figure 1.3: Percentage Change in School Age Population in OIC Countries btw. 2001 and 2011



Source: UNESCO, UIS Data Centre.

Figure 1.4: Average Years of Schooling (1970 vs. 2010)

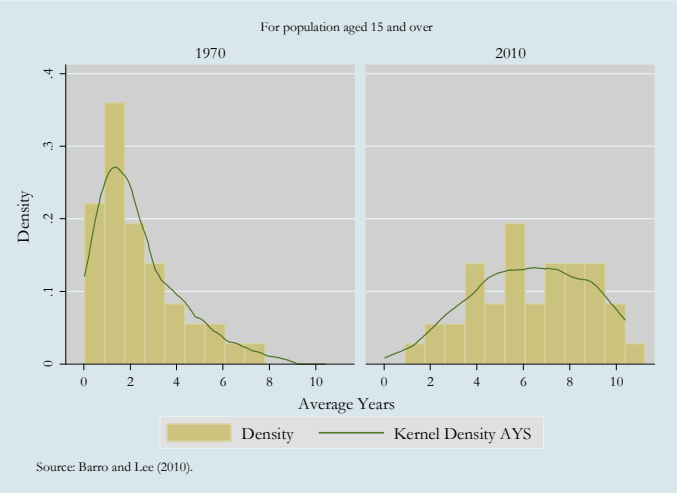


Figure 1.5: Average Years of Schooling (1960-2050)

and Turkmenistan were the only countries with average years of schooling exceeding 7 years. In 2010, 5 countries (Kazakhstan, Albania, Turkmenistan, Malaysia and Bahrain) provided education to their citizens on average more than 10 years. According to UN estimations, it is projected that the minimum average years of schooling will be 4 years in 2030 and it will reach to 6 years in 2050 in the OIC countries (Figure 1.5). Majority of the countries are expected to have average schooling rates over 8 years as of 2050.

Correspondingly, thanks to a combination of effective policies and sustained national investments in education, the share of population with no school attendance has steadily decreased in many member countries (Figure 1.6). There are, however, some countries with stubbornly high shares of non-schooling (Cohen and Soto, 2010). Burkina Faso, Mali and Niger could make only small progress in promoting the education. In Niger, the share of population with no-schooling remains as high as 84% in 2010. Though some progress has been made, the majority of the populations in Cote d'Ivoire, Senegal, Sierra Leone and Sudan have still no access to education as of 2010. Indonesia and Jordan are

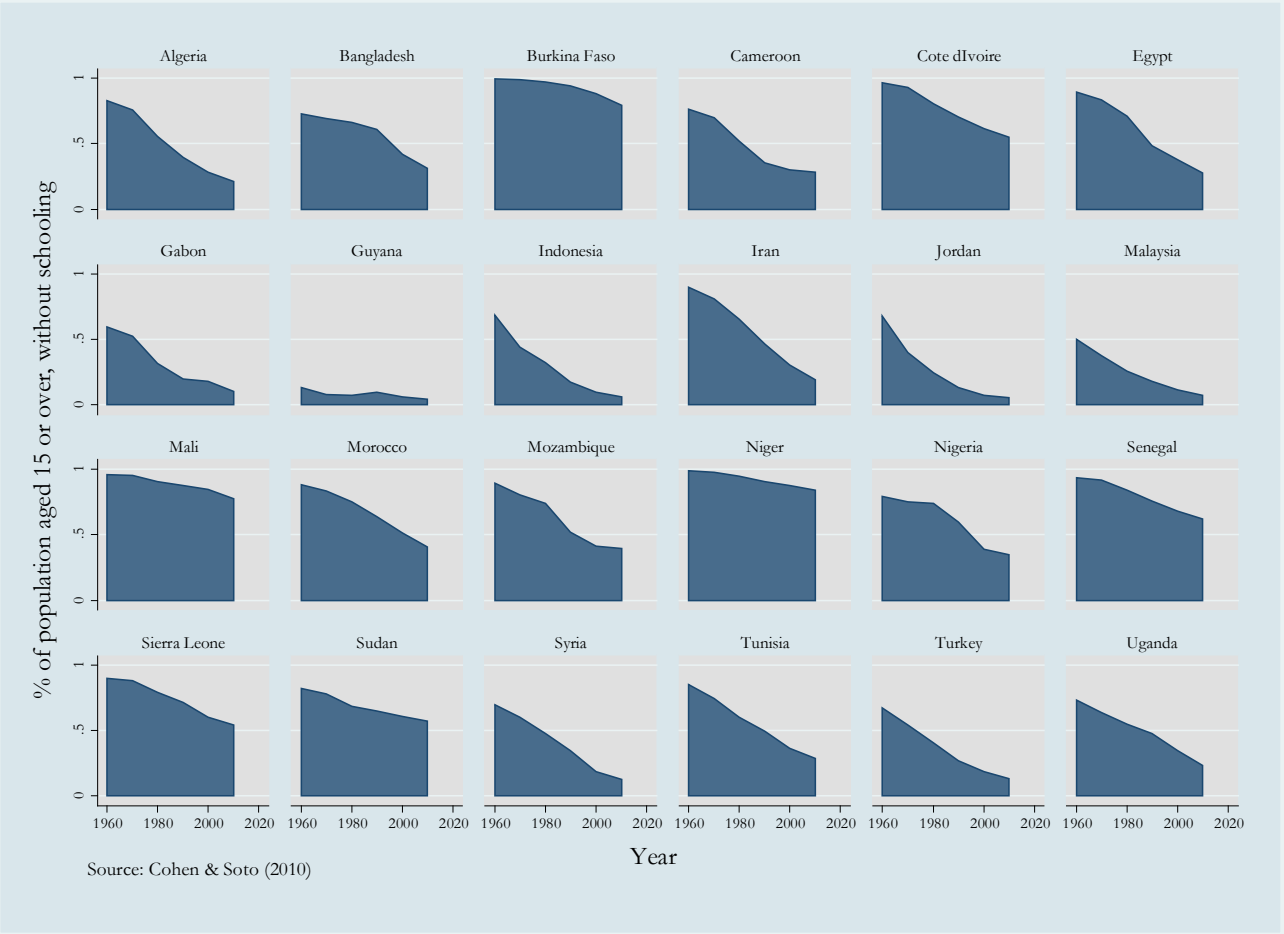
Box 1.1: Education, Jobs and Wages in Albania

In Albania, like many other countries, increasing educational attainment (the levels of education completed) is likely to lead to better chances of finding a job. Those with low levels of schooling experience considerable difficulties in the labor market. Among working-age individuals in 2005, only 48% of those with less than primary-school completion participated in the labor force and just 43% were employed. For people with secondary education, 76% of the working age group participates in the labor force while 65% is employed. Participation and employment rates rise significantly with better education.

The higher the educational attainment is, the higher the wages are. This trend is quite pronounced in Albania. Looking at wage-earners under 35 years old according to four levels of educational attainment: (i) less than primary, (ii) vocational secondary, (iii) general secondary, and (iv) post-secondary, each incremental level of attainment (e.g. secondary over primary, tertiary over secondary) is associated with between 55% and 75% gains in average monthly earnings. The analysis shows that wage differentials are substantial even after other individual characteristics have been held constant.

Source: World Bank, Albania: Secondary and Tertiary Education, Policy Brief #1 – Labor Market and Education

Figure 1.6: Changes in School Non-Attendance (1960-2010)



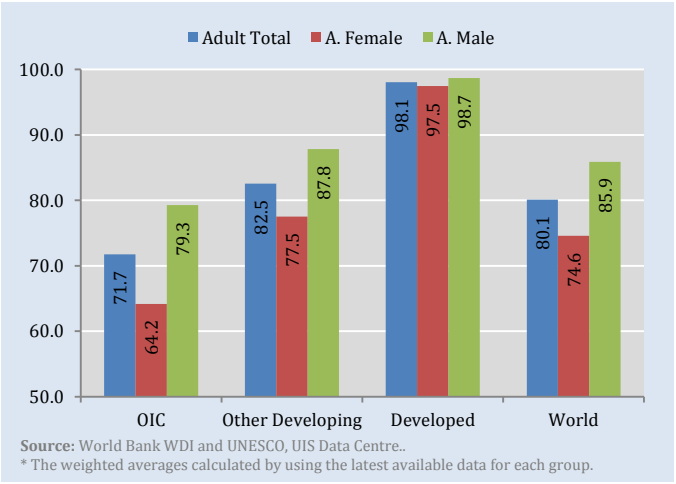
the countries with best performance in improving the accession to education. They reduced the share of people with no school attendance by more than 90%. Guyana, on the other hand, persistently kept the share of non-schooling at very low levels.

1.3 Literacy Rates

1.3.1 Adult Literacy Rate

Adult literacy rate is one of the indicators of development that are included in the measurement of Human Assets Index (HAI) as well as Human Development Index (HDI). It is regarded, therefore, as an important indicator of social development. The literacy rates in the OIC countries are not impressive. In quite a few countries, literacy rates are still below 50% (Figure 1.8). With an average adult literacy rate of 71.7% in 2010, OIC countries as a group lagged well behind the world average of 80.1% and also the other developing countries' average of 82.5% (Figure 1.7). There is a larger disparity across genders in the group of OIC

Figure 1.7: Adult Literacy Rates in Comparison*



Source: World Bank WDI and UNESCO, UIS Data Centre..
* The weighted averages calculated by using the latest available data for each group.

countries compared to other country groups. On average, out of 100 women, only 64.2 can read and write while 79.3 of male population are literate, indicating almost 15% discrepancy. While the average adult literacy rate among males in OIC countries is comparably better, it is still below the average of other developing countries, 87.8%, and the world, 85.9%. The discrepancy in literacy rates of female population between the OIC and the world averages exceeds 10 percentage points. These comparisons indicate the low levels of investments made in education in fostering economic and social development in the OIC member countries.

With respect to the best performing countries in adult literacy rates, central Asian countries occupy the top five positions. According to the latest data available, Azerbaijan, Kazakhstan, Tajikistan, Turkmenistan and Uzbekistan achieved adult literacy rate over 99%. On the other end, Niger (15%), Mali (20%), Burkina Faso (22%), Chad (24%) and Guinea (30%) were the OIC member countries with lowest rates of adult literacy (Figure 1.9).

1.3.2 Youth Literacy Rate

Despite being an important strength of the OIC countries, young population faces considerable challenges in the social and economic life in a significant number of member countries. Inadequate education and lack of required skills make it especially difficult for youth in finding jobs in the labour market. In addition to its impact on economic development and productive capacity, long-term unemployment among the young people may trigger some major social problems within the affected communities.

According to the latest data available, literacy rates among youth are comparably better than adult literacy rates in OIC countries (Figure 1.10). On average, 83.9% of youth are literate, which is, however, once again below the world average (88.9%) and average of other developing countries (90.6%). The discrepancy between male (87.1%) and female literacy rates (80.5%) among young population narrows down to 6.6%, compared to 15.1% difference in adult population.

Figure 1.8: Distribution of OIC Countries according to their Adult Literacy Rates (2010)

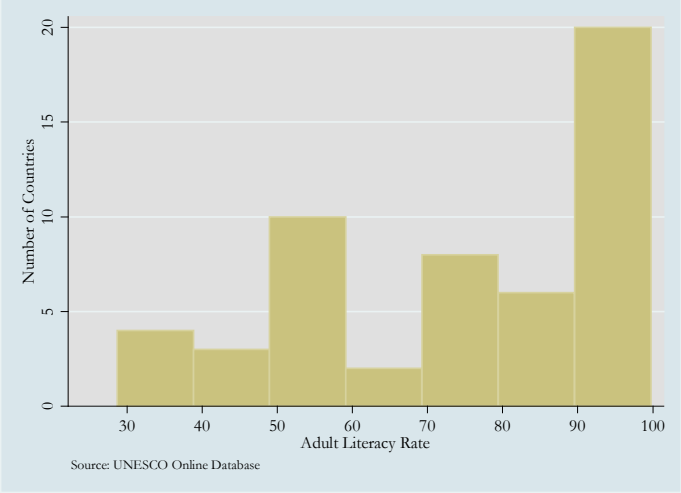


Figure 1.9: Adult Literacy Rates in OIC Countries: Lowest and Highest Rates

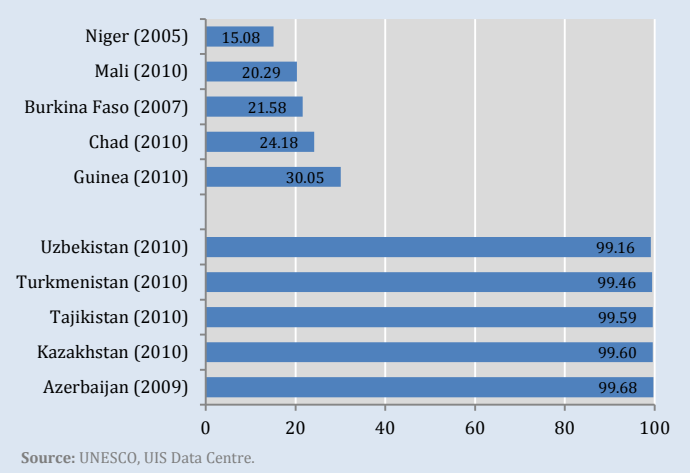


Figure 1.10: Youth Literacy Rates in Comparison*

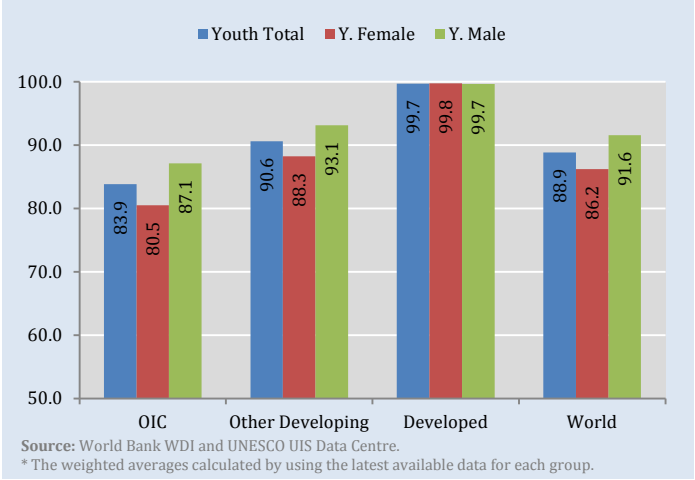


Figure 1.11: Distribution of OIC Countries according to their Youth Literacy Rates (2010)

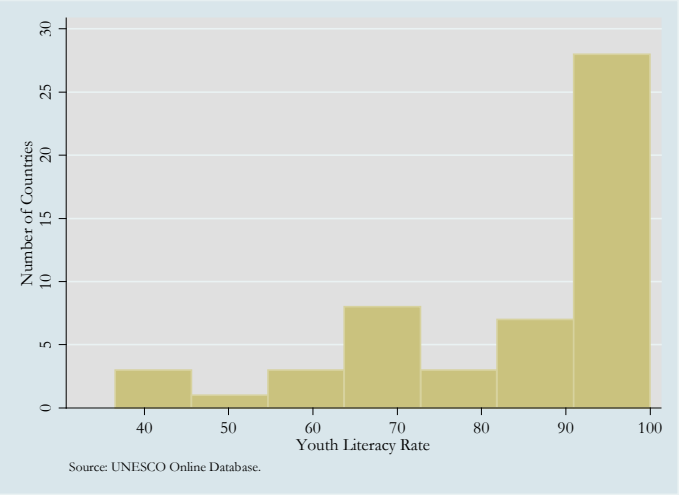
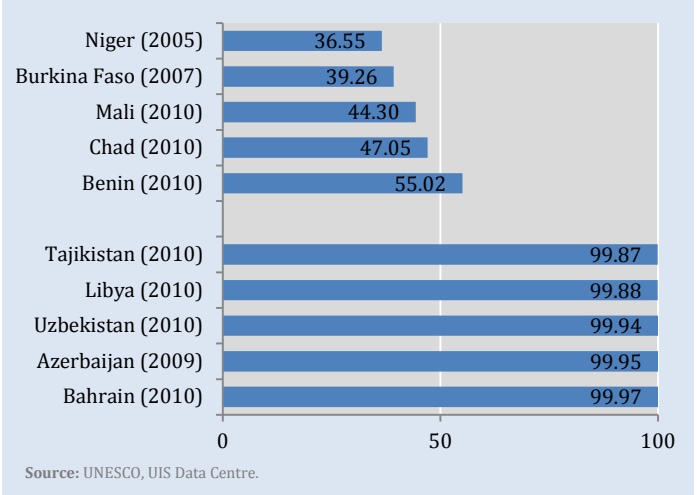


Figure 1.12: Youth Literacy Rates in OIC Countries: Lowest and Highest Rates



The distribution of OIC countries with respect to their rates of literacy is more favourable for youth as compared to that of adult population in the member countries (Figure 1.11). In majority of the member countries, youth literacy rates are above 90%. On the other hand, only four member countries have youth literacy rates that are lower than 50%. Out of 53 OIC countries for which the data are available, 27 countries achieved youth literacy rates of 95% or above. Bahrain, with youth literacy rate of 99.97%, is the best performing OIC member country (Figure 1.12), followed by Azerbaijan (99.95%), Uzbekistan (99.94%), Libya (99.88%) and Tajikistan (99.87%). Niger, with a rate of 36.6%, is the country with lowest youth literacy within the OIC community. It is followed by Burkina Faso (39.3%), Mali (44.3%), Chad (47.1%) and Benin (55%).

Box 1.2: Patterns of Education-to-Work Transitions of Youth in Palestine

Young Palestinians face serious employment challenges upon graduation. In 2009, unemployment among youth 15-24 years old was 28% for men and 36% for women in West Bank and 57% for men and 68% for women in Gaza. To better understand the reasons behind these poor labor market indicators, the Ministry of Education and Higher Education (MOEHE) in collaboration with the World Bank conducted focus group discussions with concerned stakeholders in March 2011.

Results indicate that the duration of the transition is indicative of the challenges youth are facing. A commonly used indicator compares the age at which 50% of the population has left education and the age at which 50% has found employment. The difference in ages provides the average time it takes to transition from education to work. In the case of Palestine, however, this indicator is less useful given that in some sub-groups, employment never reaches 50% and a significant segment of its citizens are out of the labor force. Taking the proportion actually entering employment as an upper bound, the transition rates are 3 years for male youth in West Bank (median graduation age 18 and median age entering employment 21) and 4 years in Gaza (graduation at median age 20 and employment at median age 24). For females, the respective figures are 2 years in West Bank (median ages 21 and 23) and 1 year in Gaza (median ages 22 and 23).

Source: World Bank, From Education-to-Work: Opportunities and Challenges in the West Bank and Gaza, MENA Quick Note Series, January 2012.

2 Participation in Education

This section profiles the trends in enrolment at all levels of education, including technical and vocational programmes, as a key indicator of the scope of and access to educational services. As the size of the population and rates of enrolment in a population group change, so does enrolment. These changes in enrolment have implications for the demand for educational resources such as qualified teachers, physical facilities, and funding levels required to provide a high-quality education for the nation's students. Poverty also poses a serious challenge to children's access to high-quality learning opportunities and their potential to succeed in school. All in all, the differences in enrolment among OIC countries, as well as geographical and income clusters within the OIC group, can provide insight into the potential for intra-OIC cooperation in eliminating discrepancies in access and participation in education, issues that are of central concern.

Early childhood education programs, such as pre-primary schools, are intended to prepare children socially and academically for formal schooling. Primary (or elementary) and secondary education provide knowledge, skills, and habits of minds that prepare students for further learning and productive membership in society. Because enrolment at the primary and secondary levels is mandatory in most of the countries, changes in enrolment are driven by shifts in the size of the school-age population. This population fluctuates due to changes in birth rates, immigration, and other factors. Post-secondary or tertiary education, on the other hand, provides students with opportunities to gain advanced knowledge and skills either immediately after secondary school or later in life. Because tertiary education is voluntary, changes in total tertiary school enrolments reflect fluctuations in enrolment rates and the perceived availability and value of tertiary education as well as the size of the traditional tertiary-school-age population.

The rest of this section highlights some and more of these points and identify the current trends in participation in education, with particular emphasis on the relative performance of the OIC member countries in comparison to other developing as well as developed countries. A brief explanation of the standard indicators used throughout the text is given in Box 2.1.

2.1 Pre-primary Schools

Participation in pre-primary education programs can not only improve the subsequent primary school performance of children, but also serve as child care for working parents. Between 2000 and 2011, the number of children who attend pre-primary schools all over the world has risen from 116 million to 162 million (Figure 2.1, top).[1] For OIC countries, the

[1] The analysis spans the time period 2000-2011 where the selected years for analysis reflect the situation in that specific

Box 2.1: Gross and Net Enrolment Rates (GER and NER)

Gross Enrolment Rate (GER) indicates the capacity of education system to enrol students of particular age groups and are used to provide a more standardized and comparable indicator of participation at various levels of the education system. More specifically, GER reflects the total number of students, regardless of their age, enrolled in a specific level of education expressed as a percentage of the total number of official school-age population which are eligible to attend that specific level of education in a given school year – except for the tertiary level where the population used is that of the five-year age group following on from the secondary school leaving. Calculated regardless of age, GER can exceed 100%, indicating the extent of over-aged and under-aged enrolments. Therefore, in countries where many children enter school early or late, or repeat a grade, the GER can be well above %100 and exceed the NER by a large margin.

A high GER generally indicates a high degree of participation in a specific level of education, whether the pupils belong to the official age group of that specific education level or not. A GER value approaching or exceeding 100% indicates that a country is, in principle, able to accommodate all of its school-age population, but it does not indicate the proportion already enrolled. The achievement of a GER of 100% is therefore a necessary but not sufficient condition for enrolling all eligible children in school. When the GER exceeds 90% for a particular level of education, this means that the aggregate number of places for pupils is approaching the number required for universal access of the official age group. However, this interpretation becomes particularly meaningful under the expectation that the under-aged and over-aged enrolments in a specific level will decline in the future to open up more place for pupils of the official age group of that specific level.

On the other hand, **Net Enrolment Rate (NER)** indicates the total enrolment of the official age group for a given level of education expressed as a percentage of the corresponding population. NER is used to show the extent of coverage in a given level of education of children and youths belonging to the official age group corresponding to that specific level.

A high NER means a high degree of coverage for the official school-age population. Its theoretical upper limit is 100%. Increasing NER trends can be considered as reflecting improving coverage at a certain level of education. When the NER is compared with the GER, the difference between the two highlights the incidences of under-aged and over-aged enrolment. If the NER is below 100%, the complement, i.e. the difference between the observed NER and 100%, provides a measure of the proportion of children that belong to specific education level but are not enrolled at that specific level. However, since some of these children/youth could be enrolled at other levels of education, this difference should not be treated as the percentage of students not enrolled in the overall education system.

pace of growth in pre-primary school attendance has been relatively slower than the growth in the world. Though the number of pre-primary education enrolments has increased from 16 million to 20 million, the share of OIC countries in the world decreased from 14% to 12.5% over the same period. In other developing countries, the number of pre-primary school attendants has increased from 76 million in 2000 to 115 million in 2011 – which corresponded to a surge by half. Again, the relatively faster increase in the participants of pre-primary schools in other developing countries has, in turn, brought about a decrease in the share of OIC countries in developing countries from 17.6% to 15.1% over the period under study.

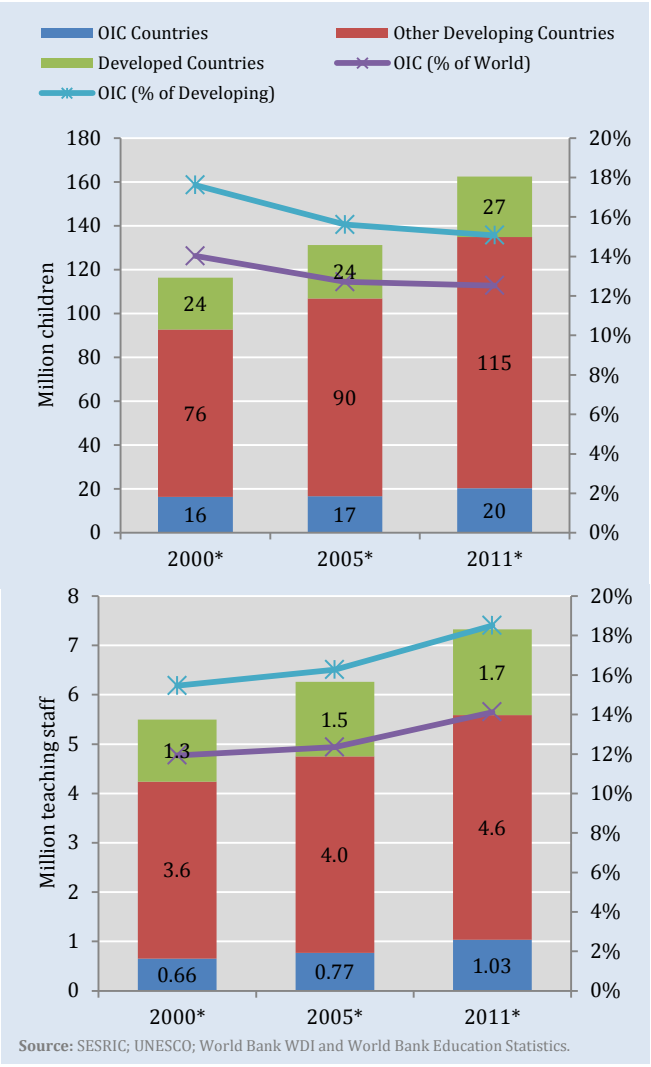
As far as the volume of teaching staff at pre-primary schools is considered, it is apparent from Figure 2.1 (bottom) that the OIC countries have experienced a more rapid expansion in the volume of their pre-primary school teaching staff – as compared to other

year or the most recent year in the past 5-year history for which the data is available.

developing countries and the world. The number of teaching staff at the pre-primary schools of OIC countries has increased from 0.7 million to 1 million between 2000 and 2011. This relatively better performance has helped the member countries increase their share in both developing countries and world as a whole.

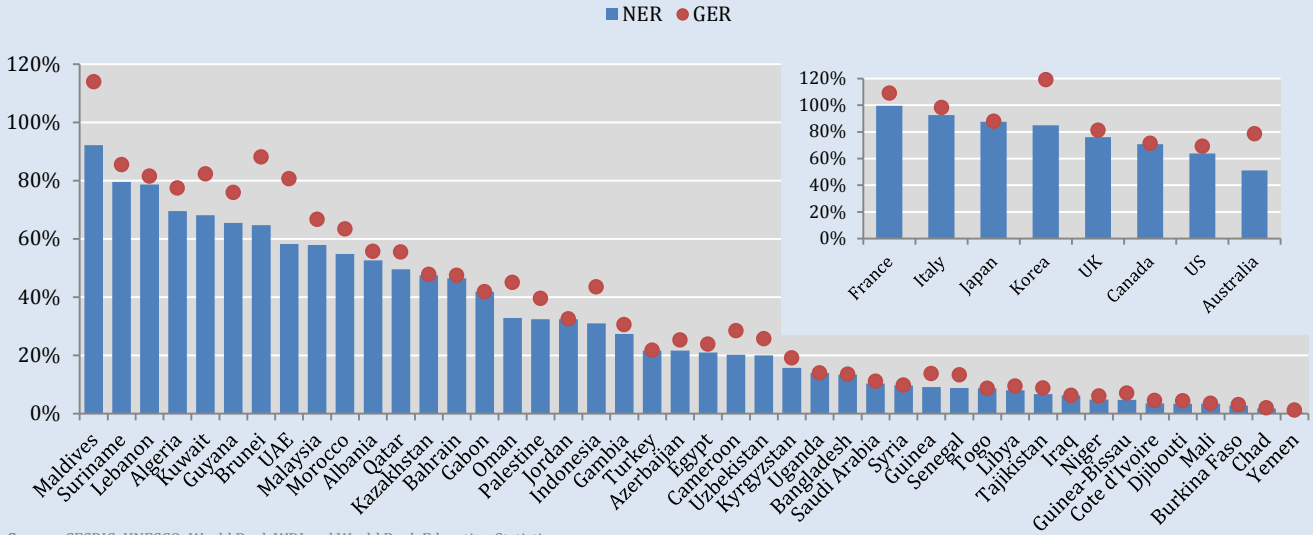
Figure 2.2 display the pre-primary school enrolment ratios in OIC countries in 2011 or the latest year with available data, and compares them with those of some major developed economies. Apparently, most OIC member countries in Sub-Saharan Africa and Central Asia have low enrolment levels, whereas those in the Latin America and Europe region have higher levels. OIC member countries in the regions of South and East Asia as well as Middle East and North Africa, on the other hand, have a rather mixed look. While countries like, Maldives, Brunei, Malaysia, Lebanon, Algeria, Kuwait and United Arab Emirates (UAE) have higher levels of pre-primary school enrolment, others such as Indonesia, Bangladesh Egypt, Saudi Arabia, Libya and Iraq have relatively lower enrolment levels. Finally, the considerable difference between the GER and the NER in countries such as Maldives, Kuwait, Brunei, UAE, Oman and Indonesia indicates that a large proportion of those enrolled are outside the intended age group. Among the selected developed countries in top-right corner of Figure 2.2, this difference is

Figure 2.1: Total Enrolment and Teaching Staff in Pre-primary Schools



Source: SESRIC; UNESCO; World Bank WDI and World Bank Education Statistics.

Figure 2.2: Pre-primary School Enrolment Rates



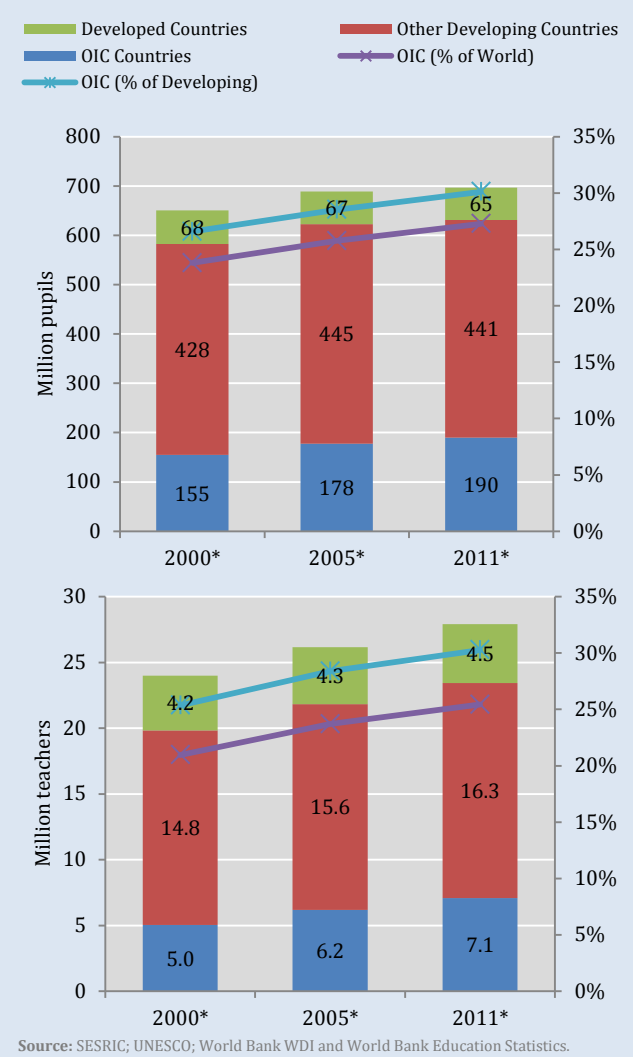
Source: SESRIC; UNESCO; World Bank WDI and World Bank Education Statistics.

highest in Korea and Australia.

2.2 Primary Schools

Primary or elementary education involves programmes normally designed on a unit or project basis to give pupils a sound basic education in reading, writing and mathematics along with an elementary understanding of other subjects such as history, geography, natural science, social science, art and music. In this connection, Figure 2.3 reflects the trends in primary school participation and volume of primary school teaching staff in OIC member countries as compared to other country groups as well as the world.

Figure 2.3: Total Enrolment and Teachers in Primary Schools



Source: SESRIC; UNESCO; World Bank WDI and World Bank Education Statistics.

As apparent from the figure, the shares of the OIC countries as a group in the total numbers of both primary school enrolments and teaching staff have been on the rise. As of 2011, the volume of primary school pupils in OIC member countries reached 190 million, representing shares of 27% and 30% in total world and developing country primary school enrolments, respectively. In year 2000, these two shares were at the levels of 24% and 27%. On the other hand, the shares of OIC countries in total primary school teachers in the world and developing countries have also increased over the period under study and, with 7.1 million primary school teachers in 2011, OIC countries accounted for 25% and 30% of the total primary school teachers in the world and developing countries, respectively.

At the individual country level, in 2011, Indonesia, Nigeria, Pakistan, Bangladesh and Egypt collectively accounted for almost half of the total volume of primary school students in the OIC countries, with total number of students of 30.3, 20.7, 18.8, 17.0 and 10.0 million, respectively. As for primary school teachers, Indonesia alone constituted 27% of the total OIC primary school teacher population by employing 1.9 million teachers as of 2011. Indonesia was followed by Nigeria, Pakistan, Bangladesh and Egypt with individual shares of 8.1%, 6.5%, 5.6% and 5.4%, respectively.

Average gross rates for primary school enrolment (GERs), as depicted in Figure 2.4, have increased all over the world, except for the developed countries, during the period 2000-2011.[2] This upward trend was particularly strong for the OIC countries as the average GER in the member countries has improved from 89% in 2000 to as high as 98% in 2011. The average GER in other developing countries, on the other hand, have crossed above the 100% mark and reached 112% in the same year.

Notwithstanding the positive developments in GERs, NERs have displayed a rather stable trend all over the world during the period under consideration.

[2] The average figures in the remainder of this section are calculated by weighting the GERs (or NERs) for a specific level of education by the size of population falling into the official age interval recognized for that education level.

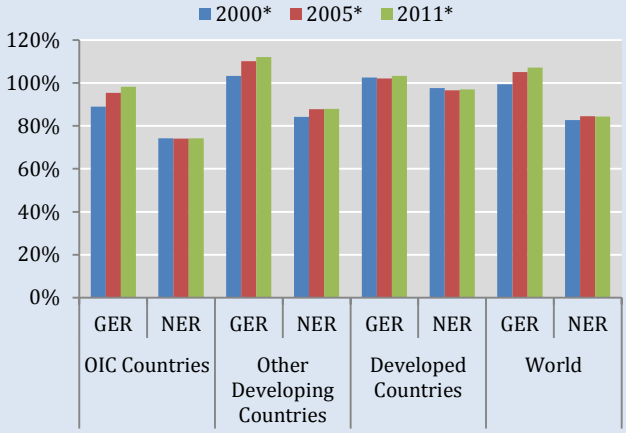
The average NER in the world has increased slightly by 1% since 2000 to reach 84% in 2011. The average NER in OIC countries, on the other hand, has been flat around 74% during this period. This indicates that almost one-fourth of the children in OIC countries who are at their primary school age have not registered in primary schools – as compared to only 2-3% in developed countries. Other developing countries have seen relatively more significant improvements in their NERs as the average NER in these countries has increased from 84% to 88% over the same period.

In terms of the difference between primary school GER and NER, the developed countries have apparently had the narrowest gap, around 5-6%, indicating a low incidence of under- or over-aged enrolments as well as grade repetitions. On the other hand, this gap, and therefore the number of incidences of such enrolments, is largest in developing countries, with OIC member countries being no exception. Calculations on the most recent data show that, in OIC as well as other developing countries, the number of children who are associated with under- or over-aged enrolments as well as grade repetitions amounts to around 24% of the children of primary school age.

At the individual country level, in 2011, OIC member countries such as Gabon, Togo, Benin, Sierra Leone, Guinea-Bissau and Uganda have registered the highest primary school GERs (Figure 2.5, top). Notably, in Gabon, the number of pupils enrolled in primary schools corresponds to 182% of the children who are at their primary school age.[3] As far as the NER is considered, Iran, Brunei, Tunisia, Bahrain, Turkey and Tajikistan are among the highest scorers and their primary school NERs are even above the average level of developed countries in 2011, which is 97% (Figure 2.5, bottom). At the other extreme, in OIC member countries such as Nigeria, Djibouti, Sudan and Afghanistan, more than 40% of the primary school age children are not enrolled in the primary schools.

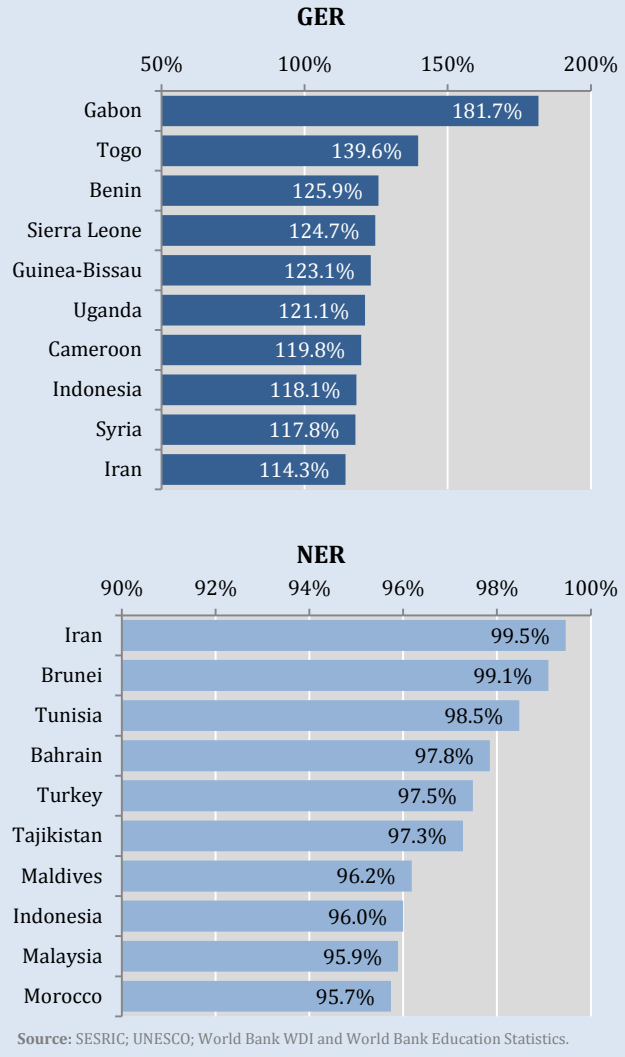
[3] The NER in Gabon was recorded at 92% in 1997 – which reflects the latest available figure.

Figure 2.4: Primary School Enrolment Rates



Source: SESRIC; UNESCO; World Bank WDI and World Bank Education Statistics.

Figure 2.5: Top 10 OIC Countries in terms of Primary School Enrolment Rate (2011 or latest year)



Source: SESRIC; UNESCO; World Bank WDI and World Bank Education Statistics.

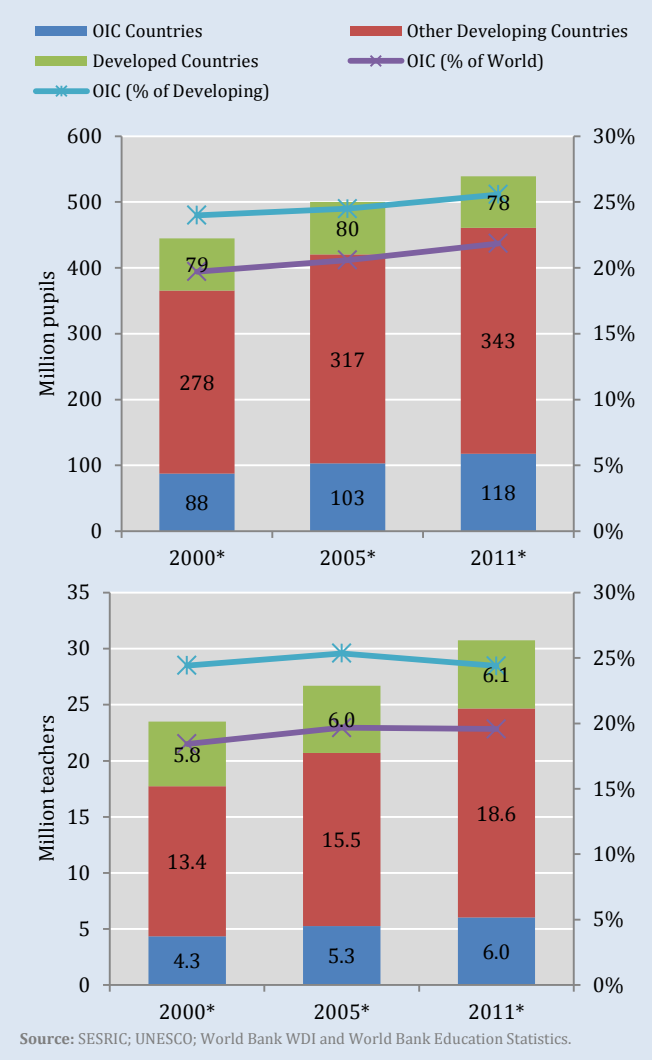
2.3 Secondary Schools

Formally, secondary education refers to the programmes at International Standard Classification of Education (ISCED) Levels 2 and 3. Lower secondary education (ISCED Level 2) is generally designed to continue the basic programmes of the primary level but the teaching is typically more subject-centric – which, in turn, requires more specialized teachers for each subject area. The end of this level often coincides with the end of compulsory education. In upper secondary education (ISCED Level 3), the final stage of secondary education in most countries, courses are often classified into various subject areas and offered by typically more qualified teachers – as compared to ISCED Level 2 – in terms of their level of subject specification.

According to Figure 2.6, the total number of students enrolled in the secondary schools in OIC countries has increased from 88 million to 118 million between 2000 and 2011. The total number of teachers qualified for secondary schools (bottom) has also followed a similar trend and increased from 4.3 million to 6.0 million over the same period. The figure also reveals that the total number of secondary school pupils in OIC countries has increased at a relatively faster pace when compared to other developing countries and world as a whole. As of year 2011, the OIC member countries accounted for 22% and 26% of the total secondary school students in the world and developing countries, respectively. As far as the total number of secondary school teachers is considered, particularly between 2005 and 2011, the OIC member countries have kept a relatively slower pace, and, though slightly, their shares in both developing countries and world have declined.

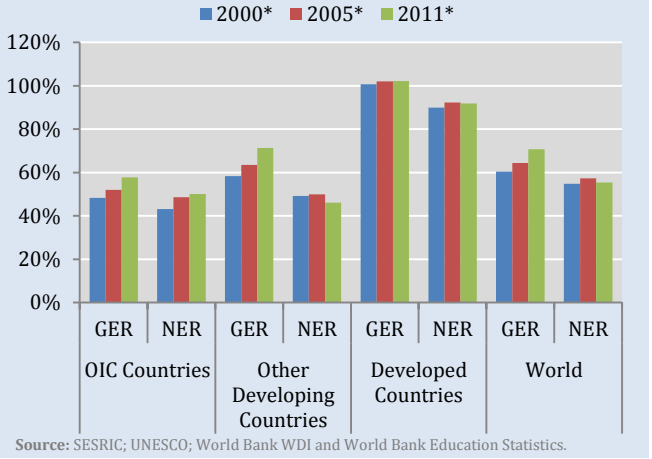
Like GERs for primary schools, GERs for secondary schools have also exhibited an upward trend all over the world – again excluding developed countries where the average secondary school GER has relatively been stable (Figure 2.7). In OIC countries, the average secondary school GER has increased from 48% in 2000 to %58 in 2011. In other group of countries, however, this improvement was relatively more significant. In 2011, other developing

Figure 2.6: Total Enrolment and Teachers in Secondary Schools



Source: SESRIC; UNESCO; World Bank WDI and World Bank Education Statistics.

Figure 2.7: Secondary School Enrolment Rates



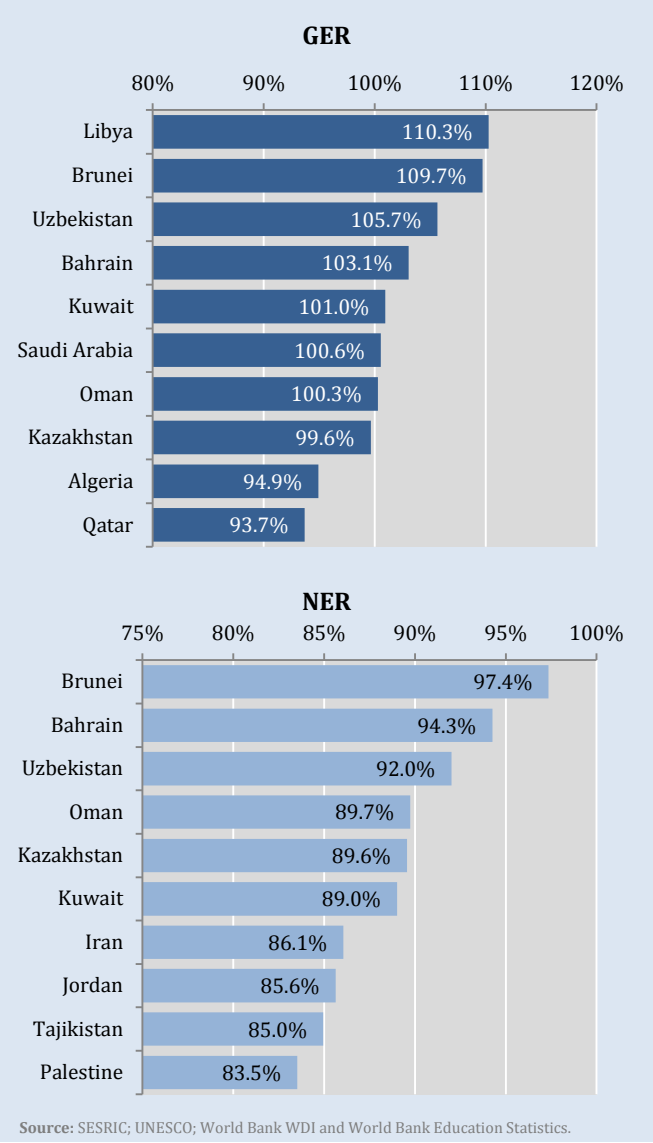
Source: SESRIC; UNESCO; World Bank WDI and World Bank Education Statistics.

countries recorded an average secondary school GER of 71%, as compared to 58% in 2000. Parallel to the developments in developing countries, which now account for almost 85% of the world population,[4] the average secondary school GER in the world has followed a similar trajectory and reached 71% in 2011.

Despite having a lower average secondary school GER as compared to other developing countries, OIC countries have recently overtaken the latter in their average secondary school NER, which has increased from 43% to 50% between 2000 and 2011. Yet, considerable effort are still to be exerted by the member countries to reach a level at which the secondary education system can be considered as fairly inclusive. The developed countries, in that sense, present a good example, where 92% of the secondary school age was population was registered with secondary schools in 2011. Finally, the differential between secondary school GER and NER were again highest in developing countries, including the OIC member countries, bringing to the forefront the problems with the outreach and quality of the secondary school education which manifest themselves through over-aged enrolments and high repetition rates.

At the individual country level, in 2011, OIC member countries such as Libya, Brunei, Uzbekistan, Bahrain and Kuwait recorded some of the highest secondary school GERs; whereas member countries such as Brunei, Bahrain, Uzbekistan, Oman and Kazakhstan were among the highest scorers of secondary school NER (Figure 2.8). In Brunei, Bahrain and Uzbekistan, for instance, over 90% of the secondary school age children are registered within the secondary education pool and the NERs of these countries are even higher than the average of developed countries. On the flip side, however, there are member countries such as Burkina Faso, Mozambique, Mauritania and Niger where more than 80% of the target age group are away from the secondary schools.

Figure 2.8: Top 10 OIC Countries in terms of Secondary School Enrolment Rate (2011 or latest year)



Source: SESRIC; UNESCO; World Bank WDI and World Bank Education Statistics.

[4] This figure is based on World Bank data.

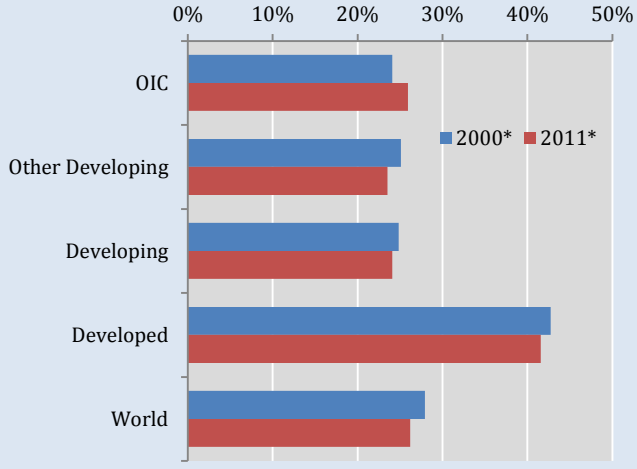
Box 2.2: Technical and Vocational Education and Training (TVET)

Defining **Technical and Vocational Education and Training (TVET)** is often problematic because programmes are extremely heterogeneous in terms of content, frequency and duration. The main objective of TVET is to develop or maintain job-relevant skills for employment or for entry into the labour market. Job-relevant skills can be defined as a set of competencies valued by employers and useful for self-employment, including skills relevant to a specific job and other skills that enhance a worker's productivity (World Bank, 2010). According to the International Labour Organisation (ILO), skills development connects education to technical training, technical training to labour market entry, and labour market entry to the workplace and lifelong learning, which help countries sustain productivity and translate growth into more and better jobs (ILO, 2008). In the following, we look at trends in TVET within the context of upper secondary education.

Currently, there are around 55 million students worldwide that are enrolled in upper secondary TVET programmes, of which around 44 million (80%) come from the developing countries. According to most recently available data, as of 2011, OIC countries collectively accounted for one-fourth of the total upper secondary TVET enrolments in the developing countries and one-fifth of those in the world. In OIC countries, around 40% of upper secondary TVET enrolments were *female* students, compared to around 45% worldwide and other developing countries. Again, based on the latest data available in 2011, around four-fifths of the total upper school TVET enrolments in the world – as well as in the OIC, other developing and developed countries were received by *public* schools.

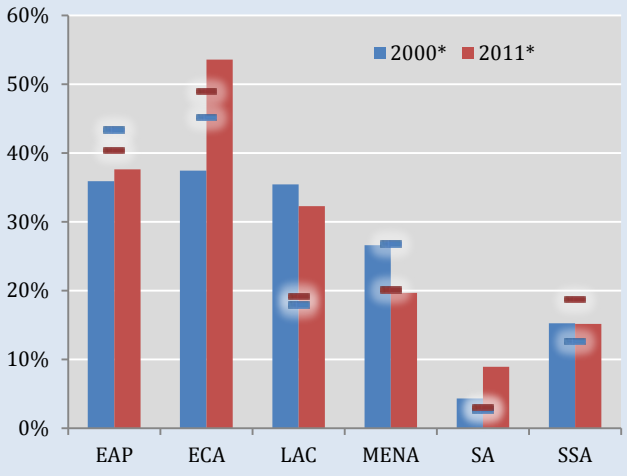
Despite the rise in the global GER for secondary education since 2000 (see Figure 2.7), enrolment in TVET programmes as a percentage of total enrolment at upper secondary schools has generally decreased in all country groups, except for the OIC (Figure 2.A). The most recent available data show that the average share of upper secondary school TVET enrolments within total upper school enrolments was around one-fourth worldwide in 2011. In OIC countries, this ratio has improved slightly and upper secondary TVET enrolments have most recently reached 26% of the total enrolments in that level of education.

Figure 2.A: Upper secondary TVET enrolment as a percentage of total upper secondary enrolment



Source: SESRIC; UNESCO; World Bank WDI and World Bank Education Statistics.

Figure 2.B: OIC Regional Dynamics in Upper Secondary TVET Enrolment Rates*



Source: SESRIC; UNESCO; World Bank WDI and World Bank Education Statistics.
* Short, horizontal line-marks indicate regional averages including all countries with available data.

Box 2.2: Technical and Vocational Education and Training (TVET) - (cont'd)

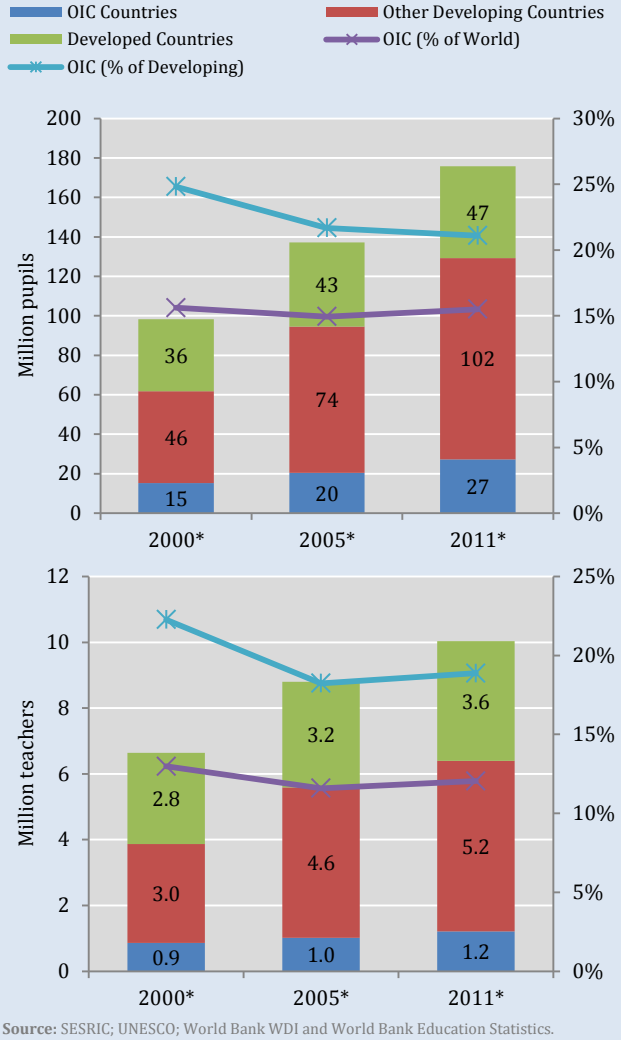
As far as the regional dynamics within the group of OIC countries are considered, it is observed that the member countries in the East Asia and Pacific (EAP), Europe and Central Asia (ECA) and Latin America and Caribbean (LAC) regions have considerably higher levels of upper secondary school TVET enrolment rate vis-à-vis those in Middle East and North Africa (MENA), South Asia (SA) and Sub-Saharan Africa (SSA) (Figure 2.B). On the other hand, the member countries in ECA recorded the largest average increase in upper secondary school TVET enrolment rates as compared to those of other regions. The average upper secondary school TVET enrolment rate of the OIC countries in ECA region has increased from 37% to 54% over the examined period. In other regions such as SA, however, the average upper secondary school TVET enrolment rate of the OIC member countries, though improved significantly, is still below 10%.

2.4 Tertiary Schools

Tertiary or post-secondary education includes programmes with an educational content which is more advanced than those offered at ISCED Levels 3 and 4. The first stage of the tertiary education, ISCED Level 5, covers Sub-levels 5A and 5B. The former is comprised of theoretical programmes that are intended to provide sufficient qualifications for entering more advanced research programmes and professions with higher skill requirements. In the latter, offered programmes are generally more practical, technical and, sometimes, more occupation-centric. The second stage of the tertiary education, ISCED Level 6, comprises programmes that are geared towards obtaining advanced research qualifications.

Figure 2.9 shows the total numbers of enrollees and teaching staff in tertiary schools. The total number of tertiary school students in the OIC countries has increased almost two-fold, from 15 million to 27 million, between 2000 and 2011. As more tertiary school graduates means more qualified, highly skilled workforce, this is a particularly promising development for the OIC community. As far as the number of teaching staff employed in tertiary schools of OIC countries is considered, similarly, the number has increased steadily over the past decade – reaching from 0.9 million in 2000 to 1.2 million in 2011. However, when this performance benchmarked against other developing countries and

Figure 2.9: Total Enrolment and Teaching Staff in Tertiary Schools

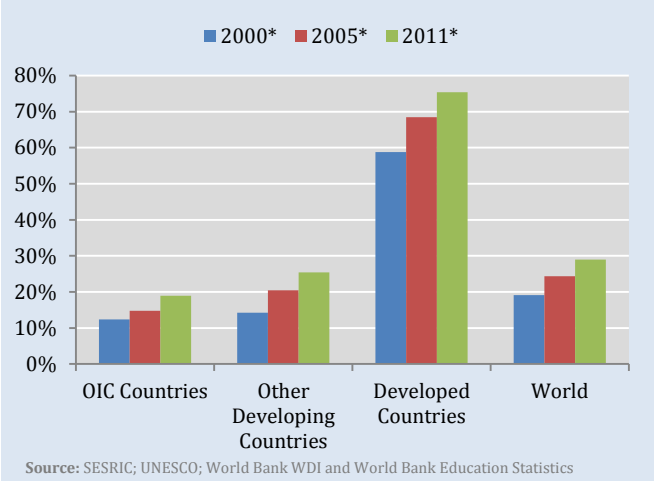


Source: SESRIC; UNESCO; World Bank WDI and World Bank Education Statistics.

world as a whole, the situation is apparently not so optimistic: the shares of OIC member countries in both total students and teaching staff of tertiary schools in developing countries have generally been in decline. The tertiary school students in the member countries represented 21% of those in developing countries in 2011, whereas this share was 25% in 2000. Similarly, the share of the member countries in total tertiary school teaching staff in developing countries also declined from 22% to 19% over the same period. Their shares in total students and teaching staff of tertiary schools in the world, on the other hand, remained relatively stagnant and exhibited almost no change for tertiary school students – remaining at 16% – and a slight decline from 13% to 12% for teaching staff. So, although the total numbers of students and teaching staff within the tertiary education system have increased, overall, OIC member countries could not catch up with the growth rates of both developing countries and the world over the period 2000-2011.

For tertiary education, NER is not pertinent because of the difficulties in determining an appropriate age group due to the wide variations in the duration of programmes at this level of education (UNESCO, 2009). In terms of tertiary school GER, OIC countries, with an average enrolment rate of 19% as of 2011, lagged behind other developing countries by 6% and at levels corresponding to almost one-fourth of the developed countries average of 75% (Figure 2.10). In the same year, the world average GER was 29%.

Figure 2.10: Tertiary School Enrolment Rates (GER only)



Source: SESRIC; UNESCO; World Bank WDI and World Bank Education Statistics

Box 2.3: OIC-VET Programme of SESRIC

The idea of ***Vocational Education and Training Programme for the Member Countries of the Organization of Islamic Cooperation (OIC-VET)*** was put forth by SESRIC to improve the quality of vocational education and training in the public and private sectors of the member countries. It was approved by the 24th Session of the COMCEC, the permanent OIC committee established for strengthening intra-OIC economic and commercial cooperation, which was held in Istanbul on 20-24 October 2008. OIC-VET was officially inaugurated by H.E. Abdullah Gul, President of the Republic of Turkey and Chairman of the COMCEC, during the COMCEC Economic Summit in Istanbul, Turkey, on 9 November 2009 with the participation of the heads of states and governments of the OIC member countries.

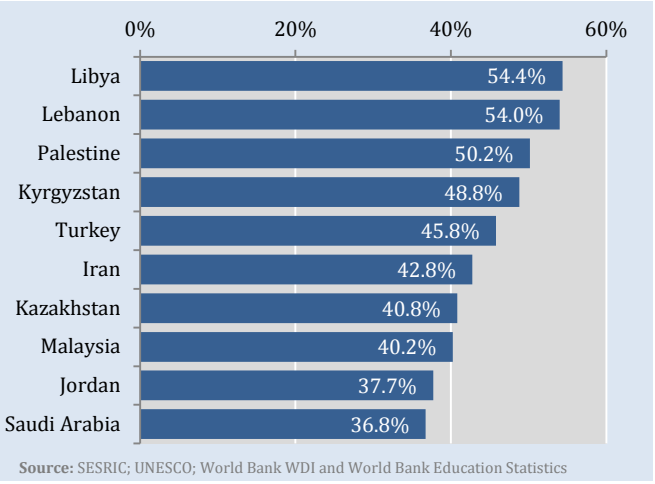
The Programme is geared towards increasing accessibility and raising the quality of vocational education and training (VET) programmes in the member countries, and provides an opportunity for participating organizations to build intra-OIC partnerships, exchange best practices, and increase the expertise of their staff by developing their skills and competencies.

Currently, within the framework of OIC-VET Programme, SESRIC has various on-going programmes and a dozen of Capacity Building Programmes which were designed as part of the attempt to enhance the capacity of the relevant national institutions in OIC member countries in various areas and fields through matching the needs and capacities of these institutions by mobilizing skilled experts to conduct short-term training programmes.

For more information on OIC-VET Programme, see **http://www.oicvet.org/**.

According to the most recently available data as of 2011, 13 OIC member countries scored tertiary school GER levels that are higher than the world average, the first 10 of which are shown in Figure 2.11. Just to name some of them, Libya, Lebanon, Palestine, Kyrgyzstan and Turkey all recorded GERs above 45%. Yet, in some member countries, namely, Djibouti, Mauritania, Uganda, Gambia, Burkina Faso, Afghanistan, Guinea-Bissau, Chad and Niger, the tertiary school GERs are even lower than 5%.

Figure 2.11: Top 10 OIC Countries in terms of Tertiary School Enrolment Rate (GER only, 2011 or latest year)



Source: SESRIC; UNESCO; World Bank WDI and World Bank Education Statistics

Box 2.4: Vocational Training Programs and Services in Morocco

A study of World Bank reviewed a wide range of institutions and programs that offer diverse services to young people, including employment, training opportunities (for example, vocational training, skills training, personal development, basic literacy, life skills, self-employment, microfinance, and leadership), community participation, summer camps, sports, and recreational activities, which form the foundation for a comprehensive youth program in Morocco.

Vocational training is in high demand, and is associated with improved employment prospects and job satisfaction. However, these programs still have limited coverage, especially among disadvantaged youth, and some common constraints:

- Many agencies provide similar services, without apparent coordination, leading to fragmented coverage, and some ambiguity and overlap in roles;
- Most programs are seriously under-resourced;
- Staffing is inadequate: there are few young training staff, and there insufficient trainers for new skills in demand such as ICT and broader life/work skills;
- Facilities may be poor or inaccessible, and lack necessary equipment;
- Insufficient use of partnership mechanisms to assess, improve, and provide services;
- Little (or regressive) poverty focus - the largest share of youth program funding goes to Active Labor Market programs targeted at university graduates who constitute only 5% of unemployed youth, while the programs of the Ministry of Youth and Sports, Entraide Nationale, and the Ministry of Agriculture directed at disadvantaged youth face significant resource and other challenges.

Together, these constraints highlight the challenges and point to the need for a more systematic, strategic, and integrated approach to youth development in Morocco.

Source: World Bank, Kingdom of Morocco - Promoting Youth Opportunities and Participation, Report No. 68731–MOR, June 2012.

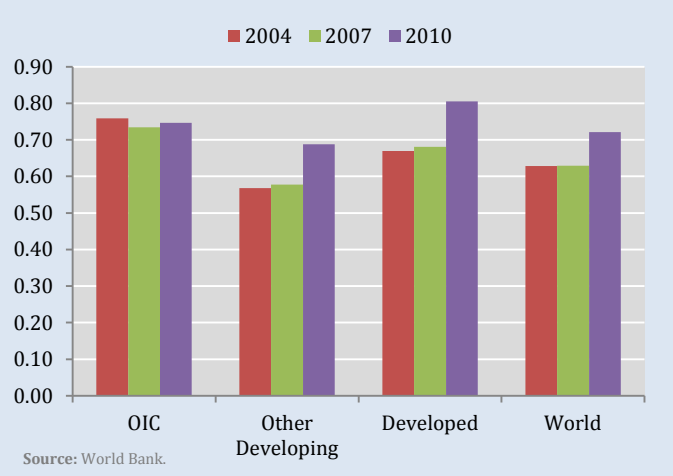
3 Progression and Completion in Education

3.1 Completion Ratios

Completion rate indicates the total number of students completing (or graduating from) the final year of primary or secondary education, regardless of age, expressed as a percentage of the population of the official graduation age.

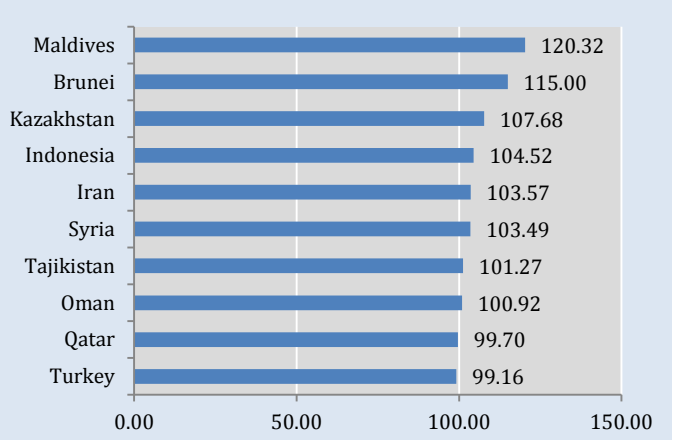
Figure 3.1 displays the completion rates for different country groups from 2004 to 2010.[5] Global completion rates went up significantly during the period under consideration. Innovative technology, no doubt, played an important role which not only led to higher graduation rates but also resulted in a decrease in retention. Consequently, global completion rate increased to 72% in 2010 from 63% in 2004. The progression of other developing countries and developed countries were similar. On average, during the period under consideration, other developing countries and developed countries witnessed an increase of 12 and 14 percentage points, respectively. Notably, both of the country groups remained above the world average of 9 percentage points increase during the same period. The OIC countries, however, could not keep equal pace with that upward trend, and the completion rate slightly decelerated to 75% in 2010 down from 76% in 2004.

Figure 3.1: Completion Ratios in Primary School



Source: World Bank.

Figure 3.2: Top 10 OIC Member Countries in terms of Completion Rates, 2010



Source: World Bank.

[5] Throughout this section and also in subsection 4.1, the data for time period *t* represents the average of *t-1*, *t*, and *t+1*.

The completion rate is also known as gross intake rate to the last grade of primary. The ratio can exceed 100% due to over-aged and under-aged children who enter primary school late/early and/or repeat grades. In 2010, only 20 OIC countries, among those for which the data are available, achieved higher completion rate than the world average of 72%. At the individual country level, Maldives took the lead with a completion rate of 120.32% in 2010, followed by Brunei (115%), Kazakhstan (107.68%), Indonesia (104.52%) and Iran (103.57%) (Figure 3.2).

3.2 Repetition Rates

Repetition rate is the proportion of students from a cohort enrolled in a given grade at a given school-year who studies in the same grade in the following school-year. It simply measures the phenomenon of students repeating a grade, and its effect on the internal efficiency of educational systems. In addition, it is one of the key indicators for analyzing and projecting student flows from one grade to a higher grade within an educational cycle.

3.2.1 Repetition Rates in Primary Schools

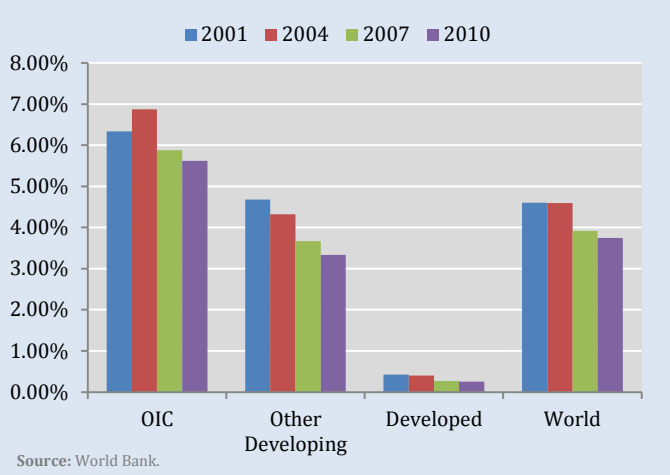
Figure 3.3 shows the repetition rates in primary school for different country groups between 2001 and 2010. The global repetition rate in primary school decelerated to 3.75% in 2010 down from 4.60% in 2001. Other developing countries and developed countries provided a common picture as well. The primary school repetition rate decreased from 4.68% in 2001 to 3.33% in 2010 for other developing countries. Similarly, the repetition rate of developed countries decelerated to 0.25% in 2010 down from 0.43% in 2001. This decreasing trend throughout the last decade is simply because of the improving education system as a result of higher quality of teaching staff and increasing number of distance learning alternatives. After a peak in 2004, the primary school repetition rate in OIC countries exhibited also a downward trend, decreasing from 6.87% in 2004 to 5.62% in 2010, even though it was still far above the world average and the averages of both other developing and developed countries during the period under consideration.

At the individual country level, 21 OIC member countries achieved lower repetition rates in primary schools than the world average of 3.75% in 2010. Among them Uzbekistan stood first by possessing 0.01% repetition rate in primary schools, followed by Kazakhstan (0.6%), Kyrgyz Republic (0.07%), Azerbaijan (0.27%), Tajikistan (0.29%), Brunei (0.34%), Qatar (0.47%), Jordan (0.51%), Kuwait (0.68%) and Guyana (0.7%) (Figure 3.4).

3.2.2 Repetition Rates in Secondary School

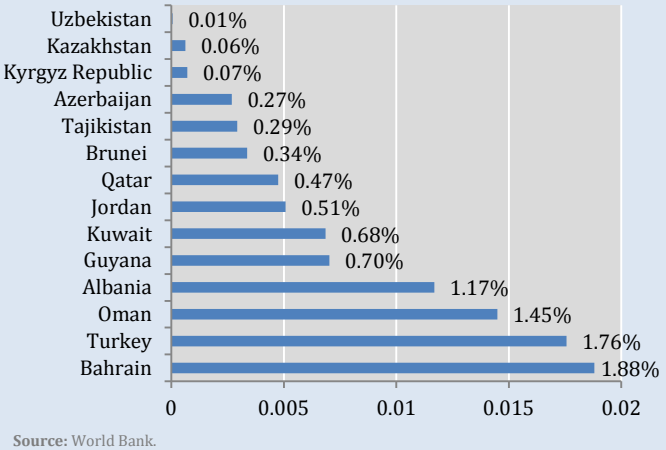
Figure 3.5 displays the repetition rates in secondary school for different country groups between 2001

Figure 3.3: Repetition Rates in Primary School



Source: World Bank.

Figure 3.4: Top OIC Countries with the Lowest Repetition Rates in Primary School



Source: World Bank.

and 2010. Overall, the global repetition rate in secondary school decelerated to 2.61 per cent in 2010 down from 3.46 per cent in 2001. The other developing countries provided a common picture as well where the secondary school repetition rate decreased from 4.01 per cent in 2001 to 2.47 per cent in 2010. Despite an upward trend in 2004, the repetition rate for OIC countries exhibited a slightly decreasing trend during the period under consideration. It was 3.92 per cent in 2010 compared to 3.99 per cent in 2001. The only exception to this trend was developed countries where the repetition rate increased to 1.35 per cent in 2010 from 1.04 per cent in 2001 despite a downward spike in 2004.

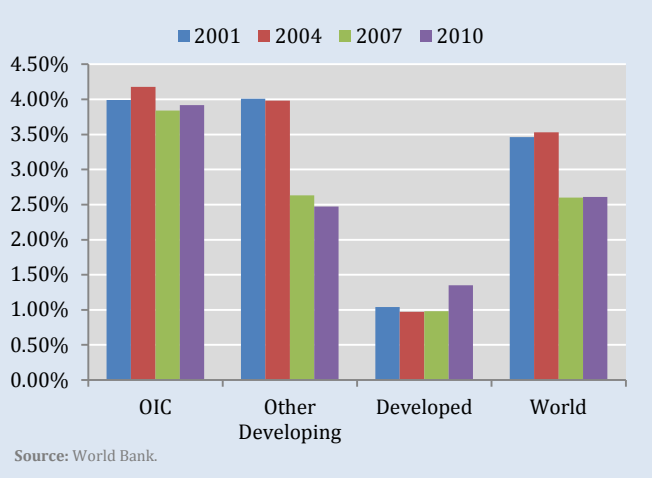
At the individual country level, 6 OIC member countries achieved lower repetition rates in primary schools than the world average of 1.57% and the developed countries' average of 1.35% in 2010 (Figure 3.6). In this context, Uzbekistan stood first by possessing 0.02% repetition rate in secondary schools, followed by Kazakhstan (0.07%), Kyrgyz Republic (0.09%), Tajikistan (0.44%), Azerbaijan (0.67%), Jordan (1.29%), Palestine (2.05%), Uganda (2.31%), and United Arab Emirates (3.01%).

3.3 Survival Rate

Survival rate is an indicator which shows the share of children enrolled in the first grade of primary school who eventually reach the last grade of primary. Since the availability of the data is limited, the top 5 and worst 5 performing OIC countries in 2008 will be represented in Figure 3.7.

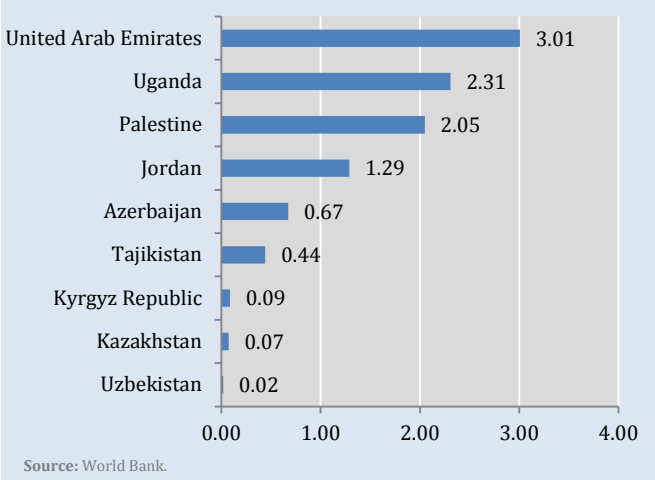
OIC member countries exhibited large variations over a wide scale. On the one hand, countries like Kazakhstan, Tajikistan, Azerbaijan, Uzbekistan and Malaysia possess survival rates that are greater than 97%. On the other hand, there are countries like Mozambique and Uganda where about only one-third of the students could reach the last grade of the primary school.

Figure 3.5: Repetition Rates in Secondary School



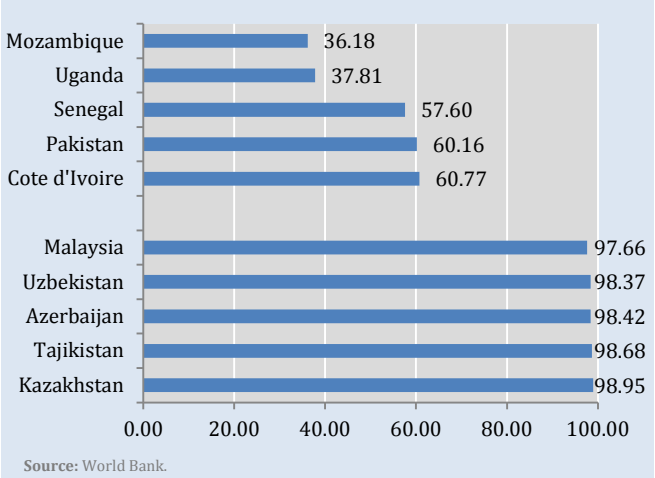
Source: World Bank.

Figure 3.6: Top OIC Countries with the Lowest Repetition Rates in Secondary School



Source: World Bank.

Figure 3.7: Survival Rate to Last Grade of Primary School (Top 5 and Worst 5 Performing OIC Countries), 2008



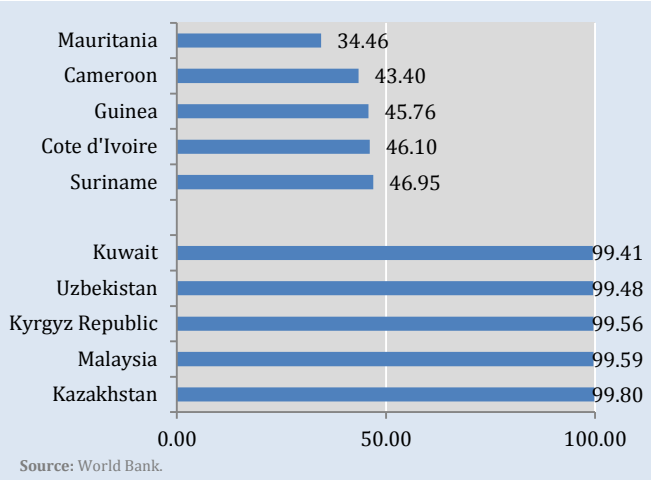
Source: World Bank.

3.4 Transition Rate

Transition rate is the number of new entrants to the first grade of secondary education in a given year, expressed as a percentage of the number of students enrolled in the final grade of primary education in the previous year. As was in the case of survival rate, the top 5 and worst 5 performing OIC countries will be represented due to the limited data availability.

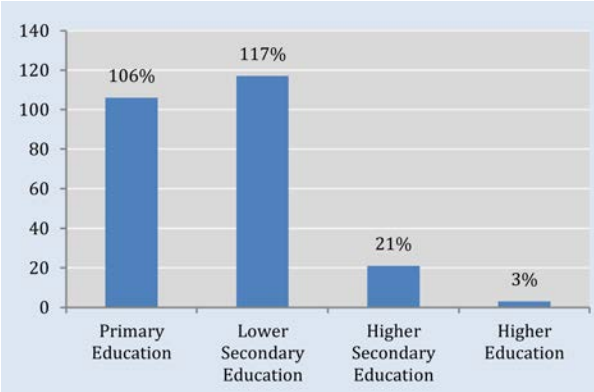
Figure 3.8 displays the transition rates for the selected OIC countries in 2008. As shown, Kazakhstan recorded the highest transition rate, 99.8% in 2008, followed by Malaysia (99.59%), Kyrgyz Republic (99.56%), Uzbekistan (99.48%) and Kuwait (99.41%). It is clear from the figure that, the OIC member countries exhibited significant variations over a wide scale. As was the case in survival rates, there is a significant difference between the top 5 and the worst 5 performing countries. In this context, the worst performing country is Mauritania with an average transition rate of 34.46% in 2008 followed by Cameroon (43.4%), Guinea (45.76%), Cote d'Ivoire (46.10%) and Suriname (46.95%).

Figure 3.8: Transition Rate from Primary to Secondary School (Top 5 and Worst 5 Performing OIC Countries), 2008



Source: World Bank.

Box 3.1: Gross Enrollment Rates across the Stages of Education in Maldives



There is a sharp drop in enrollment at the higher secondary education level in Maldives. The higher secondary education net enrollment rate is a mere 17%, with boys net enrollment at 18% and girls net enrollment at 16%. Gross enrollment rates in higher secondary education are 22% for boys and 20% for girls. This results in a very steep fall in enrollment rates between lower secondary and higher secondary education. The main reason for the sharp drop in participation at the higher secondary level is the limited number of schools offering education in grades 11-12. For instance, out of the 225 schools in the country only 37 schools provide higher secondary education: 3 schools in Male' and 34 schools in the atolls. This is the result of historical government policy which focused initially on the attainment of universal primary education, and then the development of lower secondary schools to cater for the age group 13-15 years, while postponing the challenge of higher secondary education for policy consideration at a later date.

Source: World Bank, Expanding Access and Enhancing the Economic Benefits of Education in the Maldives: Challenges and Prospects, Discussion Paper Series, Report No. 54, May 2012.

4 Educational Resources and Teaching Conditions

4.1 Student – Teacher Ratios

Student–teacher ratios give the number of students enrolled in a school per the number of teachers working at that institution. While low student – teacher ratio is indicative of quality education, high student-teacher ratio often gives evidence about proportionately underfunded schools or school systems, or need for legislative change or more funding for education. Additionally, too many students in a class results in a diverse group of students with varying degrees of learning ability and information uptake. Consequently, the class will spend time for less academic students to assimilate the information, when that time could be better spent progressing through the curriculum. It is also argued that the lower student-teacher ratios are better at teaching students complex subjects such as mathematics, chemistry and physics than those with a higher ratio of students to teachers.

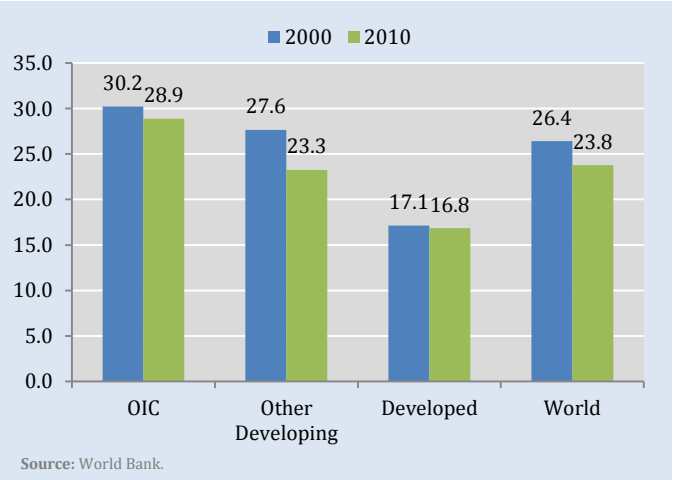
Though it is showed that students attending schools with a lower student-teacher ratio and a better educated teaching staff find jobs more easily and earn higher wages after graduation, some governments could claim that high student teacher ration have no significant negative outcomes. On the other hand, there are countries enacting legislations mandating a maximum student-teacher ratio for specific grade levels to improve quality of education.

4.1.1 Primary Schools

As the population of teachers grew faster than total enrolment (32.4% vs. 26.6%), average student-teacher ratio in OIC countries declined from 30.2 in 2000 to 28.9 students in 2010 (Figure 4.1). This was nearly twice the average number of students per teacher in developed countries (16.8) and only slightly higher than that of developing countries (23.3) and the world (23.8) in the same year.

Among the country groups examined, the most significant improvement took place in other developing countries where the average student-teacher ratio recorded at 23.3 students in 2010 compared to 27.6 in 2000. At the other end of the

Figure 4.1: Student – Teacher Ratios at Primary Schools



Source: World Bank.

spectrum, the number of students per teacher slightly decelerated to 16.8 in the developed countries in 2010 down from 17.1 in 2000.

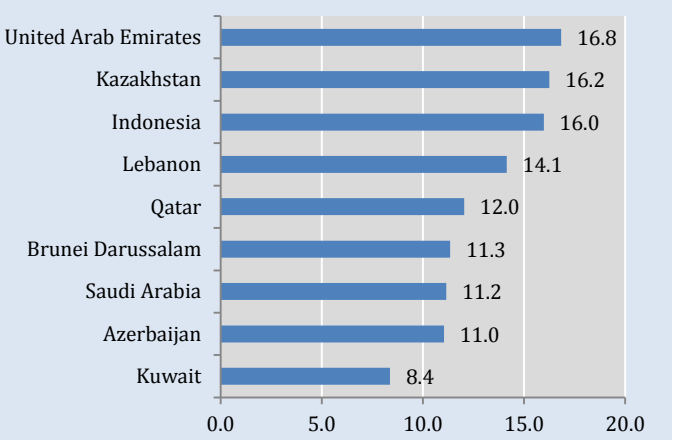
At the individual country level, Indonesia, Nigeria, Pakistan, Bangladesh and Egypt accounted for 53.1% of the total primary students of OIC in 2010 with 30.3, 20.6, 18.7, 16.9 and 10 million students, respectively. In terms of teachers, Indonesia alone constituted 30% of the OIC total by employing 1.89 million primary school teachers. Indonesia was followed by Nigeria and Pakistan with shares of 9.1% and 7.3%, respectively. In terms of student-teacher ratio, 9 OIC member countries had less than or equal to the average of developed countries, 16.8 students per teacher (Figure 4.2). Among these OIC countries, Kuwait took the lead with the lowest student teacher ratio of 8.4 in 2010, followed by Azerbaijan (11.0), Saudi Arabia (11.2), Brunei Darussalam (11.3) and Qatar (12.0).

4.1.2 Secondary Schools

Since the growth in the teacher population was greater than that of students enrolled in secondary schools (23.7% vs. 18.9%), the average number of secondary school students per teacher in the world decelerated to 19.4 in 2010 down from 20.2 in 2000 (Figure 4.3). Other developing countries have witnessed the same trend where an average of 18.9 students was taught by a single teacher in 2010 compared to 21.5 students in 2000. The OIC countries remained stagnant. On average, the student teacher ratio was 24.5 during the period under consideration. The group of developed countries was the only exception. A teacher in developed countries had been teaching on average only 16.3 pupils in 2010, whereas it was as low as 14.3 students in 2000.

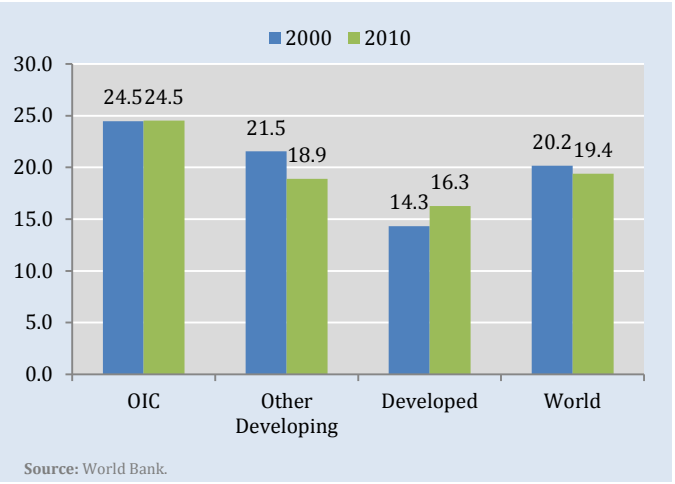
As shown in Figure 4.4, 11 OIC member countries had less than 13.5 students per teacher in 2010, the average of developed countries. Among these OIC countries, the ratio was even below 10 in Kuwait, Lebanon, Kazakhstan, Saudi Arabia and Qatar. At the other end of the spectrum, Burkina Faso, Senegal, Chad Nigeria and Mozambique were the

Figure 4.2: OIC Member Countries with the Lowest Student – Teacher Ratios in Primary Schools



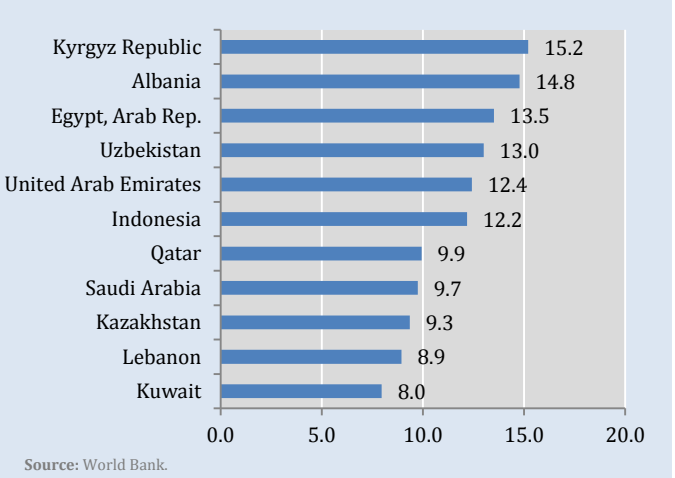
Source: World Bank.

Figure 4.3: Student – Teacher Ratios at Secondary Schools



Source: World Bank.

Figure 4.4: OIC Member Countries with the Lowest Student – Teacher Ratios in Secondary Schools



Source: World Bank.

countries having more than 30 secondary school students in a classroom.

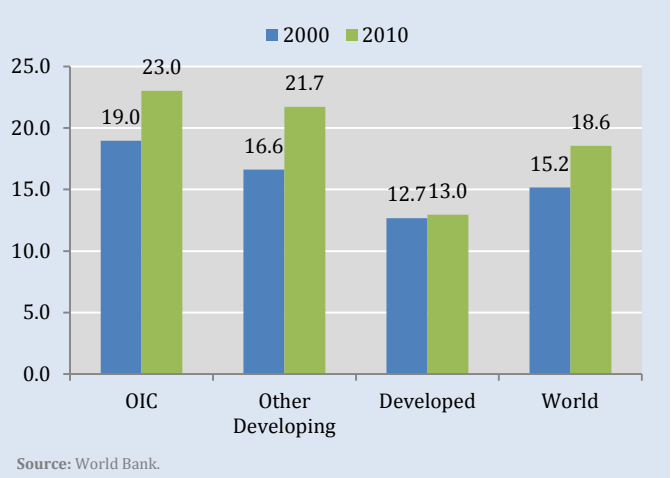
4.1.3 Tertiary Schools

As lower student-teacher ratios are generally considered to indicate the quality of education system, it is striking to observe an increasing trend for student-instructor ratios at tertiary level schools globally, though the average number of students per teacher had displayed a decreasing trend for primary and secondary schools, as depicted in Figures 4.1 and 4.3. The rise in these ratios means that the number of instructors entering the education sector is not sufficient to match the growth rate of tertiary level student number so as to enhance the quality of education by decreasing the average number of students per instructor.

Among the groups, the widest gap between growth rates of students and teachers population (85.4% for students vs. 41.9% for instructors) was recorded in the other developing countries. Consequently, the highest rise in student-instructor ratio was observed for these countries. On average, an instructor began to teach 21.7 students in 2010 while it was 16.6 in 2000, as given in Figure 4.5. Similarly, the performance of the OIC member countries was not satisfactory during the period under consideration. A teacher in the OIC member countries, on average, had been teaching 23 students in 2010, whereas it was as low as 19 in 2000. Correspondingly, in 2010, the average classroom in the world had nearly 3 more students per instructor compared to year 2000.

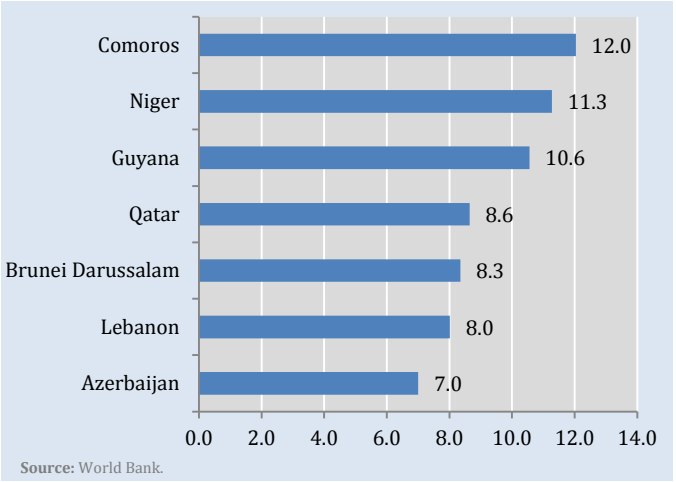
However, in terms of student-instructor ratios, OIC member countries exhibited great variations over a wide scale. On the one side, an instructor taught as high as 52 tertiary level students in Cameroon while the average classroom had 7 students per instructor in Azerbaijan. 15 member countries had lower student-instructor ratios than the OIC average of 23. Among them, Azerbaijan, Lebanon, Brunei and Qatar had the most deserted tertiary school classes with 7, 8, 8.3 and 8.6 students, respectively. On the contrary, 7 member countries shown in Figure 4.6 had student-instructor ratios less than that of the developed countries average of 13 students per teacher.

Figure 4.5: Student – Instructor Ratios at Tertiary Schools



Source: World Bank.

Figure 4.6: OIC Member Countries with the Lowest Student – Teacher Ratios in Tertiary Schools



Source: World Bank.

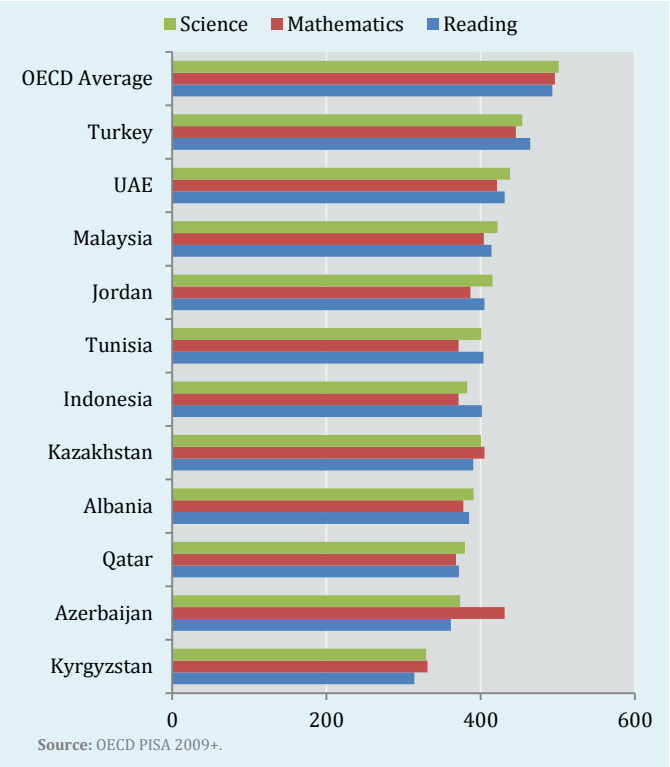
4.2 Quality of Education

The analyses in the previous sections indicate that although many countries have made impressive progress over the past decades, disparities remain between countries. Nevertheless, the progress made in access to education cannot be sustained without a parallel improvement in the quality of the education. Measuring and comparing the quality of education across the world is not an easy task. A programme pursued by OECD, known as the Programme for International Student Assessment (PISA), is one of the major attempts conducted to measure the quality of education. Though the number of OIC countries included in the programme is limited, it provides an

opportunity to compare the quality of education in these OIC countries with other developed and developing countries. PISA is an internationally standardised assessment that was jointly developed by participating economies and administered to 15-year-olds in schools (see Box 4.1 for more information).

Figure 4.7 shows the mean performance of students on mathematics, reading and science for all 11 OIC countries taking part in the PISA study of OECD. The average score of OECD countries is approximately 500 points and the standard deviation is 100 points. About two-thirds of students across OECD countries score between 400 and 600 points. The OIC member countries, except Turkey and United Arab Emirates (UAE), have average performance hardly exceeding or well below the 400 points. This is true in all three classifications of education. Turkey provides the highest quality education but it is still below the OECD average. Turkey and UAE have better performance compared

Figure 4.7: PISA Scores for OIC Countries



Source: OECD PISA 2009+.

Box 4.1: Assessing the Quality of Education: PISA

PISA is an acronym taken from the "Programme for International Student Assessment". It was officially launched in 1997, with the first survey taking place in 2000, the second in 2003, the third in 2006 and the fourth in 2009. For PISA 2009, 65 countries/economies implemented the assessment in 2009. This number reached to 74 after including additional countries/economies to this survey in 2010.

Who takes the PISA tests?

Schools in each country are randomly selected by the international contractor for participation in PISA. At these schools, the test is given to students who are between age 15 years 3 months and age 16 years 2 months at the time of the test, rather than to students in a specific year of school. This average age of 15 was chosen because at this age young people in most OECD countries are nearing the end of compulsory education. The selection of schools and students is kept as inclusive as possible, so that the sample of students comes from a broad range of backgrounds and abilities.

What does PISA test?

Every PISA survey tests reading, mathematical and scientific literacy in terms of general competencies, that is, how well students can apply the knowledge and skills they have learned at school to real-life challenges. PISA does not test how well a student has mastered a school's specific curriculum.

For more information on the PISA, see http://www.oecd.org/pisa/.

to major developing countries, including Brazil, Mexico and Thailand (Table 4.1). [6]

It is, however, worrying that among the 74 countries or economies surveyed in the study, 8 of the 15 worst performers on the overall reading scale are OIC member countries. Turkey as the best performing OIC member country occupies only 41st position. Several studies illustrate the seriousness of the learning challenge. More than 30% of Malian youths aged 15–19 years who completed six years of schooling could not read a simple sentence. In Pakistan, tests of grade 3 children found that only half could answer very basic multiplication questions (World Bank, 2011). According to the Africa Learning Barometer of the Brookings Institute, which is the first region-wide survey of learning and education covering 28 sub-Saharan African countries, 61 million children of primary school age – 1 out of every 2 kids – will reach their adolescent years unable to read, write, or perform basic numeracy tasks.

As noted earlier, it is recognized that there is a positive relationship between the quality of education and productivity. Figure 4.8 compares performance in mathematics in 2006 with average labour productivity between 2006 and 2009 for participating OIC member countries. While the impact is largely driven by Azerbaijan, there is, in general, a positive relationship between the quality of education and labour productivity in OIC

Table 4.1: Comparing countries' and economies' performance in terms of PISA scores

	Reading	Mathematics	Science
OECD Average	**493**	**496**	**501**
Korea	539	546	538
Finland	536	541	554
Singapore	526	562	542
Canada	524	527	529
Japan	520	529	539
Switzerland	501	534	517
Poland	500	495	508
Iceland	500	507	496
United States	500	487	502
Germany	497	513	520
Ireland	496	487	508
France	496	497	498
United Kingdom	494	492	514
Hungary	494	490	503
Spain	481	483	488
Turkey	**464**	**445**	**454**
Russian Federation	459	468	478
UAE	**431**	**421**	**438**
Mexico	425	419	416
Thailand	421	419	425
Malaysia	**414**	**404**	**422**
Brazil	412	386	405
Jordan	**405**	**387**	**415**
Tunisia	**404**	**371**	**401**
Indonesia	**402**	**371**	**383**
Argentina	398	388	401
Kazakhstan	**390**	**405**	**400**
Albania	**385**	**377**	**391**
Qatar	**372**	**368**	**379**
Peru	370	365	369
Azerbaijan	**362**	**431**	**373**
Kyrgyzstan	**314**	**331**	**330**

Statistically significantly above the OECD average

Not statistically significantly different from the OECD average

Statistically significantly below the OECD average

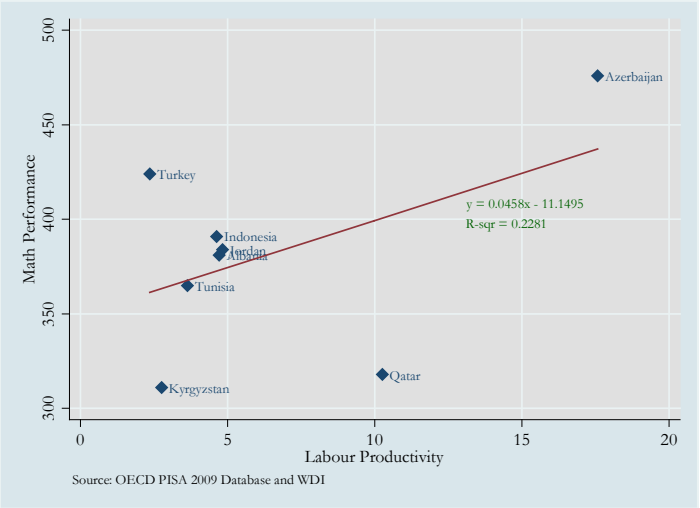
Source: OECD PISA 2009+ database.

[6] Reading literacy is defined as an individual's capacity to understand, use, reflect on and engage with written texts, in order to achieve one's goals, to develop one's knowledge and potential, and to participate in society. Mathematical literacy is defined as an individual's capacity to identify and understand the role that mathematics plays in the world, to make well-founded judgements and to use and engage with mathematics in ways that meet the needs of that individual's life as a constructive, concerned and reflective citizen. Scientific literacy is defined as an individual's scientific knowledge and use of that knowledge to identify questions, to acquire new knowledge, to explain scientific phenomena, and to draw evidence-based conclusions about science related issues, understanding of the characteristic features of science as a form of human knowledge and enquiry, awareness of how science and technology shape our material, intellectual, and cultural environments, and willingness to engage in science-related issues, and with the ideas of science, as a reflective citizen.

countries. Although this analysis is not perfect due to a number of reasons, such as small sample size and significant outliers, it helps to make inference on the importance of the quality of education. It is crucial that for higher productivity and better economic performance, the quality of education must be improved.

According to the available data and information, it is therefore fair to argue that the successful improvements in accession to education in many member countries obviously could not be accompanied with similar improvements in the quality of education, which plays significantly greater role in increasing the absorptive capacity. When measuring the quality of education in terms of its outcomes, the quantity of patent applications may be considered as a proxy for the degree of innovative capability in a country. As a product of research and development activities, patents strengthen the link between education and science and technology.

Figure 4.8: Quality of Education and Labour Productivity

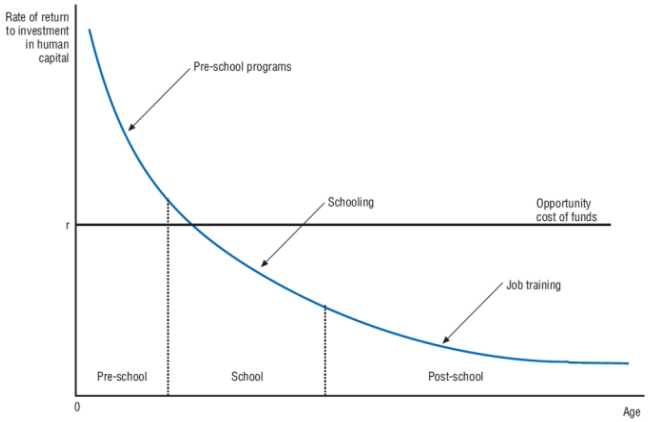


Source: OECD PISA 2009 Database and WDI

According to statistics from the World Intellectual Property Organization (WIPO), the total number of patent applications around the world in 2010 is estimated to have been 1.98 million, and only about 1.7% of them were filed in OIC member countries –

Box 4.2: Rates of Return for Investment in Human Capital

Human capital starts developing long before children go to school, as they constantly acquire skills and develop new ideas about themselves and outside world. Human capital formation can be regarded as a dynamic process that is on-going throughout a lifetime. A basic principle is that learning in one life stage precipitates learning in the next. Therefore, investment in the early stages of childhood increases the productivity of the next stages (Cunha et al., 2006). In other words, access to quality early childhood care and education significantly proves learning outcomes in later years. What is more, the rate of return to a dollar of investment made while a person is young is higher than the rate of return to the same dollar invested at a later age.



Source: Cunha et al. (2005), *Interpreting the Evidence on Life Cycle Skill Formation.*

Nobel laureate James Heckman, with his co-authors, suggests that the early childhood period provides a unique opportunity for investment in human capital as investing in learning in early childhood brings higher returns than at any other time in life. Why? Learning at early ages makes it easier to go on learning throughout life, which increases human capital and, thus, earning.

for which data are available. USA, Japan, China, and Republic of Korea accounted for about 73.5% of the total patent applications in the world (see section 7.3 for more discussion on patent applications).

In this perspective, it is evident that investments in human capital are not sufficient to translate the capacities into more innovative structure to generate higher patent applications, casting doubt on the quality of education in OIC countries. Gains in access should turn attentions to the challenge of improving the quality of education and accelerating learning. OIC member countries should focus on improving the infrastructure and thus the potential outcomes related to the provision of education services in order to engender a faster catch-up process.

4.3 Libraries

Libraries are generally discussed in five categories which are called as *academic, national, public, school and special*. According to the latest data available, there are totally 252,224 registered libraries in the OIC countries. This corresponds to 20.4% of total number of libraries in the developing countries and to 16.3% of that of the world. While these figures are not necessarily bad, when it comes to total number of volumes in these libraries, OIC countries lag far behind the levels of both other developing countries and developed countries. Total number of volumes in OIC countries amounted to slightly over half a billion, corresponding to only 10.2% of that of developing countries and to only 3.7% of that of the world (Table 4.2).

This subsection provides a detailed account of the five different types of libraries in OIC countries and compares the major figures with other developing countries and the world. In addition, internet accessibility in libraries is analysed at the end of the subsection. It should be noted that the analyses have been made by using the most recent data provided by Online Compute Library Center (OCLC) but the most recent data retrieved from OCLC may be quite old for some countries, in some cases even going back to 1980's.

4.3.1 Academic Libraries

A total of 42,337 academic libraries around the world hold 5,827 million volumes, corresponding to 36.5% of total volumes held in all libraries. While the shares of OIC countries in total academic libraries both in developing countries and in the

Table 4.2: Total Number of Libraries

	Academic	as % of Total	National	as % of Total	Public	as % of Total	School	as % of Total	Special	as % of Total	Total
OIC	6,172	2.4	49	0.02	22,973	9.1	219,183	86.9	3,847	1.5	252,224
Non-OIC Developing	25,139	2.6	97	0.01	213,652	21.8	730,850	74.5	11,912	1.2	981,650
Developing	31,311	2.5	146	0.01	236,625	19.2	950,033	77.0	15,759	1.3	1,233,874
Developed	11,026	3.5	43	0.01	58,947	18.8	219,802	70.0	24,102	7.7	313,920
WORLD	42,337	2.7	189	0.01	295,572	19.1	1,169,835	75.6	39,861	2.6	1,547,794
OIC as % of Developing	19.71	...	33.56	...	9.71	...	23.07	...	24.41	...	20.44
OIC as % of World	14.58	...	25.93	...	7.77	...	18.74	...	9.65	...	16.30
Total Number of Volumes (million)											
	Academic	as % of Total	National	as % of Total	Public	as % of Total	School	as % of Total	Special	as % of Total	Total
OIC	114	19.4	46	7.8	103	17.5	232	39.3	95	16.1	589
Non-OIC Developing	1,182	22.8	240	4.6	1,223	23.5	1,727	33.3	821	15.8	5,194
Developing	1,296	22.4	286	5.0	1,326	22.9	1,959	33.9	916	15.8	5,783
Developed	4,531	44.5	313	3.1	2,090	20.5	1,224	12.0	2,025	19.9	10,183
WORLD	5,827	36.5	599	3.8	3,416	21.4	3,182	19.9	2,941	18.4	15,965
OIC as % of Developing	8.80	...	16.01	...	7.76	...	11.82	...	10.35	...	10.19
OIC as % of World	1.96	...	7.65	...	3.01	...	7.28	...	3.22	...	3.69

Source: Online Computer Library Center (OCLC)

world are relatively satisfactory (19.7% and 14.6%, respectively), total number of volumes in the academic libraries of OIC countries remains rather low and accounts for only 8.8% of total number of volumes in academic libraries in the developing countries and merely 2% of that in the world (Figure 4.9, top).

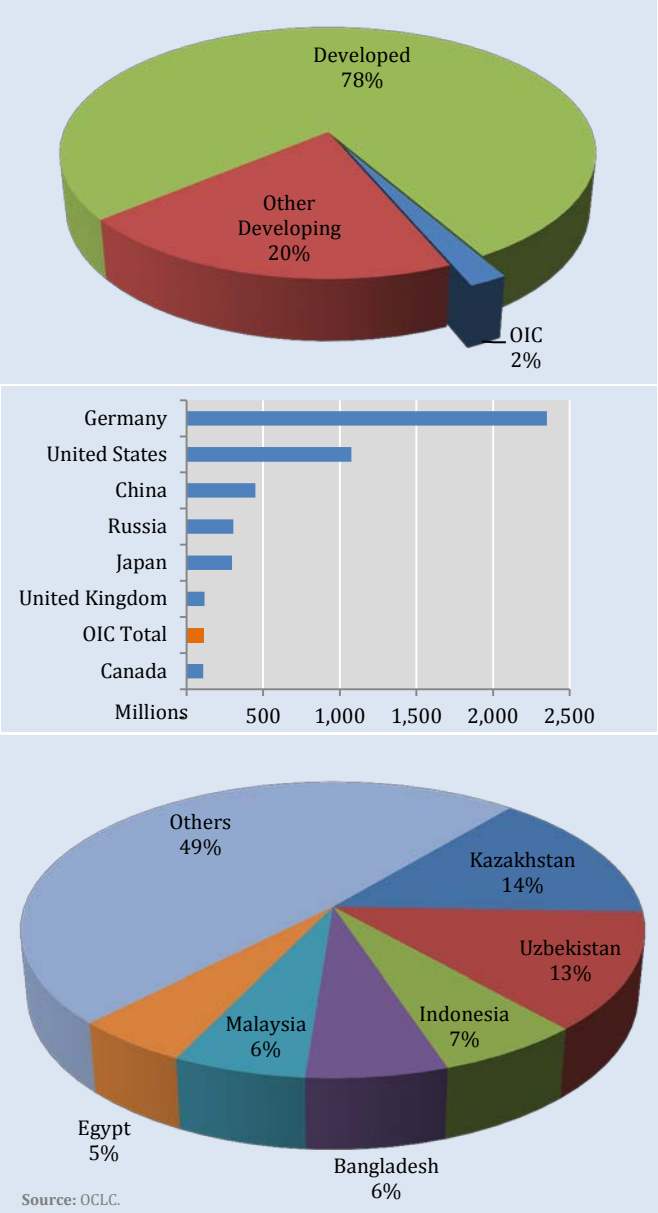
Having more libraries is not a sufficient indicator in comparing the OIC with other countries or country groups. With respect to the volumes hold in academic libraries, OIC countries, together, hold around 114 million volumes in their academic libraries. However, with 2.4 billion volumes in its academic libraries, Germany holds more than 20 times more volumes in its academic libraries than total volumes of all OIC countries. Similarly, United States, with 1.1 billion volumes, has almost 10 times more items in its libraries than in the libraries of all OIC countries (Figure 4.9, middle). This will naturally have implications on the quality of education and research at higher level institutions and universities.

At the individual country level, Indonesia, with 2,428 academic libraries, possesses the largest amount of libraries within the OIC (5th out of 184 in the world). It is followed by Pakistan with 955 libraries (10th out of 184 in the world). While there are 8 OIC countries having more than 100 academic libraries, 19 OIC countries have less than 10 academic libraries.

With respect to the total number of volumes held in the academic libraries of individual OIC countries, Kazakhstan has the largest volume with 16.5 million volumes, corresponding to 14.4% of total number of books held in all academic libraries in OIC countries. Top 6 OIC countries account for more than half of the total number of books held in academic libraries in the OIC countries (Figure 4.9, bottom). 37 OIC countries whose individual shares in total volumes are below 1% collectively account for 11.5% of total number of books held in the academic libraries in the OIC countries.

With respect to volumes per academic library, although Indonesia stands out with its total number of academic libraries, it is among the OIC countries

Figure 4.9: Total Number of Volumes in Academic Libraries



with lowest volumes per academic library and, holding 3,046 volumes per academic library, ranks 50th in the OIC countries and 193rd in the world. Azerbaijan holds 429,675 volumes per academic library, by this it ranks first in the OIC countries and 17th in the world. On the other hand, there are 10 OIC countries among top 50 countries with respect to volumes per academic library in the world, as depicted in Figure 4.10.

4.3.2 National Libraries

There are 189 national libraries around the world, with 163 countries having one national library and 11 countries[7] having more than one. Altogether, these libraries hold 600 million volumes. The group of OIC countries, with 49 national libraries, hold 45.8 million volumes, corresponding to 33.6% of total number of national libraries and 16% of total number of volumes in the developing countries and 25.9% and 7.7% of that of the world, respectively. Ranked by total number of volumes held in national libraries, total amount in the OIC countries is slightly higher than some of individual countries such as Russia which holds 39 million volumes per its national library (but 78 million volumes in its 2 national libraries). United States, with 75.2 million volumes in its 4 national libraries, and Germany 46.7 million in its 3 national libraries are the other two countries possessing the largest volumes in their national libraries (Figure 4.11).

At the individual country level, Kazakhstan possesses the highest number of volumes in its national library with 6 million volumes, corresponding to 13.1% of total number of volumes held in national libraries in the OIC countries. Top 6 OIC countries with highest number of volumes account for 59.3% of the total amount of volumes in national libraries in the OIC region. Total numbers of volumes reach over 1 million in only 14 OIC countries. On the other hand, in 16 OIC countries, national libraries hold volumes below 100,000. 28 out of 47 OIC countries with available data, whose shares in the OIC total are below 1%, collectively account only for 7.4% of total number of volumes held in national libraries in the OIC countries.

4.3.3 Public Libraries

In OIC countries, there are 22,973 public libraries, corresponding to 9.7% of total number of public libraries in the developing countries and to 7.8% of that of the world. Those libraries collectively hold 103 million volumes, which constitute 7.8% of total

[7] USA (4), Germany (3), UK (3), Russia (2), France (2), Italy (2), Canada (2), Bulgaria (2), Serbia (2), Egypt (2), Bosnia and Herzigovnia (2).

Figure 4.10: Volumes per Academic Library: Countries with Highest and Lowest Volumes

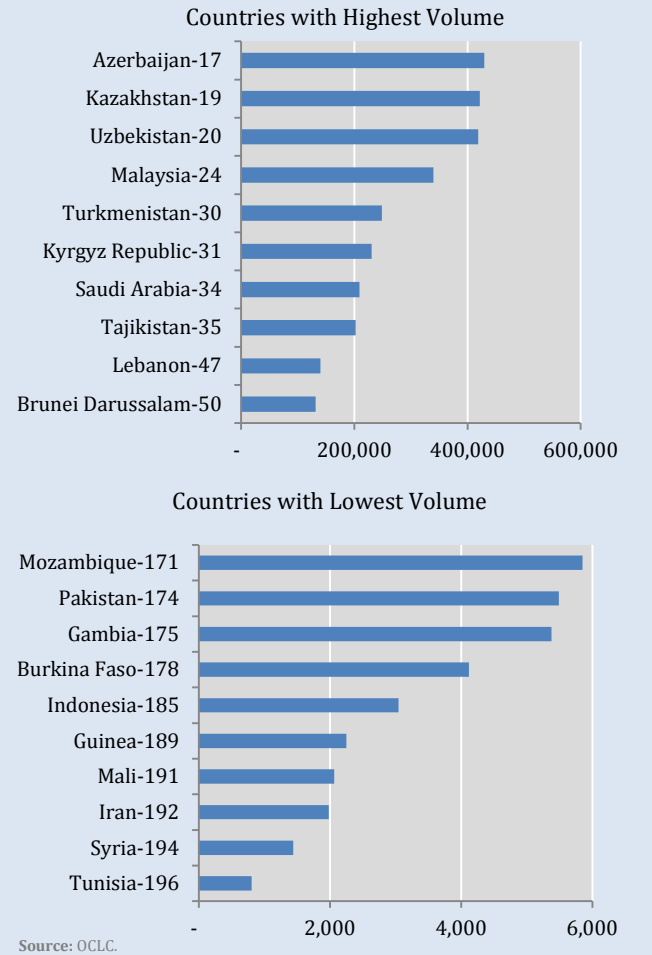
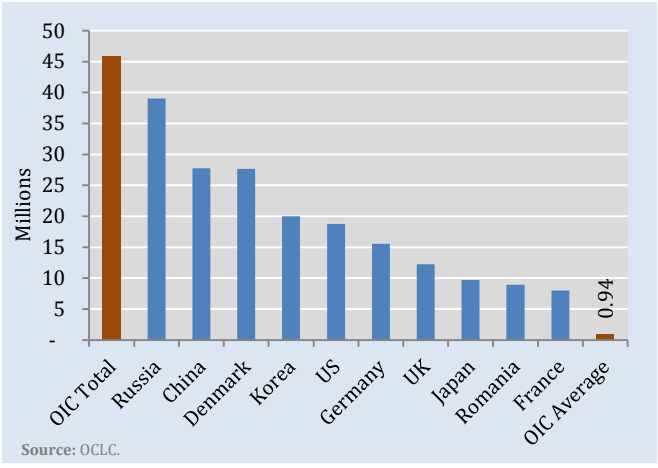


Figure 4.11: Total Number of Volumes in National Libraries

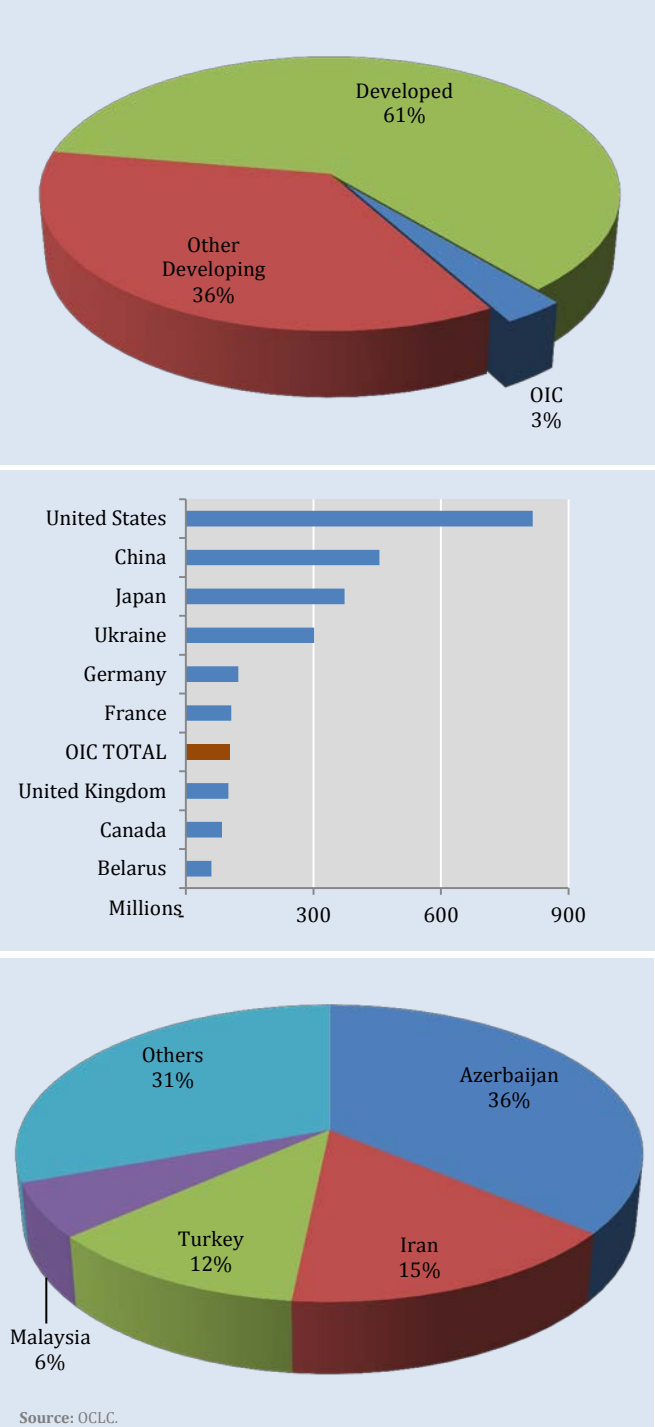


number of volumes held in public libraries in developing countries and 3% of that of the world (Figure 4.12, top).

OIC countries, together, with 103 million volumes in its 22,973 public libraries, lag behind even some individual countries, such as United States which ranks at first in the world with its 816 million volumes in its 9,225 public libraries followed by China with 456 million volumes in its 51,311 public libraries (Figure 4.12, middle).

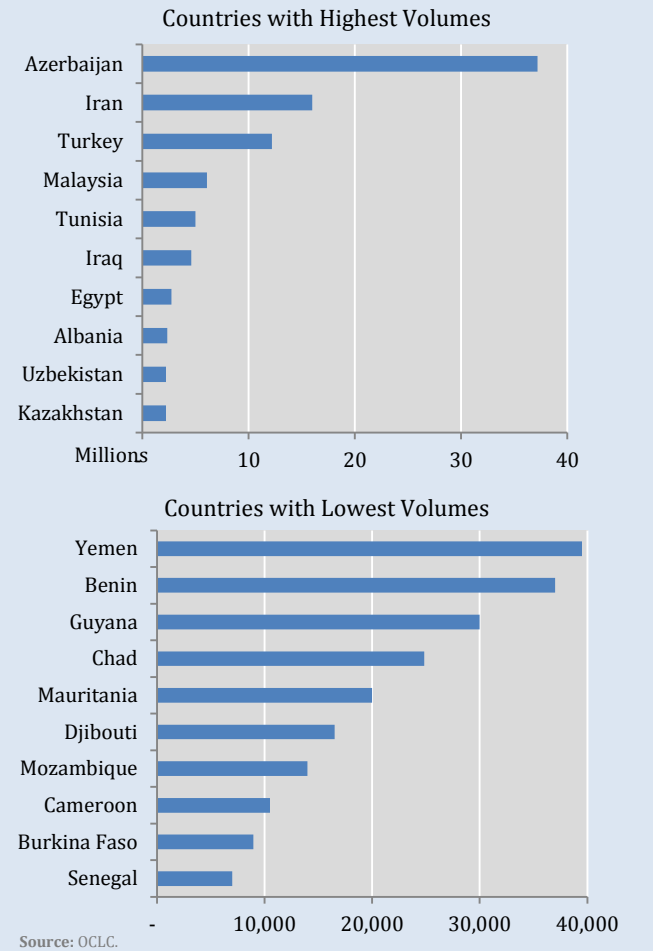
Ranked by volumes in public libraries, top 4 OIC countries account for 69.4% of total volumes in public libraries in the OIC countries (Figure 4.12, bottom). Volumes held in public libraries reach over one million in 14 OIC countries whereas the amount is below 100,000 in 20 OIC countries. Azerbaijan comes first with its 37.2 million volumes, corresponding to 36% of total amount in the OIC countries. By this much of volumes, Azerbaijan ranks at 16 in the world. There are two more countries in the OIC region which rank in the first 50 countries in the world, namely Iran with 16 million volumes (32nd) and Turkey with 12 million

Figure 4.12: Total Number of Volumes in Public Libraries



Source: OCLC.

Figure 4.13: Total Volumes in Public Libraries: Countries with Highest and Lowest Volumes



Source: OCLC.

volumes (38th) (Figure 4.13).

In contrast, 36 OIC countries, whose individual shares in OIC total public libraries are below 1%, collectively account for 6.7% of total volumes in the OIC countries.

4.3.4 School Libraries

Three-fourth of the libraries around the world are categorized as school libraries and the percentage in the OIC countries reaches 86.9%, which is higher than that of both other developing countries (74.5%) and developed countries (70%). Taking into account the total number of volumes held in school libraries, it is observed that the amount in the OIC countries accounts only for 11.8% of total number of volumes held in school libraries in developing countries and for only 7.3% of that of the world (Figure 4.14, top).

232 million out of 589 million volumes held in all types of libraries (or 39%) are held in the school libraries in the OIC countries, doubling the world level of 19.9%. However, taking into account the share of OIC countries in total number of students enrolled (25.9%) and in total number of volumes in the world (7.3%) together, it is observed that number of books available in the school libraries per student stands considerably low in the OIC countries.

OIC countries with 232 million volumes lag far behind some of individual countries such as Russia (which alone holds 1,181 million volumes in its school libraries) and Japan (holds 400 million volumes).

According to latest data available, Turkey alone accounts for 60.2% of total number of volumes in school libraries in the OIC countries. Top 4 OIC countries account for 84.1% of total amount in all OIC countries. 30 OIC countries, whose individual shares in OIC total are below 1%, collectively correspond to 4.1% of total amount.

Figure 4.14: Total Number of Volumes in School Libraries

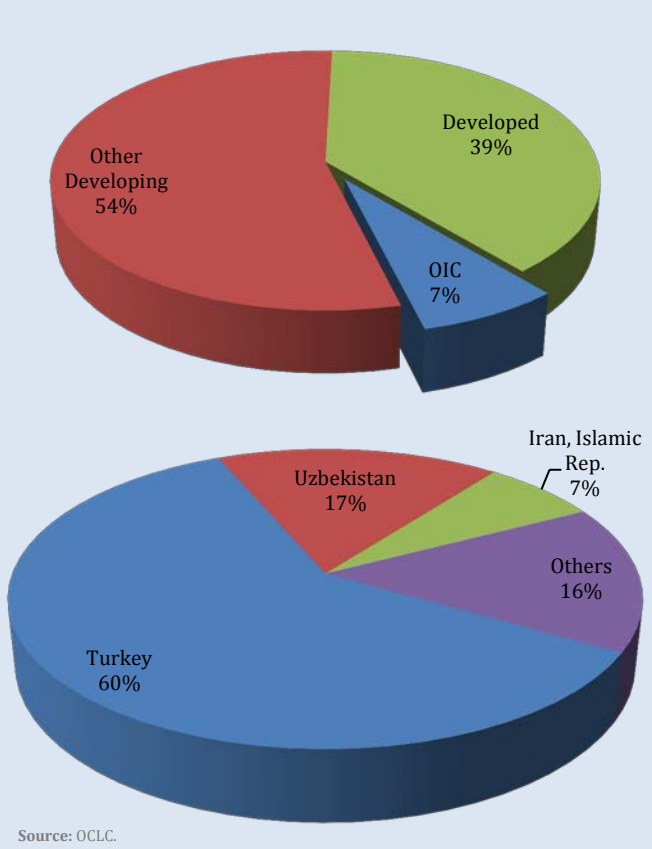
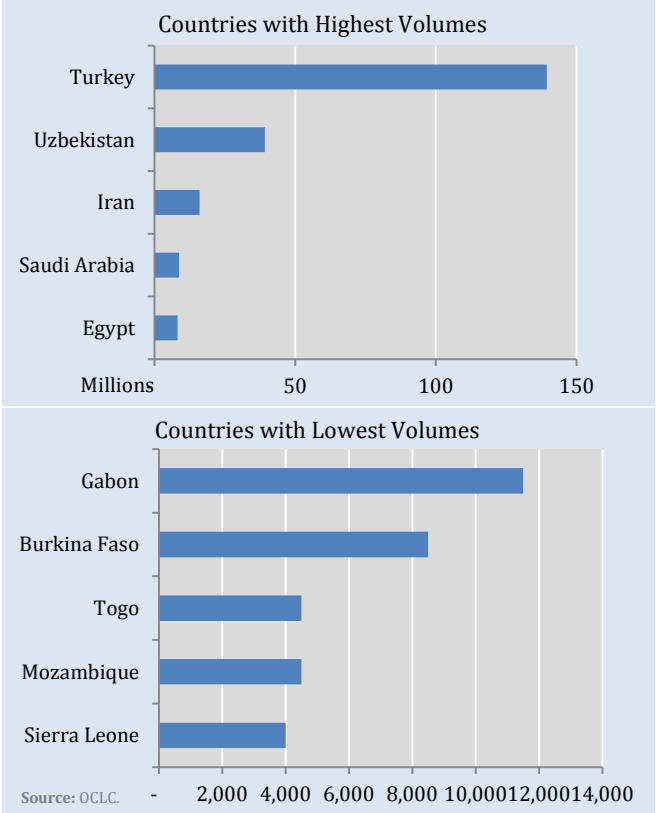


Figure 4.15: Total Volumes in School Libraries: Countries with Highest and Lowest Volumes



Ranked by volumes held in school libraries, 7 OIC countries are ranked among the top 50 countries in the world. Turkey with 139 million volumes is ranked at 5th in the world. In contrast, ranks of 5 countries with lowest volumes range from 135 (Gabon) to 145 (Sierra Leone) out of 146 countries with available data in the world (Figure 4.15, bottom).

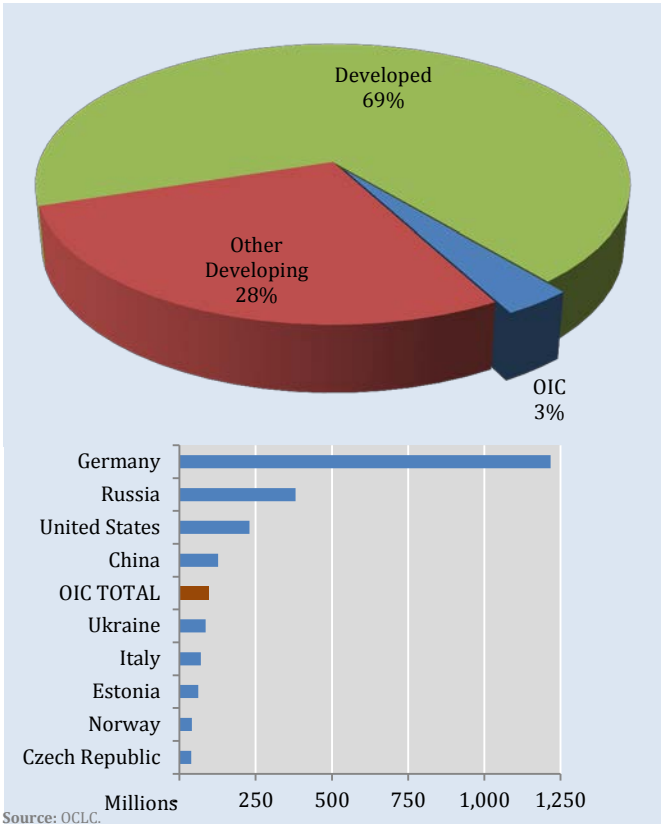
4.3.5 Special Libraries

Special library is a privately owned library that forms a unit of a business firm or other organization, specializes in books and other material of special interest to the organization of which it is a part, and usually serves only the staff or members of this organization. Although the share of special libraries in total number of libraries is very small, compared to other kinds of libraries, share of total amount of volumes held in them is very considerable around the world. Special libraries account for 2.6% of total number of libraries whereas they hold 18.4% of total amount of volumes in the world. These ratios for the OIC countries are 1.5% and 16.1%, respectively.

The OIC countries collectively hold 94.7 million volumes in their 3,847 special libraries, corresponding to 24.4% of total number of libraries and to 9.7% of total number of volumes in developing countries and 10.4% and 3.2% of those of the world, respectively (Figure 4.16, top). As in the case of other kinds of libraries, the OIC countries as a group lag behind even some of individual countries, such as Germany which alone collect 1.2 billion volumes in its 1,902 special libraries and Russia with 380 million volumes in its 1,372 special libraries (Figure 4.16, bottom).

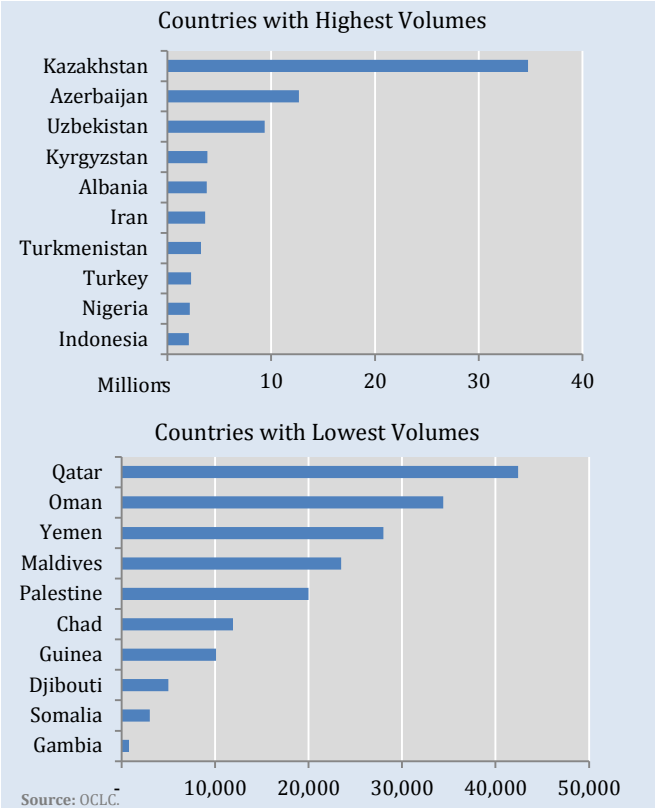
At the individual OIC country level, Indonesia stands out with its total number of special libraries reaching 1,600, followed by Pakistan with 750. However, considering total number of volumes held in special libraries, ranking list totally changes. Kazakhstan occupies the first rank in the OIC and

Figure 4.16: Total Number of Volumes in Special Libraries



Source: OCLC.

Figure 4.17: Total Volumes in Special Libraries: Countries with Highest and Lowest Volumes



Source: OCLC.

Table 4.3: Internet Accessibility in the Libraries

	Public Libraries		University Libraries		School Libraries		Government Funded Research Libraries	
	# of libraries	Internet Accessibility %	# of libraries	Internet Accessibility %	# of libraries	Internet Accessibility %	# of libraries	Internet Accessibility %
OIC	14,683	[39.2, 59.2]	4,556	[45.8, 65.7]	167,916	[29.5, 49.5]	3,483	[52.3, 72.1]
Other Developing	198,528	[25.5, 45.5]	17,278	[77.9, 97.9]	490,330	[53.3, 73]	3,630	[71.1, 91.1]
Developed	67,792	[74.8, 94.8]	10,070	[80, 100]	220,049	[67.7, 87.7]	4,387	[79.8, 99.8]
WORLD	281,003	[38.1, 58.1]	31,904	[74, 94]	878,295	[48.9, 68.7]	11,500	[67.6, 87.5]

Source: IFLA World Report 2010

tenth in the world ranking with 35 million volumes, corresponding to 36.7% of total amount in the OIC countries (Figure 4.17). Ranked by volumes in the special libraries, 7 OIC countries are ranked in the first 50 countries in the world. Ranks range from 10th (Kazakhstan with 35 million) to 48th (Turkmenistan with 3.2 million). In contrast, ranks of countries depicted in Figure 4.19 (bottom) range from 160th (Qatar with 42,400 volumes) to 197th (Gambia with 800 volumes) out of 199 countries with available data in the world.

4.3.6 Internet Accessibility in the Libraries

The data on internet accessibility in libraries are provided by IFLA World Report only in quintiles, (that is 0-20%, 20-40% etc.) According to Figure 4.20 and Table 4.3, out of 14,683 public libraries[8] registered in the OIC countries, on average, 39.2% to 59.2% of them offer internet access to their users. The percentage in the OIC countries stands considerably higher than other developing countries (25.5% to 45.5%) whereas slightly higher than the level of the world (38.1% to 58.1%).

In contrast, in other three types of the libraries categorized by IFLA, internet accessibility in the OIC countries is lower than the levels of other developing countries, developed countries and even the world average. 45.8 - 65.7% of total number of university libraries in the OIC countries offer internet access to their users. In contrast, regarding internet accessibility at the upper margin, it is observed that almost all university libraries offer internet access to their users both in developed and other developing countries.

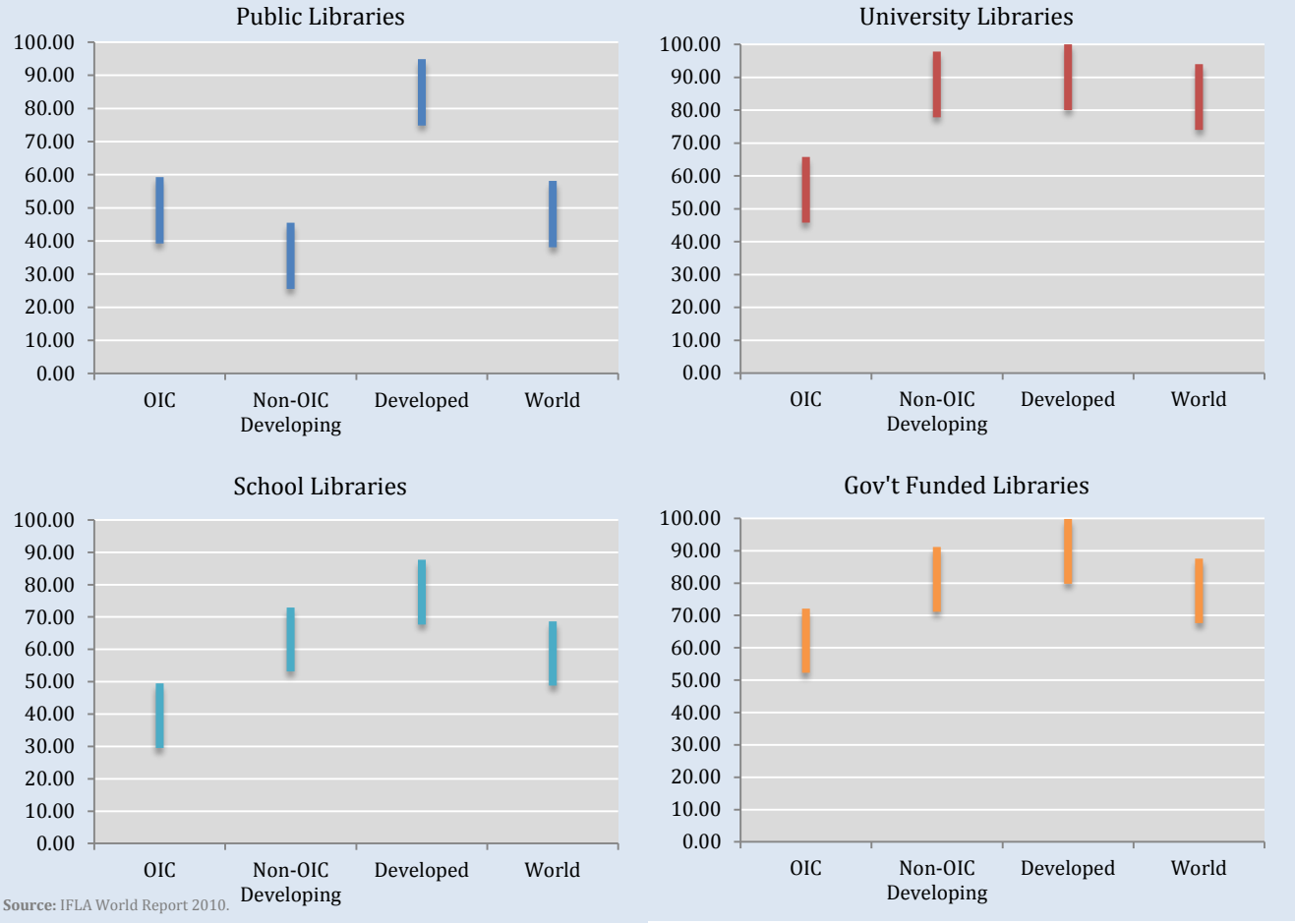
As for school libraries, it is estimated that bulk of the school libraries in the OIC countries do not offer internet access to teachers and/or pupils. OIC countries collectively lag behind other country groups with its low level of internet facilities. According to Table 4.3, around 30% to 50% of total number of school libraries in the OIC countries has internet facilities. In contrast, at the bottom margin, at least half of total number of school libraries in other developing countries have internet facilities, and so offer internet access to their users.

Regarding internet accessibility in the government funded research libraries, it is observed that OIC countries collectively fall behind other country groups and world average with accessibility percentage of 52.3 - 72.1%, compared to [71.1 - 91.1] in other developing countries, [79.8 - 99.8] in developed countries and [67.6 - 87.5] in the world.

In brief it can be argued that, as in the case of the unsatisfactory number of volumes held in the libraries in the OIC countries, internet accessibility in the libraries is considerably low, compared to other country groups.

[8] IFLA World Report (2010) covers 122 countries around the world. Out of that amount 35 countries are OIC members. However, OCLC data set covers 221 countries around the world. 57 OIC member countries are included in the data set. So inconsistency between total numbers of libraries in country groups is possible accordingly.

Figure 4.18: Internet Accessibilities in the Libraries (Average Range)



Source: IFLA World Report 2010.

Although the number of libraries in the OIC countries in many categories is relatively satisfactory, the number of volumes held in these libraries is fairly low. This naturally affects the quality of education in the member countries. Therefore, special efforts should be made to increase the number of books and other items in the libraries provided for the benefits of people, students and researchers to improve the information dissemination and research facilities.

5 Government Expenditures on Education

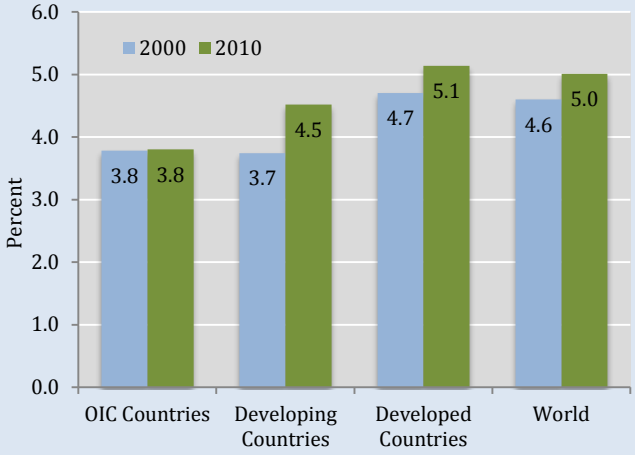
The outcome of the research placing utmost importance to education for economic growth and equality as well as the need for public intervention in education has implications for not only the provision but also the financing of education by the states. In this respect, this section analyses the levels of government expenditures on education in the group of OIC countries in comparison with their counterparts in other groups in the period 2000-2010.

5.1 Share of Government Expenditures on Education in GDP

One way to analyse the size of public expenditures on education is to compare these expenditures with the gross domestic product (GDP) of an economy, which, in one way, represents the total expenditures in that economy. Thus, it can be calculated how much of the GDP is dedicated to education sector by the government. The measure used to calculate this ratio is "government expenditures on education as percentage of GDP". This indicator also reflects the importance given by the government to investment in human resources.

As shown in Figure 5.1, governments around the world spent, on average, 4.6% of GDP on education in 2000 while this figure slightly increased by 0.4 percentage point in a decade to reach 5.0% in 2010. Developed countries had been spending more than developing countries. Public spending on education

Figure 5.1: Government Expenditures on Education as Percentage of GDP*



Source: SESRIC staff calculation, World Bank, WDI Database.

* Data for 2000 is the latest year available between 1999 and 2000 and data for 2010 is the latest year available between 2008 and 2010.

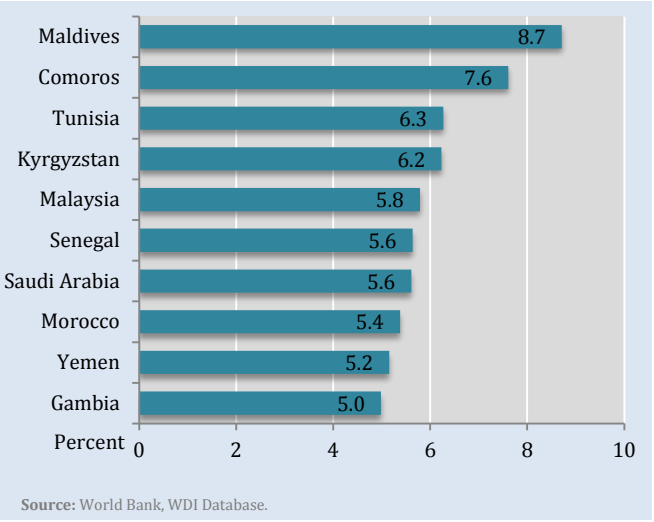
in developed countries accounted for 4.7% of the GDP in 2000 and this ratio increased further to 5.1% by 2010. However, governments in developing countries could spend only 3.7% of their GDP on the education sector in 2000 and this ratio increased by 0.8 percentage points in a decade to reach 4.5% in 2010.

The situation in OIC countries was not optimistic though government spending on education accounted for 3.8% of their GDP in 2000, which was higher than the average of the developing countries at that time, remained stable at 3.8% in

2010 as well. It is obvious that the public spending on education sector with respect to the size of the economy was, on average, lower in OIC countries than in both developed and developing countries (Figure 5.1).

At the individual country level, government spending on education accounted for 8.7% of the GDP in Maldives, which was the highest rate among the OIC countries with data available for the latest year between 2008 and 2010. Together with Maldives, Comoros (7.6%), Tunisia (6.3%), Kyrgyzstan (6.2%), Malaysia (5.8%), Senegal (5.6%), Saudi Arabia (5.6%), Morocco (5.4%), Yemen (5.2%) and Gambia (5.0%) comprised the top 10 OIC countries by government expenditures on education as percentage of GDP (Figure 5.2). It is noteworthy that all these countries except Malaysia and Saudi Arabia are low-income or lower-middle-income countries according to their GNI per capita.

Figure 5.2: Top 10 OIC Countries by Government Expenditures on Education as Percentage of GDP*



Source: World Bank, WDI Database.

* Data for the latest year available between 2008 and 2010.

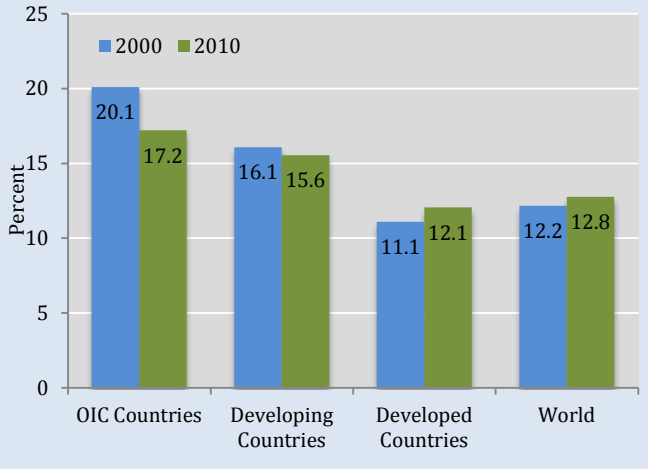
5.2 Share of Government Expenditures on Education in Total Government Expenditures

The share of a government's spending on education in its total expenditures is another major indicator that measures the relative importance of the education sector on part of the government. The higher the share of education expenditures in total government expenditures, the higher is the government's support for the education sector.

The share of government expenditures on education in total government expenditures was higher in OIC member countries than in both developed and developing countries in the period under consideration (Figure 5.3). This implies that the governments in OIC member countries, on average, have spent on the education sector proportionally more than the governments in both developed and developing countries have done. In OIC member countries, governments' spending on the education sector accounted for 20.1% of their total expenditures in 2000. This ratio was 11.1% in developed countries and 16.1% in developing countries, with the world average being 12.2%. By 2010, the ratio decreased to 17.2% in OIC member countries and 15.6% in developing countries while it increased to 12.1% in developed countries, leading to an increase in the world average to 12.8%

Among the OIC member countries with available data, Morocco has the highest ratio of government expenditures on education as percentage of total government expenditures (25.7%). It was followed by Kyrgyzstan (24.7%) and Cote d'Ivoire (24.6%), all dedicating about one fourth of the total

Figure 5.3: Government Expenditures on Education as Percentage of Total Government Expenditures*



Source: SESRIC staff calculation, World Bank, WDI Database.

* Data for 2000 is the latest year available between 1999 and 2000 and data for 2010 is the latest year available between 2008 and 2010.

government expenditures to the education sector. Together with these countries, Senegal (24.0%), United Arab Emirates (23.4%), Gambia (22.8%), Tunisia (22.7%), Mali (22.0%) and Burkina Faso (20.8%) were also among the top 10 countries (Figure 5.4).

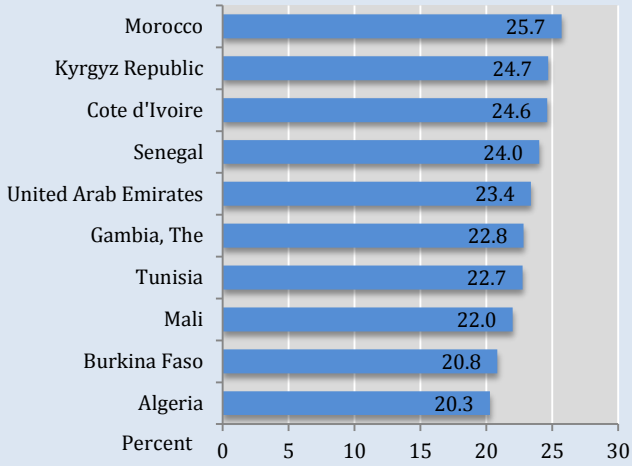
5.3 Government Expenditures on Education per Pupil

In addition to the abovementioned macro-level indicators that compares government expenditures on education with GDP or total government expenditures, governments' financial contribution to education sector can also be explained at micro-level by measuring how much is spent by the government per student. Unlike the former ones, this approach focuses directly on the level of government spending on education regardless of the size of the economy or the total expenditures of the government.

Government expenditures on education per pupil increased all over the world between 2000 and 2010 (Figure 5.5). In this period, the world average increased from $2,127 to $3,468, corresponding to an annual average growth rate of 5.0%. The average for developed countries, with an annual average increase of 2.6%, increased from $8,831 to $11,432. The average for developing countries increased from $332 to $905, corresponding to an annual average growth rate of 10.6%. Consequently, as of 2010, governments' spending per pupil in developed countries was 12.6 times that in the developing countries. As for OIC countries, the average spending per pupil increased from $371 to $550, registering an annual average growth rate of 4.0%.

Among the OIC countries with available data, Qatar has the highest government expenditure on education per pupil ($16,210), followed by United Arab Emirates ($4,050), and Saudi Arabia ($3,678). Together with these countries, Bahrain ($3,105), Brunei ($2,565), Malaysia ($1,706), Algeria ($1,664), Turkey (1,614), Morocco ($1,239) and Tunisia ($1,088) are also among the top 10 countries (Figure 5.6).

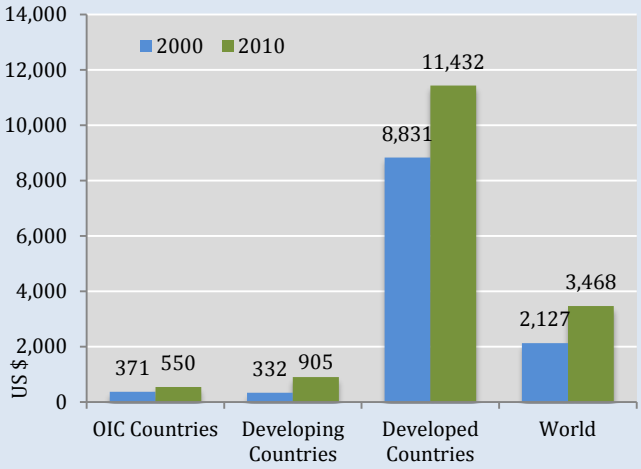
Figure 5.4: Top 10 OIC Countries by Government Expenditures on Education as Percentage of Total Government Expenditures*



Source: World Bank, WDI Database.

* Data for the latest year available between 2008 and 2010.

Figure 5.5: Government Expenditures on Education per Pupil*

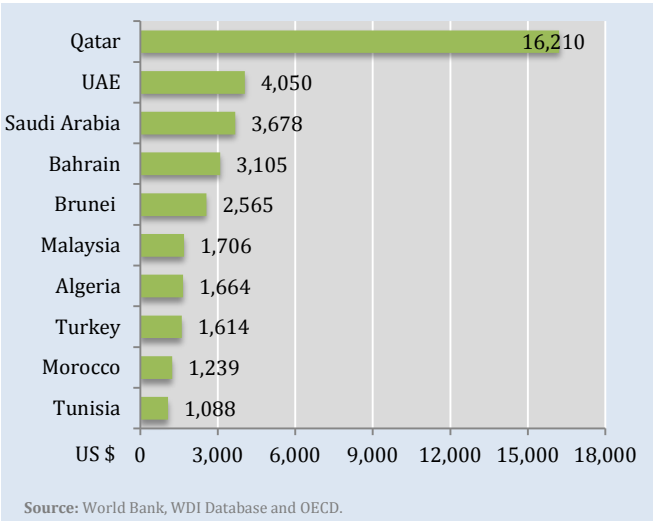


Source: SESRIC staff calculation, World Bank, WDI Database.

* Data for 2000 is the latest year available between 1999 and 2000 and data for 2010 is the latest year available between 2008 and 2010.

Analysing the government expenditures on education per pupil in nominal terms may be misleading when comparing countries of widely different levels of income. The differences in purchasing power parities among countries are also problematic to such an analysis. To eliminate such problems to some extent and ensure more comparable data among countries, the nominal value of government expenditures on education per pupil

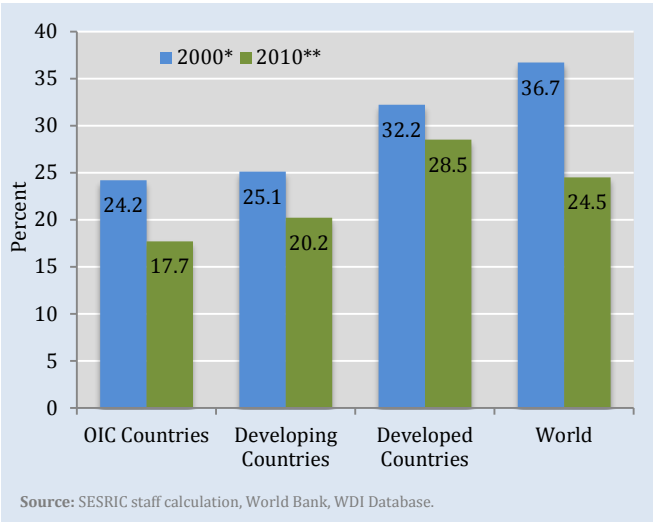
Figure 5.6: Top 10 OIC Countries by Government Expenditures on Education per Pupil (US $)*



Source: World Bank, WDI Database and OECD.

* Data for the latest year available between 2008 and 2010.

Figure 5.7: Government Expenditures on Education per Pupil as Percentage of GDP per Capita*



Source: SESRIC staff calculation, World Bank, WDI Database.

* Data for 2000 is the latest year available between 1999 and 2000 and data for 2010 is the latest year available between 2008 and 2010.

is expressed as a percentage of GDP per capita, whereby it becomes more reasonable to make comparison between countries as governments' spending are measured with respect to the income level of countries.

World average government expenditures on education per pupil as percentage of GDP per capita decreased from 36.7% in 2000 to 24.5% in 2010 (Figure 5.7). The ratio for developed countries decreased from 32.2% to 28.5% in this period while the ratio for developing countries decreased from 25.1% to 20.2%. The ratio for OIC countries was not better than that for developing countries. It decreased from 24.2% in 2000 to only 17.7% in 2010, remaining below the averages for developing and developed countries.

6 Education and Socio-economic Development

Better educated people are more likely to have better standards of living and better prospects of employability and earnings. Educated people also enjoys various non-monetary benefits including better health, fertility and less potential to engage in criminal acts. In addition to external impact at individual level, other externalities at public level are most likely to emerge. In an attempt to analyse the importance of education for socio-economic development, this section briefly investigates the linkages between some indicators of human and social development with changes in schooling and productivity.

The Human Assets Index (HAI) is one of the three dimensions of development used by the United Nations (UN) in identifying the least developed countries and it provides information on the level of development of human capital. Accordingly, it focuses on achievements in health and education as an indication of the capacity that countries have to take advantage of opportunities for development. The HAI is a combination of four indicators, two of which being on the level of health and nutrition and other two on the level of education:

a) The percentage of population that is undernourished;
b) The rate of mortality for children aged five years and under;
c) The gross secondary school enrolment ratio;
d) The adult literacy rate.

Due to in-depth discussion of schooling ratios and literacy rates in the previous sections, other remaining two indicators will be scrutinized in this section. In addition to these indicators, average life expectancy and fertility ratio will be analysed as other indicators on the social dimension of educational activities.

6.1 Malnutrition and Cognitive Abilities

While better education improves the health conditions, nutritional intake and better health conditions, in turn, affect the educational outcomes. Malnutrition leads to a poor health status with increasing probability of diseases. Lack of crucial nutritional intake especially at early ages irreversibly affects brain development and learning capabilities.

Figure 6.1 shows that there is a negative correlation between prevalence of undernourishment and average rate of schooling. In other words, countries with higher average schooling have lower incidents of malnutrition. As prevalence of undernourishment is one of the major indicators of poverty, the figure also implies that school attendance is lower in countries where poverty rates are higher. Therefore, despite the time gap between the two indicators due to data availability constraints, it is fair to argue that malnutrition and poverty negatively affects school attainment.[9]

[9] The data for prevalence of undernourishment is available for 2007 and the data on average years of schooling is

Similarly, Figure 6.2 shows that there is an inverse relationship between the prevalence of malnutrition in 2010 (or latest data available since 2005) and labour productivity in 2010, measured as output per worker. Evidently malnutrition has restraining impacts on productive capacities of people. Therefore, while building up their human capital, it is also imperative for OIC countries to endeavour more to alleviate poverty to boost the productive capacities.

6.2 Mortality, Fertility and Life Expectancy

The development benefits of education extend well beyond productivity and growth to include better health, reduced fertility and an enhanced ability to adopt new technologies. Increasing life expectancy leads people to lengthen schooling time, thus inducing a better education and better conditions for economic development (Ben-Porath mechanism).

In the OIC member countries, average life expectancy at birth has been steadily increasing during the last 50 years (Figure 6.3). The simple average of life expectancy for total population in OIC countries reached to 50 years during the late 1960s, and as of 1992, it exceeded the 60 years threshold. According to the latest data available, the average life expectancy in OIC countries is close to 65 years, representing a significant improvement over the past five decades. Average life expectancy for female population has been generally 3-4 years more than that for male population during the period under consideration.

A similar improvement can be observed for the mortality rate for children under 5 years old during the same period (Figure 6.4). The number of under-5 mortality per 1000 live births has decreased significantly over the last five decades and in majority of the countries, mortality shrank below 50 per 1000 live births. In 1960, it was as high as 450 per 1000 live birth in Mali. As of 2011, Mali could

available for 5-year intervals. Therefore, schooling data for 2005 is used as being the nearest data to undernourishment. The relationship is not affected when 2010 data is used.

Figure 6.1: Schooling and Malnutrition

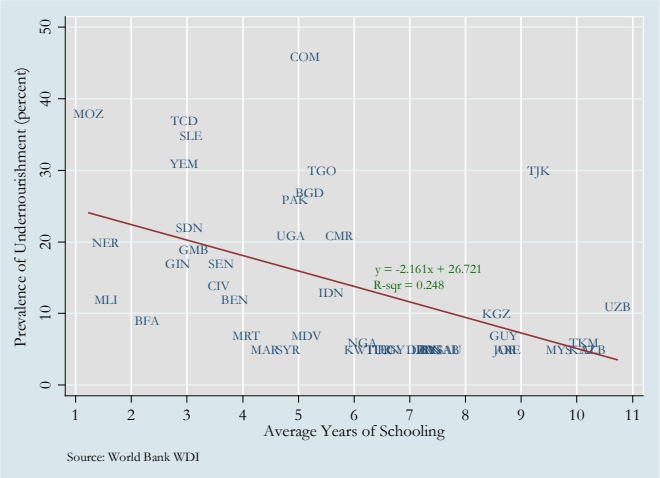


Figure 6.2: Productivity and Malnutrition

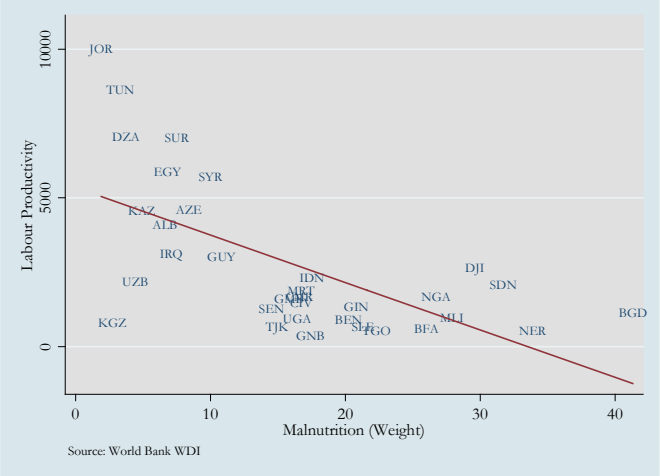
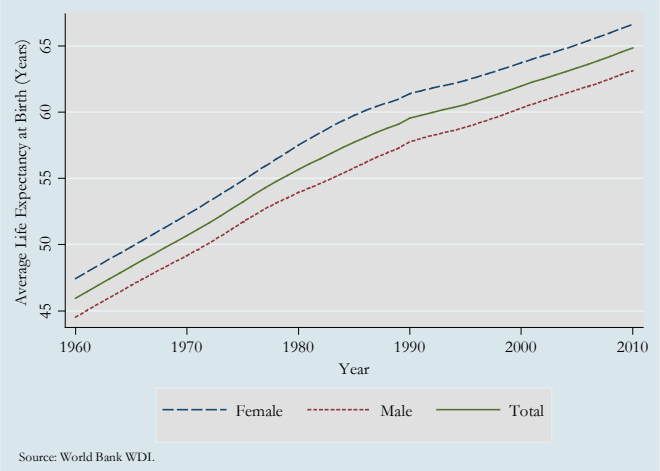


Figure 6.3: Average Life Expectancy (1960-2010)



reduce this rate to only 176. Malaysia, as being the best performing OIC country, achieved a mortality rate of 6.5 per 1000 in 2011.

As in the case of malnutrition, the relationship of mortality rate with schooling is also extremely clear (Figure 6.5). 20% reduction in mortality rate is associated with almost one year increase in average schooling. OIC member countries, therefore, benefit from higher standards of living with falling mortality rates and improving educational attendance.

The fertility rate is also negatively related with average years of schooling (Figure 6.6). As the years of schooling increases, the number of births per woman decreases substantially. An increase of 2-years in the average years of schooling is associated with fall of almost 1 birth per woman in OIC countries.

As all these indicators clearly show, the development benefits of education appear to be widely extended to other aspects of life in the member countries.

6.3 Schooling and Productivity Growth

The accumulation of human capital through education and vocational training promotes economic growth by improving labour productivity

Box 6.1: Paradox of Education and Economic Growth in Nigeria

An empirical study on Nigeria reports that education has not produced the expected positive growth impact on economic growth (Ayara, 2002). Hence, the author proposes three possibilities that could account for such results, which are:

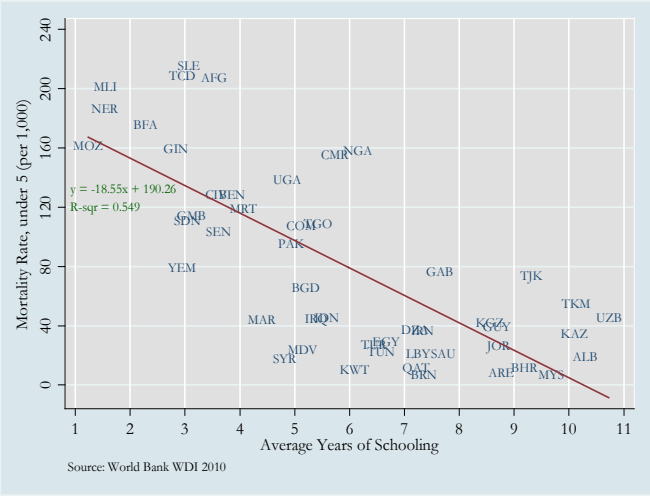
i. Educational capital has gone into privately remunerative but socially unproductive activities; or

ii. There has been slow growth in the demand for educated labour; or

iii. The education system has failed, such that schooling provides few (or no) skills.

Figure 6.4: Progress in under-5 Mortality Rates (1960-2011)

Figure 6.5: Schooling and under-5 Mortality Rates (2005)



and by facilitating the knowledge and technology adoption. A well-educated and trained labour force is always a critical factor in achieving better economic performance. Among different levels of schooling, tertiary schooling is particularly relevant in fostering technological innovation. Whether increased access to education over the past decades played any significant role in fostering higher productivity growth in OIC countries is worth questioning.[10]

The simple average labour productivity based on 5-year overlapping data is plotted in Figure 6.7. Since it is only simple average, the confidence intervals are provided for more accuracy. On average, OIC countries could attain positive productivity growth only after 1998. Until 1998, the average productivity oscillated around -1%. Starting after 1996, a steady increase in productivity growth is achieved and it reached over 3% as of 2009.

Since average years of schooling has also increased during these periods (see Section 1.2), there seems to be a positive relationship between the increase in schooling and productivity growth in OIC countries. Figure 6.8 shows the relationship between average years of schooling in 2005 and average productivity growth during the succeeding years until 2009. A slightly positive relationship can be observed between average years of schooling and productivity growth. One year increase in average schooling is associated with 0.1% increase in productivity and this is a relatively poor improvement. It is clear that quality of education is not good enough to promote productivity in the member countries.

[10] There are various definitions of productivity. Labour productivity is based on the most important factor of production and it is relatively easy to measure. Since it is only a partial productivity measure, a more appropriate option is to use total factor productivity (TFP) measure. Improvements in TFP have been recognized as an important source of economic growth and convergence, but due to data constraints it is difficult to construct TFP data on all OIC countries. Therefore, the preferred productivity measure will be labour productivity and, in line with the literature, it will be defined as GDP per worker; where GDP for each country refers to its Gross Domestic Product, in national currency, at constant prices. Labour input is defined as total labour force.

Figure 6.6: Schooling and Fertility Rate (2005)

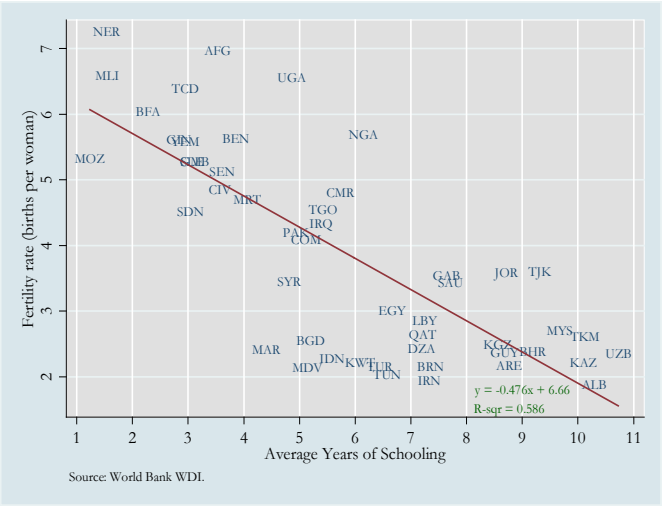
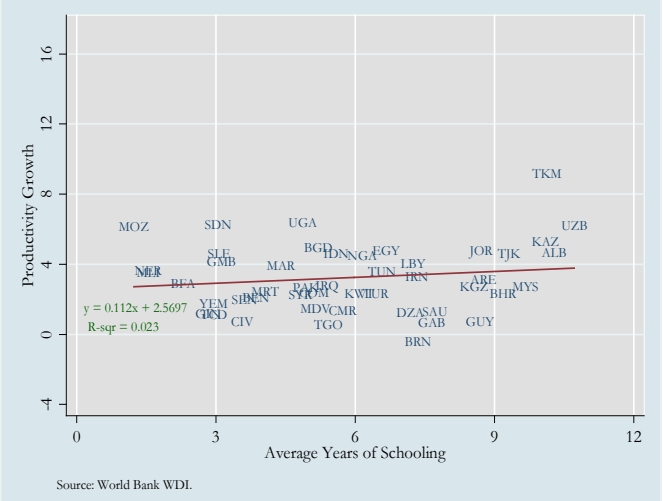


Figure 6.7: Average Labour Productivity Growth

Figure 6.8: Years of Schooling and Productivity Growth



Box 6.2: Malnourished Students in Sudan

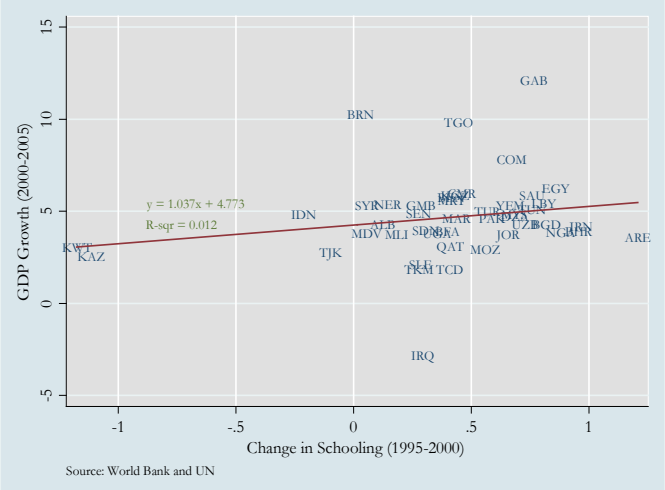
A large proportion of children ages 0–59 months in northern Sudan are malnourished, with negative consequences for learning at preschool and beyond. The percentage of children who are underweight and stunted in northern Sudan is high compared with that of other countries with variation between the states. In Northern Darfur, 55% of children are underweight, whereas in Kassala, 69% are stunted. These figures are higher than the averages in Sub-Saharan Africa (28% underweight and 9% wasting), and much higher than the averages for the Middle East and North Africa region (17% underweight and 8% wasting). International literature shows that malnourished children tend not to reach their potential either physically or mentally, are less likely to go to school, and once in school, register lower levels of learning achievement.

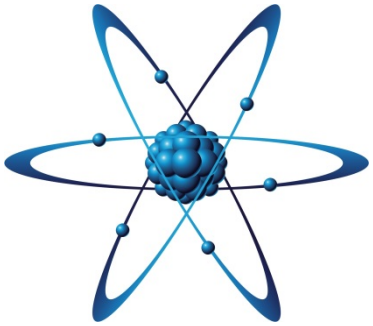
Source: World Bank, The Status of the Education Sector in Sudan, 2012.

In addition to the changes in productivity, whether current growth rates are related to the past educational attainment is examined in Figure 6.9. The figure compares the change in average years of schooling between 1995 and 2000 with the change in GDP growth rates between 2000 and 2005. As it is evident, there is positive correlation between these two indicators. Past educational attainment improves the capacity to utilize new knowledge and enhance the potential for better economic performance. On average, 1 year increase in average years of schooling in the past 5 years is related with more than 1% increase in current GDP growth.

To sum up, human capital accumulation driven by good quality education is key to catching up advanced countries. Human capital accumulation driven by higher population growth, on the other hand, is not necessarily conducive to higher growth rates. Countries aiming at better life standards with prosperity and welfare should not overlook the need for more and better education for their people.

Figure 6.9: Change in Schooling and GDP Growth





PART II
SCIENTIFIC DEVELOPMENT

Research in science and technology is of great importance, and key to progress towards a knowledge-based and innovation-driven economy. It promotes better understanding on different aspects of life, and helps to improve the standard of living by generating new knowledge and technological innovation. Today, there is severe competition among countries to become the most competitive economy in the world. Gaining a comparative advantage against other countries, which is of particular importance to the OIC member countries in catching-up within this competitive world of knowledge economy, depends on how well they perform in research activities.

In the golden age of Islam, Muslim world was at the forefront of science, philosophy, culture and economic development. However, the contemporary conditions of the member countries present a remorseful state in their contributions to science and technology and the circumstances of their scientific and technological infrastructures. Yet, the accomplishments of some member countries provide some hope for optimism with their rapid economic growth and achievements in higher education.

This part presents an overview of the current developments in the OIC member countries in the field of research and development (R&D) and

science & technology (S&T). In particular, the current stance of the OIC member countries compared to the rest of the world, in terms of fundamental indicators of research and scientific development, such as human resources in R&D, R&D expenditures, high technology exports, scientific publications and patent applications, is analyzed.

The analysis in this part indicates that R&D should be stimulated through government and private sector initiatives and coordination among OIC countries. Networking opportunities among the OIC member countries need to be facilitated through programmes similar to the Framework Programmes of the European Union, to support research and technological development in the Islamic world and to promote joint research initiatives among the member countries.

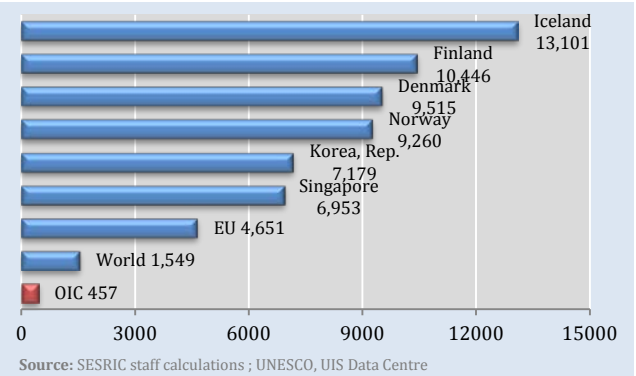
Additionally, joint research and investment in the emerging scientific fields and technologies, such as nanotechnology, should be initiated in a timely manner to make use of the immense benefits associated with early investment in the critical sectors. Higher education and academic research need to be supported through more government funds. There is also a dire need for promoting and enhancing patent development, particularly in small and medium-sized enterprises. Last but not least, infrastructure for information and communication technologies should be improved for a wider and effective participation of the society in general, and the youth in particular, in different components of research and development in OIC member countries.

7 Research and Development

7.1 Human Resources in Research & Development

The availability of abundant and highly qualified researchers is an essential condition to foster innovation and promote the scientific and technological development of a country. However, statistics indicate that OIC member countries, on average, fall well behind the world average in terms of researchers per million people: 457 vs. 1,549, respectively.[11] The gap gets smaller when compared to non-OIC developing countries with an average of 827 researchers per million. However, the gap is even larger when compared to the EU average of 4651, which is more than 10 times of the OIC average. More strikingly, per million inhabitants, Norway, Denmark, Finland and Iceland have at least 20 times more researchers than the OIC average (see Figure 7.1).

Figure 7.1: Researchers per Million People*



Source: SESRIC staff calculations ; UNESCO, UIS Data Centre

* Headcount data for the most recent year available.

[11] Figures are the weighted averages for the countries with available data.

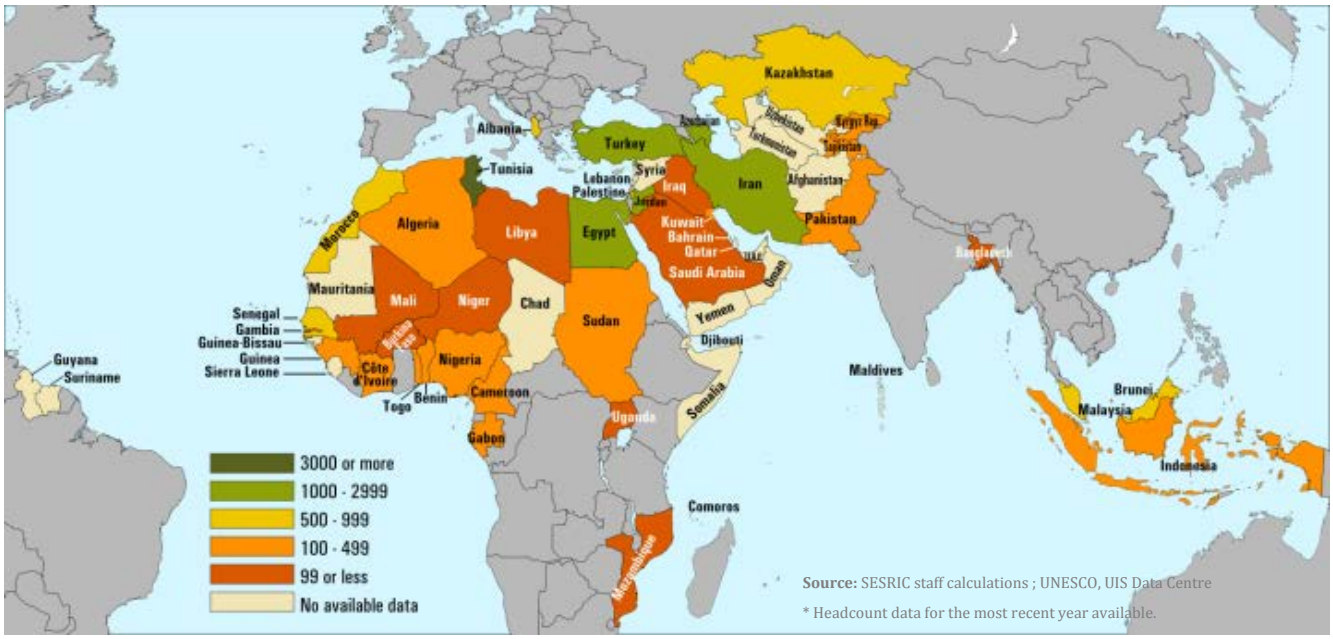
Map 7.1 illustrates the distribution of researchers employed in R&D and reveals the following observations:

- Only six of the 37 member countries (for which data are available) have more than 1,000 researchers per million people: Tunisia (3,240), Jordan (1,934), Turkey (1,715), Iran (1,491), Azerbaijan (1,218) and Egypt (1,018).
- Among these, the values for Tunisia, Jordan and Turkey are also above the world average.
- Nine member countries have less than 100 researchers per million people, most of which are in Sub-Saharan Africa.
- Large disparity exists among the member countries; while Tunisia has 3,240 researchers per million inhabitants, Niger has only 10 researchers.

7.1.1 Women in Research Activities

In the last decades, women, with better access to training and education facilities, thanks to the rising awareness on gender in/equality, have become more qualified and motivated to participate in the labour force. Nevertheless, the progress achieved so far in the field of R&D seems unsatisfactory neither globally nor at the OIC level. In only 16 of the countries in the world, the female researchers are more than the male researchers. In Myanmar and Bolivia, the percentage of female researchers is as high as 85% and 63.2% of total researchers,

Map 7.1: Researchers per Million People*

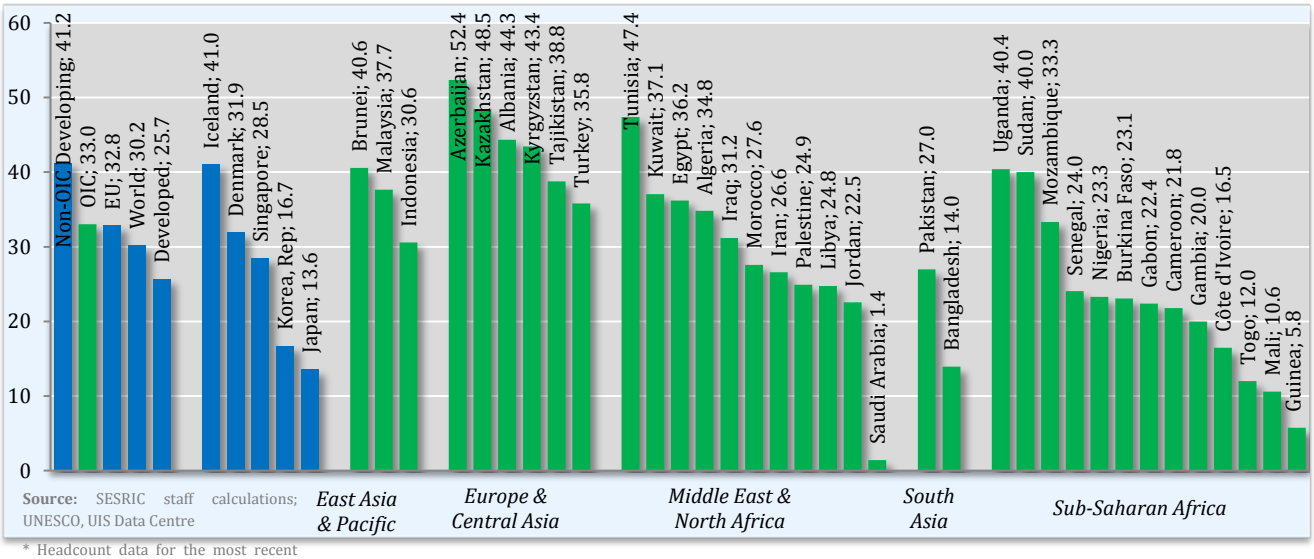


respectively. Women, in the OIC, represent around 33% of the total researchers, slightly higher than the world average of 30.3%.[12] The gap is larger when compared to the average of non-OIC developing countries (41.2%) and some developed countries, such as Iceland, but still the OIC average is higher than that of the EU average and some other developed countries, such as Singapore, Republic of Korea and Japan (see Figure 7.2).

With respect to the data demonstrated in Figure 7.2, the following observations can also be drawn:

- The share of women in total researchers is above the world average in 17 of the 35 OIC member countries with available data. 15 of them outperform the EU average as well.

Figure 7.2: Women as a Share of Total Researchers (%)*



[12] Aggregate calculations are based on countries with available headcount data – for the most recent year available between 1997 and 2010.

- According to regional averages, OIC members in Europe & Central Asia, East Asia & the Pacific and Middle East & North Africa report higher rates of women researchers, often above the world average.
- Intra-regional difference is wider in the Middle East and North Africa: On one hand, there are countries like Tunisia, Kuwait, Egypt, and Algeria where women represent more than 35% of total researchers, on the other hand, there also are countries where women's share is less than 5% as in the case of Saudi Arabia.
- Azerbaijan is the only member country that has more women researchers than men. With a female researchers' share of 52.4%, it is also the seventh country in the world. Kazakhstan, Tunisia, Albania, Kyrgyzstan, Brunei, Uganda and Sudan–all with over 40% women researchers– are also close to achieving gender parity.

7.2 Expenditures on Research & Development

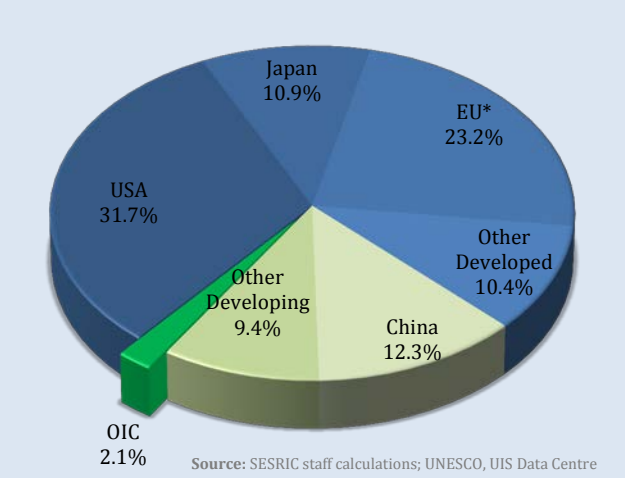
7.2.1 R&D Intensity

Today, more than 76% of the global R&D expenditures is spent by developed countries, of which 31.7% by the USA, 23.2% by the EU, and 10.9% by Japan (Figure 7.3). The OIC countries account for only 2.1% of the world total Gross Domestic Expenditures on R&D (GERD), or 8.8% of the total GERD of developing countries whereas the GERD of China is more than 5 times the OIC total. With GERD worth of $32.8 billion in 2010, Russia, alone, spends more than the OIC total of $26.6 billion.

Among the member countries, Turkey is the leading country by spending $ 9.6 billion on R&D. (Figure 7.4) Adding the GERD of Iran in the amount of $6.4 billion, the GERD of these two countries make up 60.3% of OIC total. Malaysia, Pakistan and Tunisia are the other member countries with GERD over $1 billion.

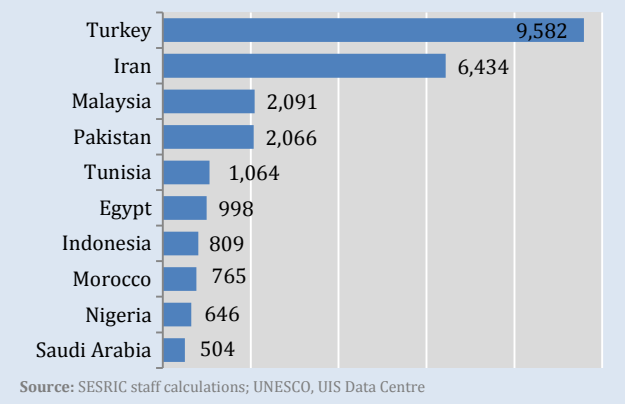
Nevertheless, what is more important than the volume of GERD is its weight in the total expenditures or, in other words, in GDP.

Figure 7.3: GERD, % of World Total



Source: SESRIC staff calculations; UNESCO, UIS Data Centre

Figure 7.4: Top 10 OIC Countries by GERD (Million USD)

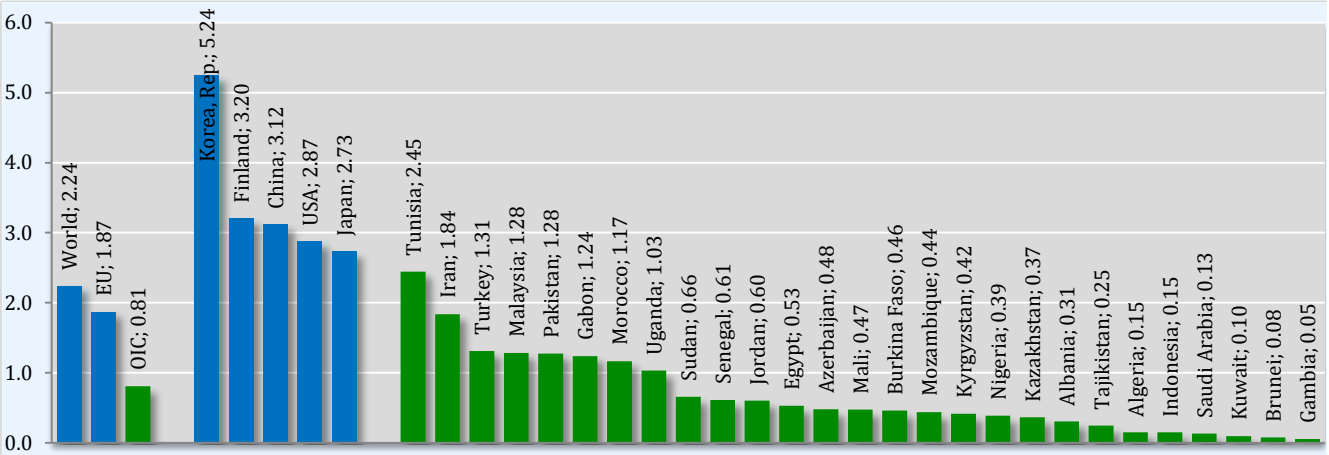


Source: SESRIC staff calculations; UNESCO, UIS Data Centre

Accordingly, R&D intensity (GERD as a percentage of GDP) is a widely used indicator of S&T activities. It reflects the innovative capacity of a country in that a higher R&D intensity indicates that relatively more resources are devoted to the development of new products or production processes.

In this connection, the OIC Ten-Year Programme of Action to Meet the Challenges Facing the Muslim Ummah in the 21st Century, which was adopted at the Third Extraordinary Session of the Islamic Summit Conference held in Makkah al Mukarramah, Kingdom of Saudi Arabia, in December 2005, calls upon Islamic countries "to encourage research and development programmes, taking into account that the global percentage of this activity is 2% of the Gross Domestic Product (GDP), and request Member States to ensure that their individual contribution is not inferior to half of this percentage" (OIC-TYPOA, 1995, Part 2, Section V, Article 4).

Figure 7.5: R&D Intensity (%)*



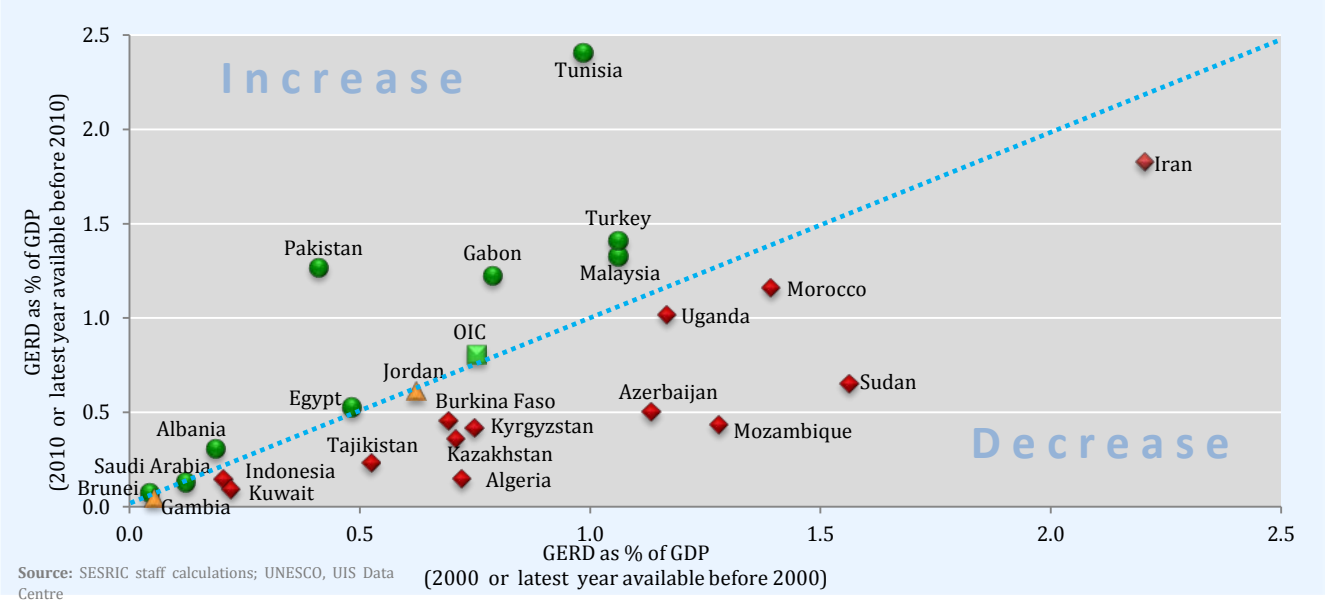
Source: SESRIC staff calculations; UNESCO, UIS Data Centre * Data for the most recent year available between 1999 and 2010.

Nevertheless, available data show that OIC member countries' spending on R&D activities is significantly lower than the world average and still far away from the implied target of 1% of GDP by 2015. R&D intensity for the OIC member countries averages 0.81%, which is quite lower than the EU average of 1.87% and the world average of 2.22% as well as the targeted rate of 1% (Figure 7.5).

Regarding the R&D intensity in the OIC member countries, the situation can be summarized as below:

- Among the member countries with available data, Tunisia, Iran, Turkey, Malaysia, Pakistan, Gabon, Morocco, and Uganda have met the target so far, reporting levels of R&D intensity above 1%. The lowest spending level is recorded for Gambia (0.05%).
- Most of the member countries spend less than 0.7% of GDP on R&D.
- Among the few Sub-Saharan members that can provide data, Uganda, with 1.03% R&D intensity, is the only country to spend above the OIC average.
- Considering the figures in some other developed countries like Korea (5.24%) and Finland (3.2%), USA (2.87%) and Japan (2.73%), all of

Figure 7.6: Trends in R&D Intensity



Source: SESRIC staff calculations; UNESCO, UIS Data Centre

which owe their economic development largely to investments in advanced technology, OIC member countries need to allocate much more resources to R&D activities to bridge the gap with developed countries.

Figure 7.6 illustrates the change in R&D intensity between 2000 and 2010 for the OIC member countries for which data are available. Accordingly;

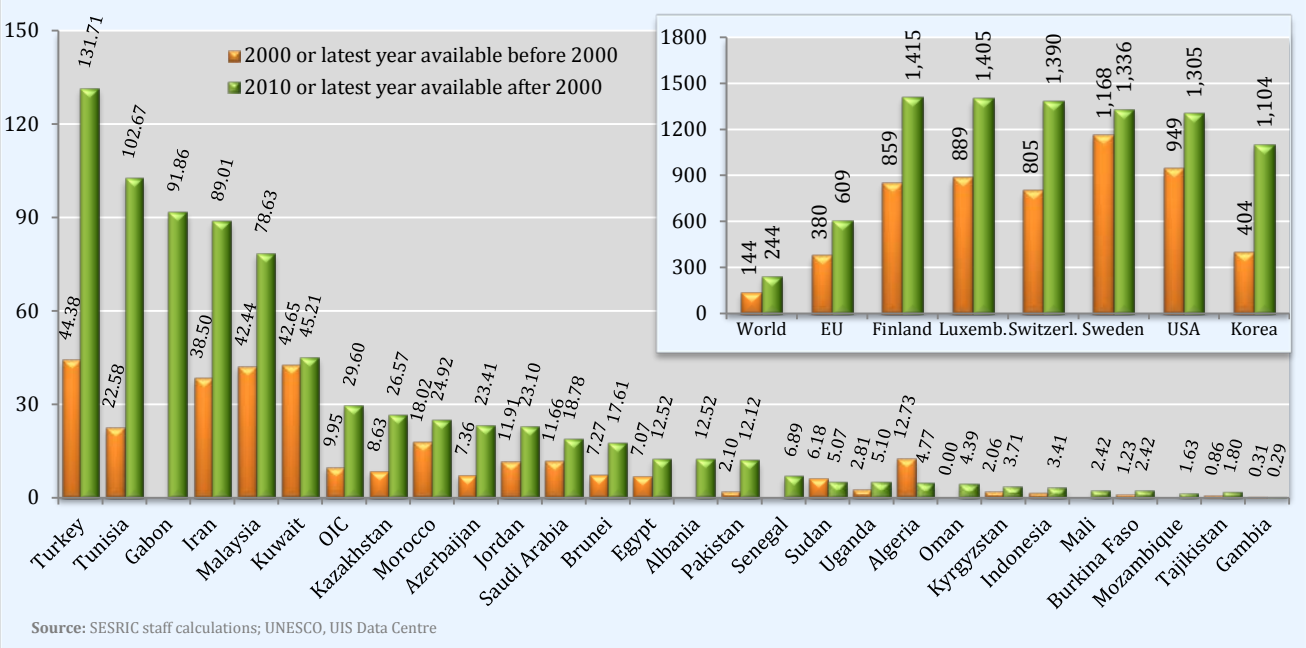
- In most of the member countries, a decrease in R&D intensity is evident.
- Tunisia, Pakistan, Gabon, Turkey, Malaysia and Albania managed to increase their R&D intensity significantly. It was more than doubled in Pakistan and the increase in Tunisia was almost over 1.5 folds. Accordingly, although Iran, Sudan, and Morocco had the highest R&D intensity rates in 2000, Tunisia outperformed them while Turkey caught up with Morocco by 2010.
- Sudan, Mozambique, Azerbaijan, Algeria and Iran reported a significant decrease in their R&D intensity.
- The average for the OIC countries increased by 0.06 percentage point during the period examined. It is higher than that for the EU members (-0.27 percentage point) and that for the world (0.02 percentage point).

7.2.2 R&D Expenditures per Capita

"R&D expenditures per capita" is a frequently used indicator to make comparisons among countries in terms of the level of spending on R&D. Accordingly, the following observations can be drawn for OIC countries from Figure 7.7, which presents data for the change in this indicator in the last decade.

- Of the OIC countries for which data are available, only Turkey ($131.7) and Tunisia ($102.7), have per capita levels above one hundred dollars. They are followed by Gabon ($91.9), Iran ($89.1), and Malaysia ($78.6).
- The lowest rates are recorded for Mozambique, Tajikistan, and Gambia, all with less than $2 of R&D expenditures per capita.
- For OIC countries with available data, the average R&D expenditures per capita are calculated as $29.6, which is well below the world average of $244 and the EU average of $601. In Luxemburg and Finland this figure is even above $1,400, which is higher than GDP

Figure 7.7: R&D Expenditures per Capita (PPP $)



Source: SESRIC staff calculations; UNESCO, UIS Data Centre

per capita values of twenty seven OIC countries in 2010.

- From 2000 to 2010, R&D expenditures per capita increased by an average of only $20 for OIC countries, compared to $100 for the world and $229 for the EU, which could be considered as another source and indicator of divergence between OIC countries and the rest of the world with respect to scientific development.
- In the same period, Turkey, Tunisia, Iran and Malaysia were the top four countries to have most increased their GERD per capita, $87.3, $80.1, $50.7 and $36.2, respectively.
- In addition to these, 14 OIC countries also reported increases in their GERD per capita ranging between $17.9 (Kazakhstan) and $0.9 (Tajikistan).
- On the other hand, three of the 24 OIC countries with available data reported decline in their GERD per capita. Algeria experienced the sharpest decline in this period so that its GERD per capita fell down to $4.8.

7.2.3 R&D Expenditures by Sector

Given that GERD is the sum of R&D expenditures of the performing sectors, it is useful to disaggregate it into individual sectors to see how much R&D is performed by each sector. This sectoral disaggregation is based on the United Nations classification that defines four major sectors of performance: Government, Business Enterprise, Higher Education, and Private Non-Profit. In this respect, Figure 7.8 presents the distribution of GERD among these sectors in the OIC member countries for which data are available. The figures are based on total available resources, regardless of their source of funds.

As illustrated in Figure 7.8, sectoral distribution of GERD can be summarized as follows:

- In most of the OIC member countries (13 out of 21 with available data), more than 50% of GERD is spent by government sector. This share reaches up to 100% in Kuwait and exceeds 90% in Mozambique, and Brunei.
- Despite having a share of less than 50%, government sector in Sudan and Kazakhstan is the dominant sector, spending more on R&D than the other sectors do.
- The share of Business Enterprise in GERD is highest in Malaysia with 84.9%. Moreover, in, Turkey, Sudan, and Kazakhstan; Business Enterprise accounts for more than 30% of the GERD.
- GERD of Business Enterprise is either unavailable or available only at negligible levels in Kuwait, Mozambique, Brunei, Tajikistan, Pakistan, Burkina Faso, Albania, Nigeria, Senegal, and Mali.
- Higher Education is the leading sector in Mali, Nigeria, Morocco, Turkey, and Senegal, accounting respectively for 97.0%, 64.8%, 52.4%, 46.1%, and 40.7% of the total GERD. Furthermore, more than one quarter of the GERD in Iran, Sudan, and Pakistan is also performed by this sector.
- The share of R&D expenditures by the Private Non-Profit sector is at a negligible level in all of the member countries except in Senegal (25%), Burkina Faso (21.1%), Kazakhstan (13.5%), Uganda (9.9%), and Mozambique (4.6%).

7.2.4 R&D Expenditures by Source of Funds

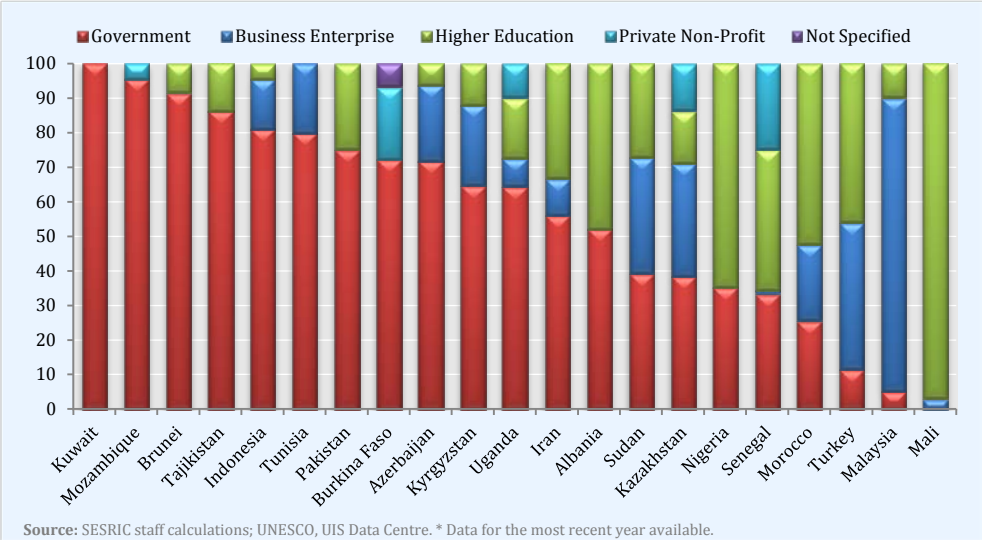
Figure 7.9 presents information on the funding sources of R&D in OIC member countries. Source distribution of the GERD has been made again on a sectoral basis as specified above, yet including additionally the funds from abroad.

Accordingly, given the data illustrated in Figure 7.9, the situation in OIC member countries can be summarized in the following observations:

- In most of the OIC member countries, R&D is mainly financed by the government sector. Out of the 21 member countries for which data are available, 13 countries receive more than %50 of R&D funds from the government.

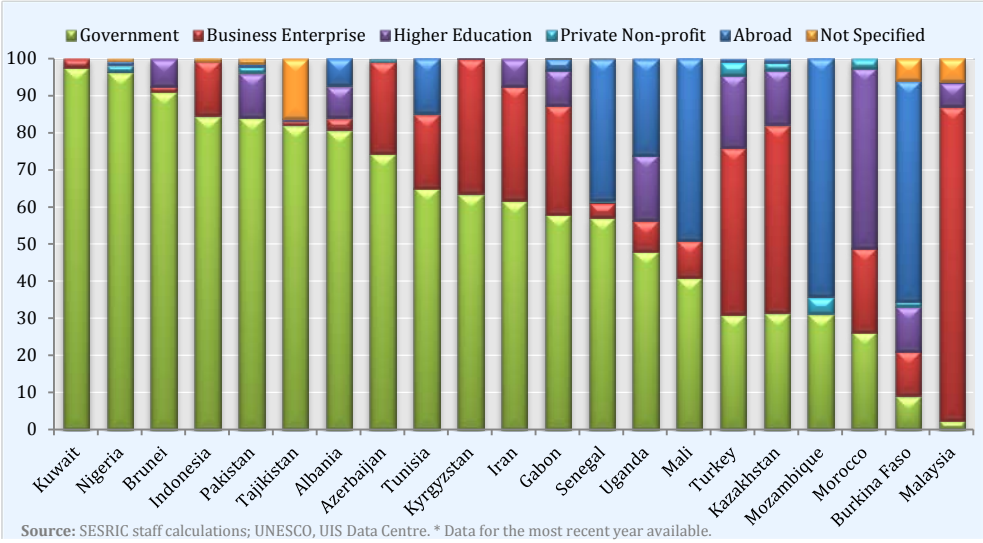
- In Kuwait, Nigeria, and Brunei, the share of government funding exceeds 90%.
- Despite having a share of less than 50%, government sector in Uganda is the dominant sector, providing more R&D funds than the other sectors.
- In Malaysia, government's share in R&D funding is as low as 2.4%, which is the lowest rate among all OIC countries with available data.
- Business Enterprise in Malaysia accounts for 84.5% of the total R&D funds. In Kazakhstan and Turkey, the business sector is also dominant, providing respectively 50.7% and 45.1% of the total R&D funds.
- Higher Education sector in Morocco provides 48.6% of the total R&D funds, which is the highest rate among all OIC countries for which data are available. Additionally, sector's share exceeds 10% in Turkey, Uganda, Kazakhstan, Burkina Faso, and Pakistan.
- Mozambique, Burkina Faso, and Mali deserve special attention as their R&D funds mostly come from abroad, 64.3%, 59.6%, and 49% respectively.

Figure 7.8: Distribution of GERD by Sector of Performance (%)*



Source: SESRIC staff calculations; UNESCO, UIS Data Centre. * Data for the most recent year available.

Figure 7.9: Distribution of GERD by Source of Funds (%)*



Source: SESRIC staff calculations; UNESCO, UIS Data Centre. * Data for the most recent year available.

7.3 Patent Applications

Intellectual property rights, especially patents, are the key factors contributing to advances in innovation and scientific development. As a product of R&D activities, patents strengthen the link between science and technology, as the outcomes of research translate into new products or services. In this regard, although not all inventions are patented, the number of patent applications may be considered as a proxy for the degree of innovative capability in a country.

According to statistics from the World Intellectual Property Organization (WIPO), the total number of patent applications around the world in 2010 is estimated at 1.98 million. With a total of 33,379 patents, OIC member countries accounted for nearly 1.7% of total patent applications worldwide. Meanwhile, 73.5% of global patents are filed by only 4 countries: USA (24.8% with 490,226 patents), China (19.8% with 391,177 patents), Japan (17.4 % with 344,598 patents), Republic of Korea (8.6% with 107,101 patents) and Germany (3.0% with 59,245 patents). To shed light on the situation in individual OIC member countries, Table 7.1 presents statistics on patent applications in countries for which data are available.

In this respect, the following observations can be made to summarize the situation in the OIC countries:

- Patent activity is highest in Iran, Malaysia and Indonesia. In 2006, total patent applications (by residents and non-residents) amounted to 6,527 in Iran which is followed by Malaysia and Indonesia with patents reaching 6,463 and 5,638 in 2010, respectively.
- The number of patents is also above 1000 in Turkey (3,357), Egypt (2230), Kazakhstan (1,964), Pakistan (1,094) and Morocco (1,034).
- In most of the OIC countries, applications by non-residents are higher than those filed by residents; where, in 11 of the 27 countries, with available data, non-residents applications account for more than 75% of the total applications. They are highest in Malaysia (5,230) and Indonesia (5,122), accounting for, respectively, 81% and 91% of the total patent applications.
- Applications by residents dominate only in 8 OIC countries, and they are highest in Iran (5,970) and Turkey (3,180).

7.4 Scientific Publications

Academic research is one of the most important components of research activities conducted in a

Table 7.1: Patent Applications by Office: Residents and Non-residents*

Country	Resident	Non Res.	Total	Year
Iran	5,970	557	6,527	2006
Malaysia	1,233	5,230	6,463	2010
Indonesia	516	5,122	5,638	2010
Turkey	3,180	177	3,357	2010
Egypt	605	1,625	2,230	2010
Kazakhstan	1,691	273	1,964	2010
Pakistan	114	980	1,094	2010
Morocco	152	882	1,034	2010
Saudi Arabia	288	643	931	2010
Algeria	76	730	806	2010
Uzbekistan	370	262	632	2010
Jordan	45	429	474	2010
Albania		361	361	2009
Bangladesh	66	276	342	2010
Tunisia	56	282	338	2005
Lebanon			316	2006
Azerbaijan	254	17	271	2010
Syria	133	133	266	2006
Kyrgyzstan	134	6	140	2010
Yemen	20	55	75	2010
Brunei		42	42	2009
Mozambique	18	22	40	2007
Sudan	3	13	16	2007
Tajikistan	7	3	10	2010
Uganda	6	1	7	2007
Bahrain			3	2003
Burkina Faso	2		2	2010

Source: World Intellectual Property Organization, Statistics on Patents, October 2012

* Patent application numbers for the most recent year with available data are considered. Most recent year with available data is indicated in the "Year" column. Numbers of patent applications for most African OIC countries are not provided individually as these countries are members of the African Regional Intellectual Property Organization (ARIPO). Total number of patents filed to ARIPO in 2009 is 448. Resident/non-resident breakdown is not provided for Bahrain and Lebanon.

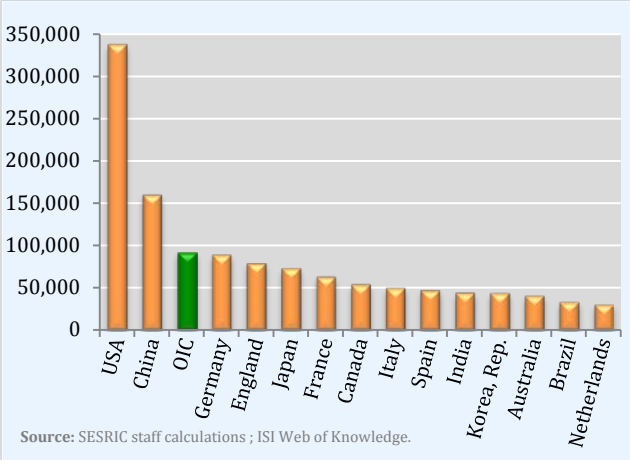
country. To a certain extent, the performance in academic research can be well reflected by the number of scientific articles published in indexed journals. In this regard, the quantity and the growth of the research output, *i.e.*, articles, are indicators commonly used to measure the research performance of a given institution or country. Indeed, such bibliometric indicators have been widely used in national science and technology statistics publications to measure scientific capacity and linkages to world science[13] and particularly in national and international rankings of universities.[14]

OIC member countries as a whole published 92,503 articles[15] in 2011 in journals that are covered by Science Citation Index Expanded (SCI-EXPANDED), Social Science Citation Index (SSCI), and Arts & Humanities Citation Index (A&HCI), compared to 20,224 articles they published in 2000.[16]

Although there is more than four-fold increase during the period under consideration, the amount reached is still below those of some individual countries in the world such as the United States and China. The published articles of Germany alone are also very close to the total publications of 57 OIC Member Countries (Figure 7.10).

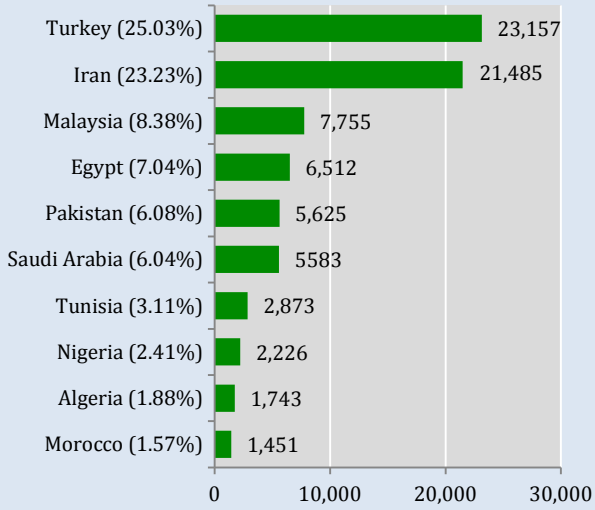
Figure 7.11 and Map 7.2 present information on the contribution of each OIC member country to total article publications in OIC countries. In this respect, the following observations outline the performance of the OIC member countries in publishing articles:

Figure 7.10: The Number of Published Articles, 2011



Source: SESRIC staff calculations ; ISI Web of Knowledge.

Figure 7.11: Top 10 OIC Countries by Published Articles, 2011



Source: SESRIC staff calculations ; ISI Web of Knowledge.

- Production of scientific publications –here articles– in the OIC member countries is heavily concentrated in a few of them.
- Nearly half of the total articles (48.26%) originate from only two member countries, Turkey (25.03%) and Iran (23.23%). Together with Malaysia (8.38%), Egypt (7.04%) and Pakistan (6.08%), these five countries alone account for 70% of all published articles (Figure 7.11).
- Some other member countries in the Middle East & North Africa, South Asia, and East Asia &

[13] UNESCO Institute for Statistics, "What do bibliometric indicators tell us about world scientific output?", *UIS Bulletin on Science and Technology Statistics*, Issue 2, September 2005.
[14] For example, Academic Ranking of World Universities by Shanghai Jiao Tong University (SJTU), World University Rankings by the Times Higher Education Supplement (THES), and also the OIC University Ranking make use of the research output as an important indicator in their ranking methodologies.
[15] The total reflects the sum of individual OIC countries and it is not refined for internationally co-authored papers.
[16] Data are collected from the ISI Web of Knowledge maintained by Thomson Reuters. For further information, see http://isiwebofknowledge.com/

Pacific also perform well while those in Latin America, Sub-Saharan Africa, and Central Asia are generally lagging behind.

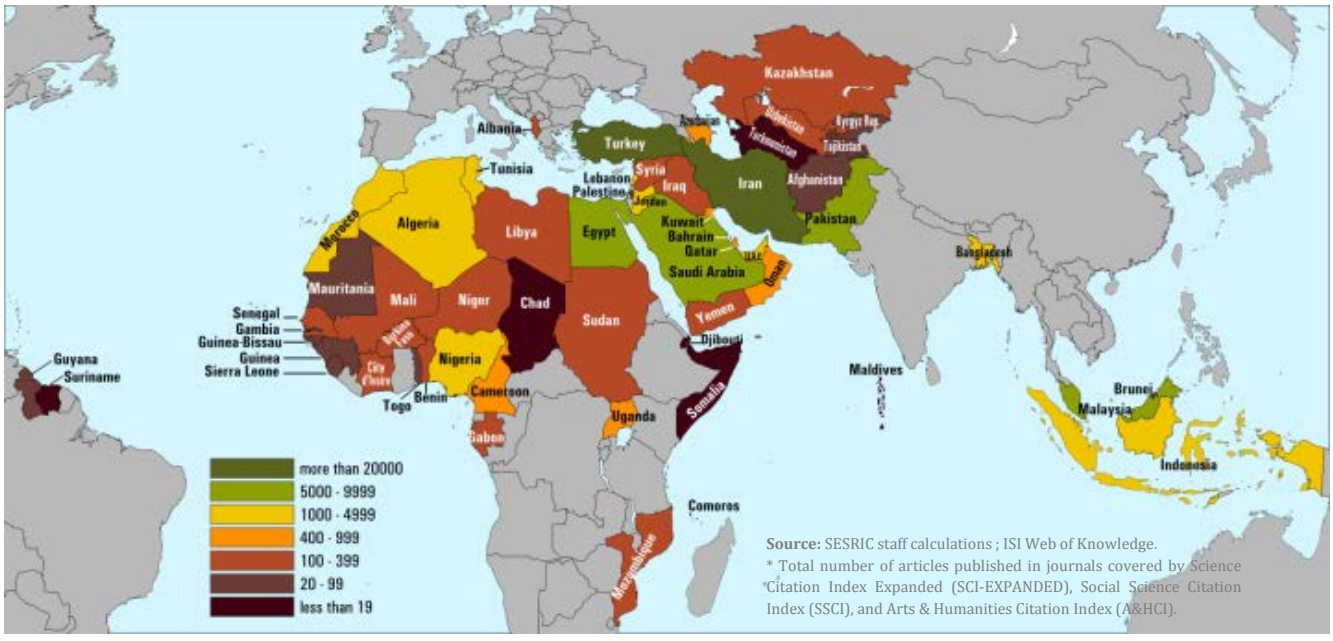
- The number of countries having published less than 100 articles is 19.
- There are 7 countries that published less than 20 articles in 2011. These countries are not concentrated in one region but dispersed across regions: for example; from Suriname in Latin America to Somalia in Sub-Saharan Africa, and from Turkmenistan in Central Asia to Maldives in South Asia
- Nigeria stands out as the only Sub-Saharan member country to have produced over 1,000 articles (2,226), the closest ones in the region being Uganda and Cameroon with 692 and 586 articles, respectively.

7.4.1 The Evolution of Publication Outcome

The growth in the number of articles on a per-capita basis reflects a better indicator of productivity in scientific publications as it takes into account the relative size of the population in the countries compared. In this respect, Figure 7.12 presents data on articles per million people (pmp) in OIC member countries in a manner to reflect the evolution in the period of 2000-2011. Accordingly:

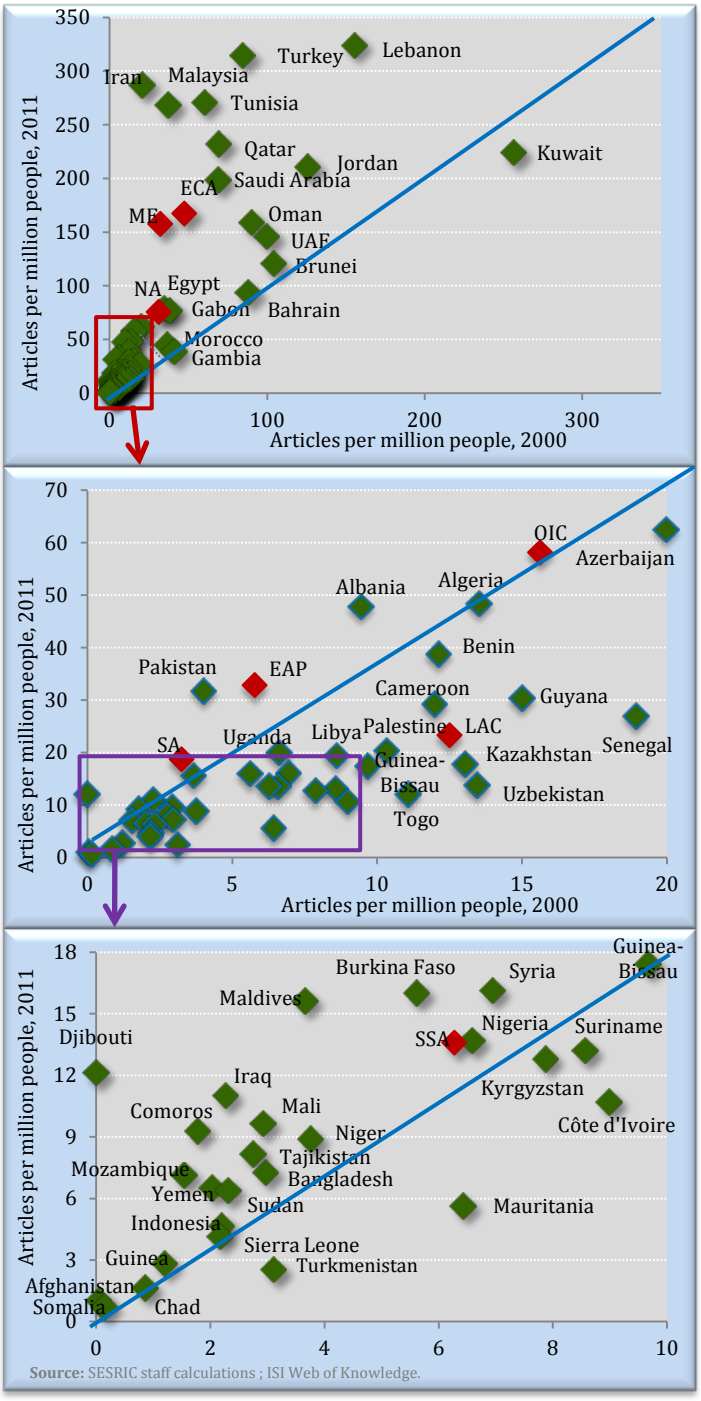
- On average, OIC member countries produced only 16 articles (pmp) in 2000 while this number increased to 58 in 2011, which could still be considered low given that this number reached up to 2972 in Switzerland, 1595 in Canada, 1091 in Germany, 1078 in USA, 919 in Republic of Korea, 586 in Japan, and 198 in Russia and 121 in China.
- 50 out of the 57 member countries recorded an increase in that period, but the increase in 24 of them was no more than 10 articles (pmp). This implies that the expansion recorded in countries with low number of articles (pmp) remained quite limited compared to those with high numbers.
- Iran, in absolute terms, took the lead in boosting scientific productivity with an increase of 267 articles (pmp), followed by Malaysia (232), Turkey (230), Tunisia (211), Lebanon (169), Qatar (163) and Saudi Arabia (130).
- Five other countries, namely Jordan, Oman, United Arab Emirates, Egypt and Azerbaijan recorded an increase of over 40 articles (pmp).

Map 7.2: Articles Published in International Journals, 2011*



Source: SESRIC staff calculations ; ISI Web of Knowledge.
* Total number of articles published in journals covered by Science Citation Index Expanded (SCI-EXPANDED), Social Science Citation Index (SSCI), and Arts & Humanities Citation Index (A&HCI).

Figure 7.12: Articles per Million People: 2000 vs. 2011

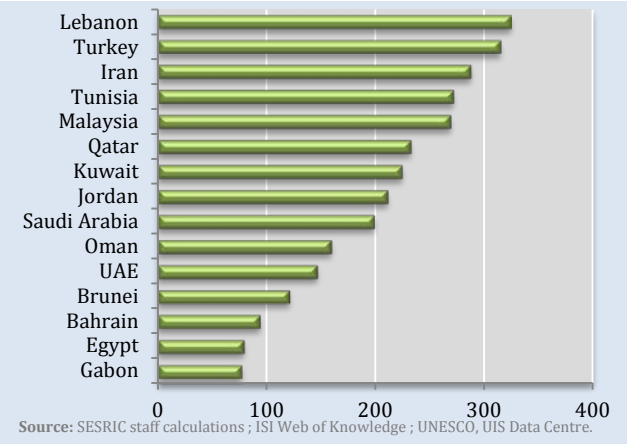


Source: SESRIC staff calculations ; ISI Web of Knowledge.

OIC Regional Averages:
ECA: Europe & Central Asia **NA**: North Africa **EAP**: East Asia & Pacific
SA: South Asia **LA**: Latin America **SSA**: Sub-Saharan Africa
ME: Middle East

- Four out of the 57 members, namely Kuwait, Gambia, Mauritania, and Turkmenistan, recorded a decrease in their articles (pmp). The highest decrease was reported in Kuwait (32 articles), while the decrease for the others was less than two articles. However, Kuwait still continues to rank in the seventh place with respect to articles per million people in 2011.
- Overall, according to 2011 data, there are only 16 members performing above the OIC average in terms of articles per million people. Lebanon, with 324 articles took the lead, and followed by Turkey (315), Iran (287), Tunisia (271), Malaysia (269), Qatar (232), Kuwait (224), and Jordan (211). Saudi Arabia, Oman, United Arab Emirates and Brunei also ranked at the top, having produced over 100 articles per million people. Bahrain, Egypt, and Gabon succeeded in entering the top 15 (see Figure 7.12 Top Panel and Figure 7.13).
- At the other side of the spectrum, there are member countries with even less than two articles (pmp), like Afghanistan, Chad, and Somalia.
- Most of the top ranked member countries are located in the Middle East. Articles per million people averaged at 158 in this region in 2011, compared to 32 in 2000.
- The average for the members in Europe & Central Asia increased from 47 to 167 in that period. Excluding Turkey, these averages fell down to 12 and 21, respectively.

Figure 7.13: Top 10 OIC Countries by Articles per Million People, 2011



Source: SESRIC staff calculations ; ISI Web of Knowledge ; UNESCO, UIS Data Centre.

- The averages for the other regions also increased in the period under consideration (North Africa: from 31 to 76; East Asia & Pacific: from 6 to 33; Latin America from 13 to 23, South Asia: from 3 to 19; and Sub-Saharan Africa: from 6 to 14).

8 Science and Technology

8.1 Knowledge and Innovation

Higher education institutions and research and development (R&D) programs are the main forces in helping to attain economic growth and competitiveness for the knowledge-based societies. However, for most of the developing countries, the transition to the Knowledge Economy (KE) is not an easy goal to achieve. Knowledge Assessment Methodology (KAM) developed by World Bank is aimed to track overall preparedness of the countries towards knowledge based economy and to identify the challenges and opportunities they face in making this transition. For 2012, the KAM consists of 146 countries and 148 structural and qualitative variables measured on a normalized scale of 0 to 10.

Two of the widely used measures of KAM[17] tracking the performance of the countries are the Knowledge Economy Index (KEI) and Knowledge Index (KI). The KEI measures to what extent the environment is conducive for knowledge to be used effectively for economic development while KI measures a country's ability to generate, adopt, and diffuse knowledge. In terms of calculations, KEI involves four KE pillars: Economic and Institutional Regimes (EIRs), Innovation and Technological Adoption, Education and Training, Information and Communication Technologies (ICTs). On the other hand, KI is an aggregate index compiling the simple average of variables under the last three pillars. Hence, the KI does not take into account economic incentives and institutional regime.

Figure 8.1 depicts the positions of the top fifteen OIC member countries vis-à-vis the rest of the world in terms of their performance related to the KEI and KI.

Depending on Figure 8.1, the following observations can be made:

- ✓ The KEI is above the world average of 4.44 in only 15 out of 41 OIC member countries for which the KEI is calculated. 10 of them also recorded above the average of upper middle income countries (4.76).
- ✓ UAE, Bahrain and Oman are the top three OIC member countries standing at 42nd, 43rd and 47th in the world, respectively.
- ✓ Including Malaysia (48th) and Saudi Arabia (50th) there are only five member countries in the top 50. However, 23 of the bottom 50 countries for which the KEI was calculated are OIC members.
- ✓ The average of OIC countries (2.97) is nearly one point lower than the average of non-OIC developing countries (3.95) and is even below the average of lower middle income countries (3.03).

[17] http://siteresources.worldbank.org/INTUNIKAM/Resources/2012.pdf

The other widely used knowledge index, KI, measures a country's ability to generate, adopt, and diffuse knowledge. Based on Figure 15, the following observations can be deduced:

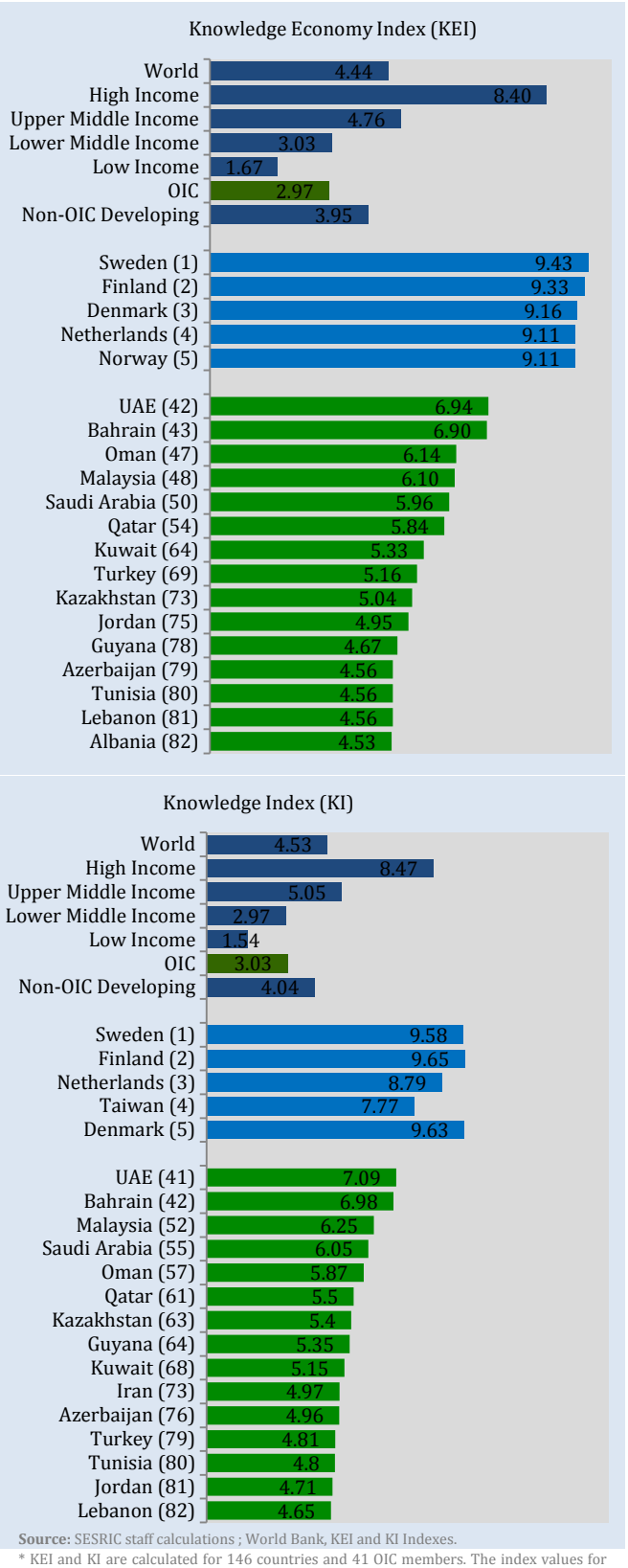
- ✓ The KI is above the world average of 4.53 in only 16 out of 41 OIC member countries for which the KI was calculated. But none of them managed to exceed the average of high income countries (8.47).
- ✓ UAE, Bahrain and Malaysia are the top three OIC member countries standing only at 41st, 42nd and 52nd, respectively.
- ✓ 22 of the bottom 50 countries for which the KI can be calculated are OIC members.
- ✓ The average of OIC countries (3.03) barely exceeds the average of lower middle income countries (2.97), but well below the average of upper middle income countries (5.05).

The OIC member countries perform slightly better when KI is used as opposed to KEI. This indicates that economic incentives (tariffs and non-tariff barriers) and institutional regime (rules and regulations) are two main reasons for OIC members' poor performance in knowledge and technology.

Innovation Index and Information and Communication Technology (ICT) Index, two components of the KEI and KI, are also important indicators on science and technology. In the rest of this section, these two indices are analyzed for the OIC member countries. Innovation Index is the simple average of the normalized scores on three key variables: Total Royalty Payments and Receipts, Patent Applications Granted by the US Patent and Trademark Office, Scientific and Technical Journal Articles.

Figure 8.2 compares the OIC member countries with the rest of the world in terms of innovation and ICT. As seen in Figure 8.2 (top), the Innovation Index value is above the world average (5.25) in only 5 out of 41 OIC member countries for which the index was calculated. Malaysia, United Arab Emirates and Qatar are the top three OIC member countries

Figure 8.1: Knowledge Economy Index (KEI) and Knowledge Index (KI), 2012*



Source: SESRIC staff calculations ; World Bank, KEI and KI Indexes.

* KEI and KI are calculated for 146 countries and 41 OIC members. The index values for the world, OIC and other country groups are calculated by taking averages of index values for the relevant countries weighted by 2011 country populations. Numbers in parenthesis indicate the rank of the countries out of 145 countries.

standing at 42nd, 46th and 49th in the world, respectively.

ICT Index is the simple average of the normalized scores on three key variables: Telephone, Computer, and Internet Penetrations (per 1,000 people). As seen in Figure 8.2 (bottom), which compares the OIC member countries with the rest of the world with respect to the usage of telephone, computer, and the internet, ICT Index value is above the world average (4.16) in 16 out of 41 OIC member countries for which the index was calculated. With the ICTI score 9.54, Bahrain holds the top position among 146 countries. UAE (13th) and Saudi Arabia (21st) are also the other two OIC member countries where ICTI value exceeds the EU average.

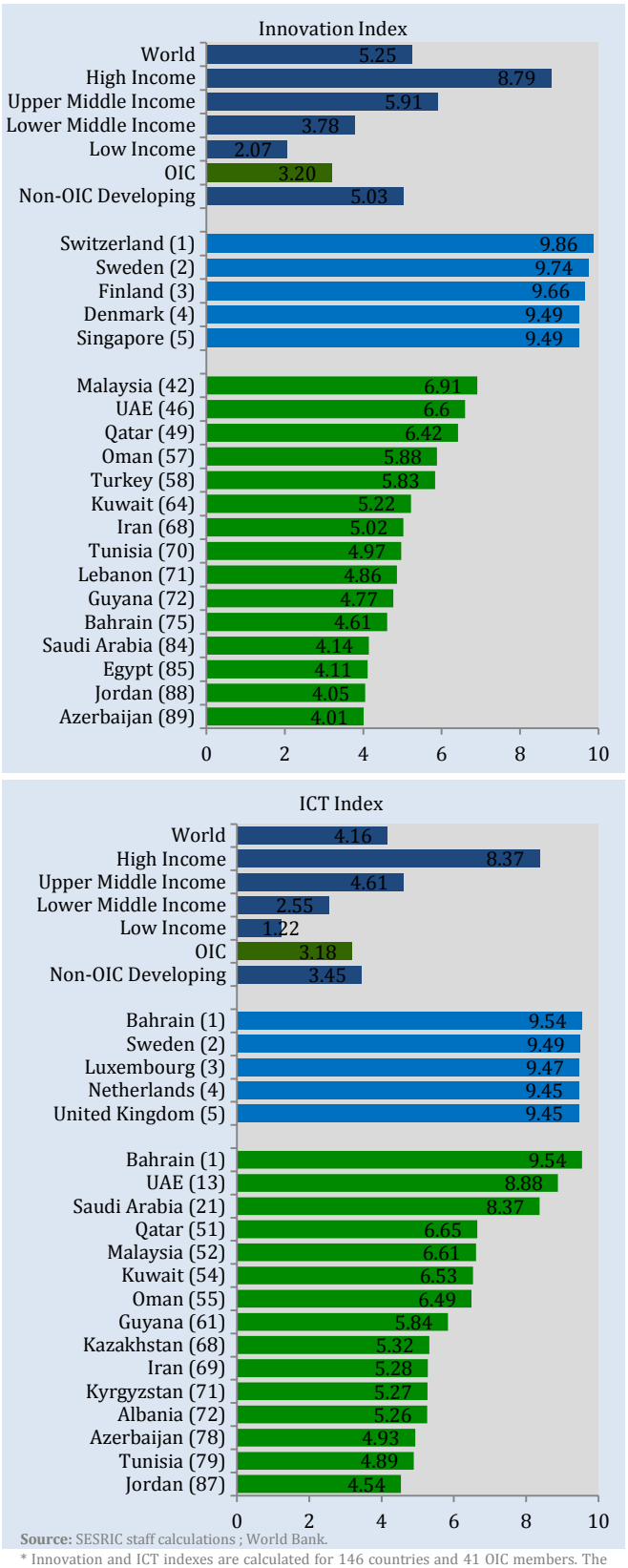
8.1.1 Capacity for Innovation and Global Innovation Index

There are two additional indices comparing the innovative capacities of countries. The first index, called "Capacity for Innovation", measures the way the technology obtained by companies and it is published by World Economic Forum (WEF). By scaling the countries from 1 to 7, this index aims to gauge the overall capacity of countries for innovating new products and process. A country receives 1 if technology is obtained exclusively from licensing or imitating foreign companies and receives 7 if it is obtained by conducting formal research and pioneering their own new products and processes.

According to the latest data reported in World Competitiveness Report 2012-2013 of WEF, the average value of Capacity for Innovation in OIC countries was 2.94, which is below the world average (3.3) but nearly equal to the average of other developing countries (2.95). It is also well below the average of developed countries (4.43). As shown in Figure 8.3 (top), innovation capacity in only 10 OIC member countries is above the world average. Malaysia, Qatar, and UAE are the top three member countries (17th, 18th and 27th, respectively). Innovation capacity of Malaysia and Qatar exceeds the average of developed countries, as well.

The second index is called Global Innovation Index (GII) and prepared by INSEAD Business School and

Figure 8.2: Innovation and ICT Indexes, 2012*



Source: SESRIC staff calculations ; World Bank.

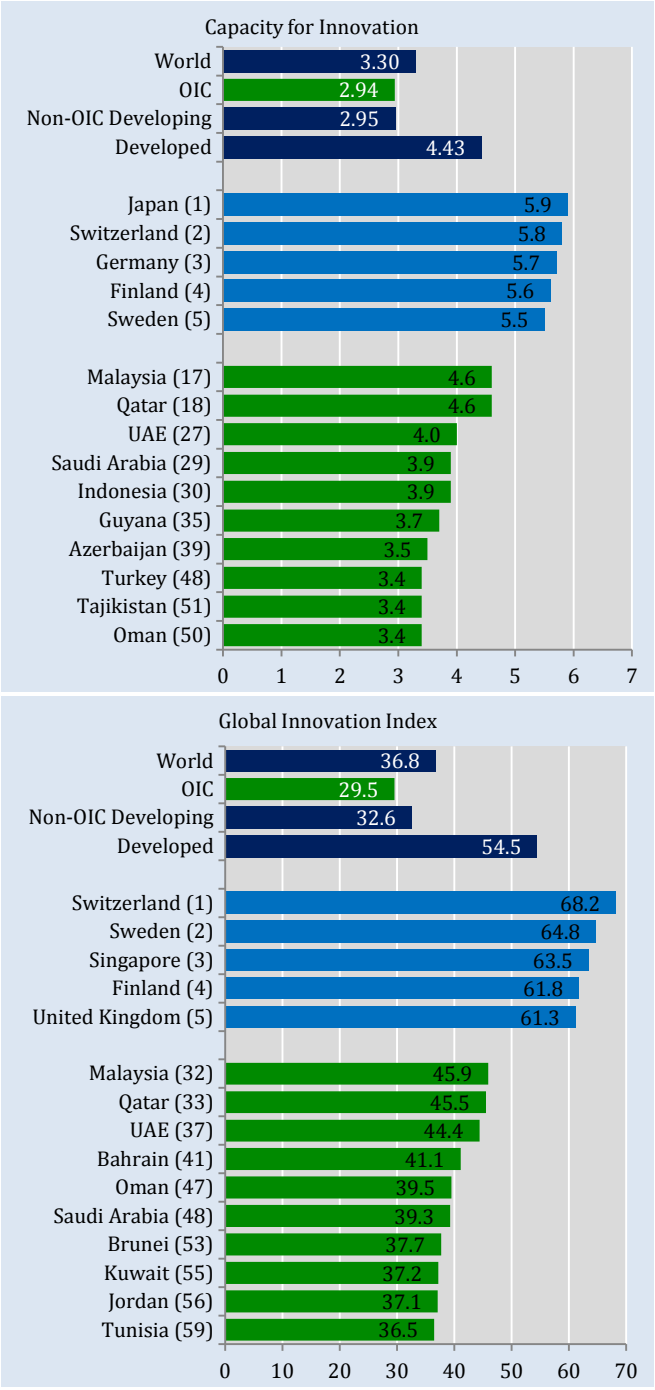
* Innovation and ICT indexes are calculated for 146 countries and 41 OIC members. The index values for the world, OIC and other country groups are calculated by taking averages of index values for the relevant countries weighted by 2011 country populations. Numbers in parenthesis indicate the rank of the countries out of 146 countries.

the World Intellectual Property Organization (WIPO). It is a composite indicator that ranks countries/economies in terms of their enabling environment to innovation and their innovation outputs. The 2012 version includes 141 economies, which represent 94.9% of the world's population and 99.4% of the world's GDP (in current US dollars). The GII is calculated as the average of two sub-indices: The Innovation Input Sub-Index gauges elements of the national economy which embodies innovative activities grouped in five pillars: (1) Institutions, (2) Human capital and research, (3) Infrastructure, (4) Market sophistication, and (5) Business sophistication. The Innovation Output Sub-Index captures actual evidence of innovation results, divided in two pillars: (6) Knowledge and technology outputs and (7) Creative outputs.

According to 2012 version of GII (Figure 8.3, bottom), the average value of index in OIC countries is 29.5, which is lower than the world average (36.8) and the average of other developing countries (32.6). It is also well below the average of developed countries (54.5). The best performer is Switzerland with an index value of 68.2 and the worst performer is Sudan with an index value of 16.8. Malaysia, Qatar, and UAE are the three best performing OIC member countries ranking 32nd, 33rd and 37th, respectively. On the other hand, 13 of 20 worst performers are OIC countries. Only 9 member countries have GII above the world average, but overall there is no OIC country above the average of developed countries.

These two indices indicate that OIC countries, on average, are lagging behind in terms of their innovativeness. Therefore, they need to enhance their innovative capacities and improve their enabling environment for innovating new products and processes. This will ensure long term sustainable growth and help them to increase their competitiveness *vis a vis* other countries.

Figure 8.3: Capacity for Innovation and Global Innovation Index, 2012*



Source: SESRIC staff calculations; World Economic Forum, Global Competitiveness Report 2012-2013; INSEAD Business School and WIPO.

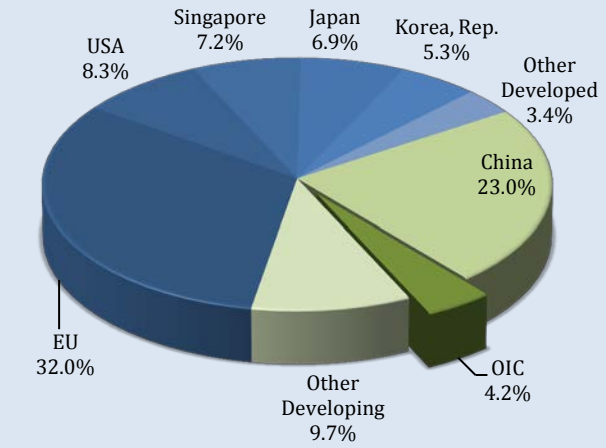
* Capacity for Innovation is calculated for 144 countries and 41 OIC members while Global Innovation Index is calculated for 141 countries and 42 OIC members. The index values for the world, OIC and other country groups are calculated by taking simple averages of index values for the relevant countries. Numbers in parenthesis indicate the

8.2 High-Technology Exports

High-technology exports (HTE) are products with high R&D intensity, including aerospace, computers, software and related services, consumer electronics, semiconductors, pharmaceuticals, scientific instruments and electrical machinery, which mostly depend on an advanced technological infrastructure and inward FDI in high-tech industries.

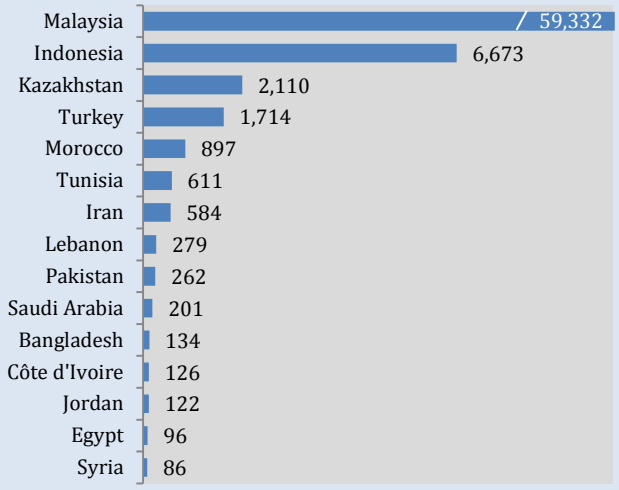
World high-technology exports are estimated to be around $1.7 trillion in 2010, slightly increasing from its $1.5 trillion level in 2009, but it is still lower than the 2008 level of $1.8 trillion. Around 63.1% of that amount originated from developed countries, of which 32% from the EU members, 8.3% from the United States, 7.2% from Singapore, 6.9% from Japan, 5.3% from Korea Republic and 3.4% from other developed countries (Figure 8.4). With 406 billion USD exports of high technology products, China is the largest exporter of HTE, accounting for 23% of the world total and 62.4% of the total HTE of developing countries. Confirming the lack of adequate infrastructure and FDI in most of OIC countries, it is observed that all the member countries for which the data are available accounted for only 4.2% of the world total HTE of $1.7 trillion (Figure 8.4), or 11.3% of the total HTE of developing countries. Data for OIC countries are illustrated in Figure 8.5 and Map 8.1, which yield

Figure 8.4: HTE, % of World Total 2010



Source: SESRIC staff calculations ; World Bank, WDI Online.

Figure 8.5: Top 15 OIC Member Countries (HTE Million $), 2010

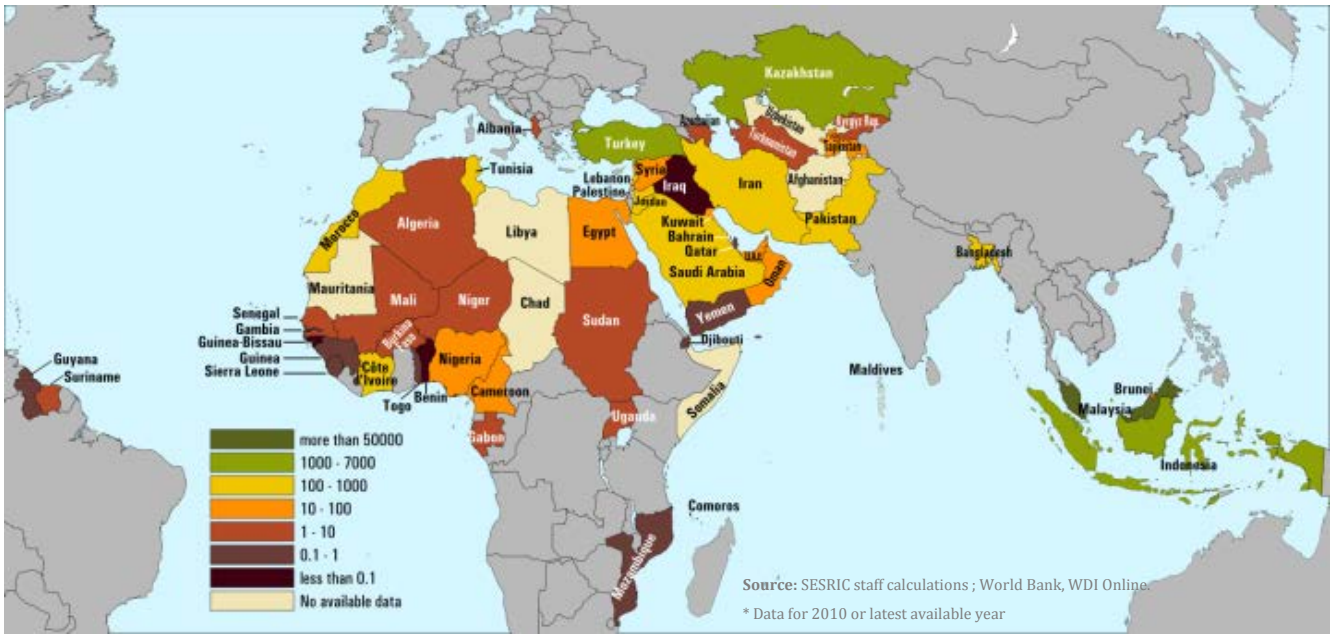


Source: SESRIC staff calculations ; World Bank, WDI Online.

the following observations:

- ✓ With more than $59 billion, Malaysia accounts for nearly 81% of the total HTE of the OIC in 2010. It is also the 10th largest exporter of high-technology products in the world, accounting for 3.2% of the world HTE.
- ✓ Indonesia, Kazakhstan and Turkey follow the lead Malaysia with $6.7 billion, $2.1 billion and $1.7 billion, respectively. Except these 4 countries, none of the OIC countries exceeded the threshold of $1 billion.
- ✓ Morocco ($897 million), Tunisia ($611 million) and Iran ($584 million) have HTE above half a billion, whereas Lebanon, Pakistan, Saudi Arabia, Bangladesh, Côte d'Ivoire and Jordan recorded HTE figures varying between $122 million (Jordan) and $279 million (Lebanon).
- ✓ Among these countries, it should be mentioned that Cote d'Ivoire, with $126 million of HTE, gets far ahead of the other Sub-Saharan members. It is also ranked as the 9th largest exporter of high-technology products in the OIC.
- ✓ On the other hand, HTE of the other leading member countries are below $100 million. At the bottom end, Benin and Iraq recorded HTE

Map 8.1: High Technology Exports (Million US$)*



figures around $50,000 while Guinea-Bissau and Comoro have HTEs even less than $5,000.

8.3 Nanotechnology

Nanotechnology is the study of manipulating matter on an atomic and molecular scale. It deals with developing materials, devices, or other structures possessing at least one dimension sized from 1 nanometre (one millionth of a millimetre) to 100 nanometres.

Nanotechnology is very diverse which gives humanity the opportunity to directly control matter on the atomic scale. Nanotechnology entails the application of fields of science as diverse as surface science, organic chemistry, molecular biology, semiconductor physics, microfabrication, etc. Nanotechnology also offers fascinating possibilities and solutions including producing many new materials and devices with a vast range of applications in medicine, electronics, biomaterials and energy production.

Although the OIC Member Countries are taking individual steps in this field, there is still a synergic potential to manage, develop and re-allocate available resources to excel in nanotechnology by enhancing cooperation and collaboration among the OIC member countries.

The following are recommended as ways and means for enhancing the networking among nanotechnology centres in the OIC Member Countries:

1. Establishing a world-class nanotechnology centre: In order to raise future nanoscientists for catering the human resources need of the OIC Member Countries in nanotechnology, a world-class nanotechnology centre should be established. Besides offering graduate nanotechnology programs, this Centre should also host an intellectual property and incubation office providing venture capital support to nanotechnology start-up companies.

2. Exchange of nanoscientists for long term between the existing nanocentres: For period ranging from 12 months to 24 months, an exchange of nanoscientists should take place between the existing nanocentres for targeted research areas. This exchange program should also give financial support to nanoscientists regarding salary, research grants, and equipment usage fees.

3. Support programs for individual nanoscientists to use existing nanocentres for short term: Similar to the long-term exchange program, under this scheme students working towards for a doctoral degree in nanotechnology or researchers should be given the opportunity to use existing nanocentres for a period of one or two weeks. This program should also financially support the nanoscientists regarding their travel, accommodation, and fees for nanocentre usage.
4. Collaborative nanotechnology research projects: With the support of high technology firms, at least three OIC Member Countries should collaborate for targeted research areas in nanotechnology. The European Union's Seventh Framework Programme offers a sample model for such collaborative research projects.
5. An annual nanotechnology conference and project fair: In order to increase networking and collaboration opportunities among the researchers and investors of the OIC Member Countries, an annual nanotechnology conference and project fair should be organised. On the sidelines of this conference, a project fair and a researcher-investor business forum would also enhance the interaction among the OIC Member Countries.
6. Experience sharing between the existing nanocentres for training nanocentre technicians: By organising 4 to 6-week study visits, the technicians working at nanocentres should be trained under workshops focusing on specific techniques.

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COUNTRY PROFILES

Data Sources:

ISI Web of Knowledge

Online Computer Library Centre (OCLC)

Statistical, Economic and Social Research and Training Centre for Islamic Countries (SESRIC), BASEIND Database

United Nations Development Program (UNDP), Human Development Report 2011

United Nations Educational, Scientific and Cultural Organization (UNESCO), UIS Data Centre

World Bank, Education Statistics

World Bank, Knowledge Economy Index

World Bank, World Development Indicators (WDI) Online Database

World Intellectual Property Organization (WIPO), Statistics on Patents

Afghanistan

GENERAL INFORMATION

Population (mln)	2011	35,32
Population Growth (%)	2011	2,72
Rural Population (% of total population)	2011	77,10
Labour Force (% of total population)	2009	26,35
Unemployment Rate (% of labor force)	2005	8,50
GDP per capita (PPP, cur. $)	2011	957
Infant Mortality (per 1,000)	2011	72,70
School Age Pop.off ent. age(% of total population)	2011	3,01
Average Years of Schooling	2010	4,33
Life Expectancy at birth (years)	2010	48,28

PARTICIPATION in EDUCATION

	GER		NER		GPI	
Pre-primary Schools	2010	0,7			2011	0,80
Primary Schools	2010	97,1	2010	25,67	2010	0,69
Secondary Schools	2010	45,5	2007	24,08	2010	0,51
Tertiary Schools	2009	3,3			2009	0,24

PROGRESSION and COMPLETION

Primary Completion Rate (Total)	2005	34,1
Repetition Rates in Primary (all grades)	2005	16,3
Repetition Rates in Secondary (all grades)	...	...
Survival Rate to Last Grade of Primary	...	...
Transition Rate from Primary to Secondary	...	...

LITERACY RATES (%)

Youth	
Male	na
Female	na
Total	na
Adult	
Male	na
Female	na
Total	na

RESOURCES for EDUCATION

Pupil / Teacher Ratio (primary)	2010	44,4
Public Education Spending (% of GDP)	...	...
Gov't Expenditure on Edu. (per pupil % of GDP per Capita)	...	...

RESEARCH and DEVELOPMENT

Reserchers (per million people)	...	...
Volumes per Academic Library	2009	21.000
GERD (% of GDP)	...	...
GERD per capita (cur. PPP $)	...	...
Patent Applications (total)	...	...
Scientific Published Articles	2011	34
Articles (per million people)	2011	1,05

INDICES

	Value	Rank
Human Development Index (2011)	0,398 (Low)	172
Knowledge Economy Index (2012)	...	...

Albania

GENERAL INFORMATION

Population (mln)	2011	3,22
Population Growth (%)	2011	0,36
Rural Population (% of total population)	2011	47,11
Labour Force (% of total population)	2009	46,70
Unemployment Rate (% of labor force)	2009	13,80
GDP per capita (PPP, cur. $)	2011	7.848
Infant Mortality (per 1,000)	2011	12,80
School Age Pop.official ent. age(% of total population)	2011	1,47
Average Years of Schooling	2010	10,26
Life Expectancy at birth (years)	2011	77,04

PARTICIPATION in EDUCATION

	GER		NER		GPI	
Pre-primary Schools	2010	55,7			2010	0,98
Primary Schools	2010	86,9	2010	79,9	2010	0,99
Secondary Schools	2010	88,9	2010	74,3	2010	0,98
Tertiary Schools	2010	18,4			2011	1,57

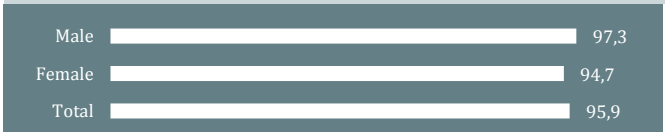
PROGRESSION and COMPLETION

Primary Completion Rate (Total)	2010	86,3
Repetition Rates in Primary (all grades)	2010	1,0
Repetition Rates in Secondary (all grades)	2009	1,5
Survival Rate to Last Grade of Primary	2009	95,2
Transition Rate from Primary to Secondary	2009	96,9

LITERACY RATES (%)

Youth

Adult



RESOURCES for EDUCATION

Pupil / Teacher Ratio (primary)	2010	19,7
Public Education Spending (% of GDP)	...	...
Gov't Expenditure on Edu. (per pupil % of GDP per Capita)	...	...

RESEARCH and DEVELOPMENT

Reserchers (per million people)	2008	541
Volumes per Academic Library	2008	36.504
GERD (% of GDP)	2008	0,31
GERD per capita (cur. PPP $)	2008	12,52
Patent Applications (total)	2009	361
Scientific Published Articles	2011	154
Articles (per million people)	2011	47,89

INDICES

	Value	Rank
Human Development Index (2011)	0,739 (High)	70
Knowledge Economy Index (2012)	4,530	82

Algeria

GENERAL INFORMATION

Population (mln)	2011	35,98
Population Growth (%)	2011	1,43
Rural Population (% of total population)	2011	32,91
Labour Force (% of total population)	2009	31,59
Unemployment Rate (% of labor force)	2010	11,40
GDP per capita (PPP, cur. $)	2011	7.325
Infant Mortality (per 1,000)	2011	25,60
School Age Pop.off ent. age(% of total population)	2011	1,79
Average Years of Schooling	2010	7,90
Life Expectancy at birth (years)	2011	73,08

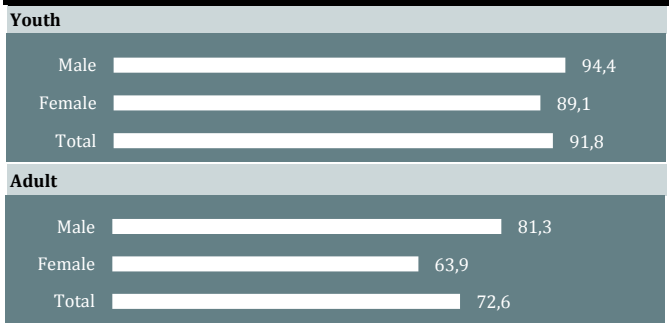
PARTICIPATION in EDUCATION

	GER		NER		GPI	
Pre-primary Schools	2010	77,4			2010	0,96
Primary Schools	2010	110,2	2010	95,63	2010	0,94
Secondary Schools	2009	94,9	2010	66,66	2009	1,02
Tertiary Schools	2010	30,8			2010	1,46

PROGRESSION and COMPLETION

Primary Completion Rate (Total)	2010	96,0
Repetition Rates in Primary (all grades)	2010	7,5
Repetition Rates in Secondary (all grades)	2009	16,1
Survival Rate to Last Grade of Primary	2009	95,0
Transition Rate from Primary to Secondary	2007	91,2

LITERACY RATES (%)



RESOURCES for EDUCATION

Pupil / Teacher Ratio (primary)	2010	23,3
Public Education Spending (% of GDP)	2008	4,34
Gov't Expenditure on Edu. (per pupil % of GDP per Capita)	...	...

RESEARCH and DEVELOPMENT

Reserchers (per million people)	2005	420
Volumes per Academic Library	2008	98.650
GERD (% of GDP)	2005	0,15
GERD per capita (cur. PPP $)	2005	4,77
Patent Applications (total)	2010	806
Scientific Published Articles	2011	1.743
Articles (per million people)	2011	48,44

INDICES

	Value	Rank
Human Development Index (2011)	0,698 (Medium)	96
Knowledge Economy Index (2012)	3,790	96

Azerbaijan

GENERAL INFORMATION

Population (mln)	2011	9,17
Population Growth (%)	2011	1,25
Rural Population (% of total population)	2011	47,94
Labour Force (% of total population)	2009	50,87
Unemployment Rate (% of labor force)	2009	6,00
GDP per capita (PPP, cur. $)	2011	10.201
Infant Mortality (per 1,000)	2011	38,50
School Age Pop.official ent. age(% of total population)	2011	1,30
Average Years of Schooling	2010	...
Life Expectancy at birth (years)	2010	70,51

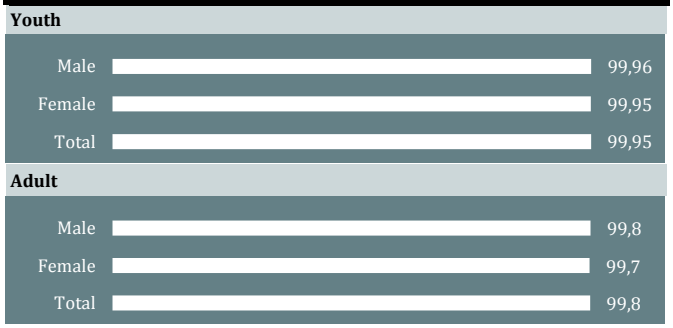
PARTICIPATION in EDUCATION

	GER		NER		GPI	
Pre-primary Schools	2010	25,2			2010	0,97
Primary Schools	2010	93,8	2010	84,4	2010	0,99
Secondary Schools	2010	84,6	2006	79,3	2010	0,98
Tertiary Schools	2010	19,1			2010	0,98

PROGRESSION and COMPLETION

Primary Completion Rate (Total)	2010	89,5
Repetition Rates in Primary (all grades)	2010	0,3
Repetition Rates in Secondary (all grades)	2010	0,7
Survival Rate to Last Grade of Primary	2009	96,4
Transition Rate from Primary to Secondary	2009	98,3

LITERACY RATES (%)



RESOURCES for EDUCATION

Pupil / Teacher Ratio (primary)	2010	11,0
Public Education Spending (% of GDP)	2009	3,2
Gov't Expenditure on Edu. (per pupil % of GDP per Capita)	2009	15,1

RESEARCH and DEVELOPMENT

Reserchers (per million people)	2009	1.218
Volumes per Academic Library	2009	429.675
GERD (% of GDP)	2009	0,48
GERD per capita (cur. PPP $)	2009	23,41
Patent Applications (total)	2010	271
Scientific Published Articles	2011	582
Articles (per million people)	2011	62,54

INDICES

	Value	Rank
Human Development Index (2011)	0,700 (High)	91
Knowledge Economy Index (2012)	4,560	79

Bahrain

GENERAL INFORMATION

Population (mln)	2011	1,32
Population Growth (%)	2011	4,77
Rural Population (% of total population)	2011	11,33
Labour Force (% of total population)	2009	56,38
Unemployment Rate (% of labor force)	2004	9,00
GDP per capita (PPP, cur. $)	2011	27.735
Infant Mortality (per 1,000)	2011	8,60
School Age Pop.off ent. age(% of total population)	2007	1,56
Average Years of Schooling	2010	9,59
Life Expectancy at birth (years)	2011	75,16

PARTICIPATION in EDUCATION

	GER		NER		GPI	
Pre-primary Schools	2006	47,4			2006	0,91
Primary Schools	2006	107,3	2006	97,85	2006	0,99
Secondary Schools	2006	103,1	2006	94,27	2006	1,04
Tertiary Schools	...	...			2011	1,78

PROGRESSION and COMPLETION

Primary Completion Rate (Total)	2005	107,3
Repetition Rates in Primary (all grades)	2009	1,9
Repetition Rates in Secondary (all grades)	2009	4,2
Survival Rate to Last Grade of Primary	2004	98,2
Transition Rate from Primary to Secondary	2008	98,8

LITERACY RATES (%)

RESOURCES for EDUCATION

Pupil / Teacher Ratio (primary)	2002	16,4
Public Education Spending (% of GDP)	2008	2,93
Gov't Expenditure on Edu. (per pupil % of GDP per Capita)	...	...

RESEARCH and DEVELOPMENT

Reserchers (per million people)	...	...
Volumes per Academic Library	2009	29.308
GERD (% of GDP)	...	...
GERD per capita (cur. PPP $)	...	...
Patent Applications (total)	2003	3
Scientific Published Articles	2011	124
Articles (per million people)	2011	93,69

INDICES

	Value	Rank
Human Development Index (2011)	0,806 (Very High)	42
Knowledge Economy Index (2012)	6,900	43

Bangladesh

GENERAL INFORMATION

Population (mln)	2011	150,49
Population Growth (%)	2011	1,20
Rural Population (% of total population)	2011	71,41
Labour Force (% of total population)	2009	48,64
Unemployment Rate (% of labor force)	2009	5,00
GDP per capita (PPP, cur. $)	2011	1.909
Infant Mortality (per 1,000)	2011	36,70
School Age Pop.official ent. age(% of total population)	2011	2,06
Average Years of Schooling	2010	5,79
Life Expectancy at birth (years)	2011	68,94

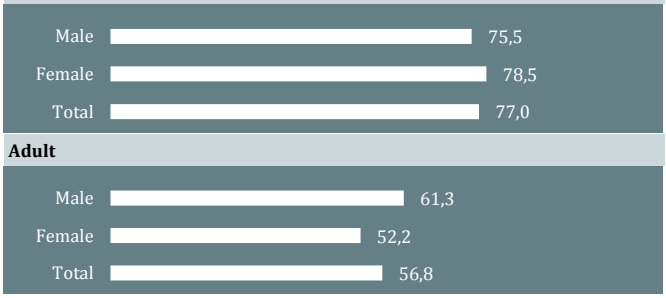
PARTICIPATION in EDUCATION

	GER		NER		GPI	
Pre-primary Schools	2010	13,4			2010	0,99
Primary Schools	2010	81,3	2010	72,7	2009	1,04
Secondary Schools	2010	51,4	2010	47,4	2010	1,13
Tertiary Schools	2009	10,6			2009	0,61

PROGRESSION and COMPLETION

Primary Completion Rate (Total)	2009	60,5
Repetition Rates in Primary (all grades)	2010	12,5
Repetition Rates in Secondary (all grades)	2010	3,6
Survival Rate to Last Grade of Primary	2009	66,2
Transition Rate from Primary to Secondary	2005	97,4

LITERACY RATES (%)



RESOURCES for EDUCATION

Pupil / Teacher Ratio (primary)	2010	43,0
Public Education Spending (% of GDP)	2009	2,2
Gov't Expenditure on Edu. (per pupil % of GDP per Capita)	2009	10,7

RESEARCH and DEVELOPMENT

Reserchers (per million people)	1997	50
Volumes per Academic Library	2009	86.217
GERD (% of GDP)	...	...
GERD per capita (cur. PPP $)	...	...
Patent Applications (total)	2010	342
Scientific Published Articles	2011	1.096
Articles (per million people)	2011	7,28

INDICES

	Value	Rank
Human Development Index (2011)	0,500 (Low)	146
Knowledge Economy Index (2012)	1,490	137

Benin

GENERAL INFORMATION

Population (mln)	2011	9,10
Population Growth (%)	2011	2,79
Rural Population (% of total population)	2011	57,51
Labour Force (% of total population)	2009	40,88
Unemployment Rate (% of labor force)	2002	0,70
GDP per capita (PPP, cur. $)	2011	1.620
Infant Mortality (per 1,000)	2011	67,90
School Age Pop.off ent. age(% of total population)	2011	2,86
Average Years of Schooling	2010	4,44
Life Expectancy at birth (years)	2011	56,01

PARTICIPATION in EDUCATION

	GER		NER		GPI	
Pre-primary Schools	2010	18,2			2010	1,04
Primary Schools	2010	125,9	2010	93,80	2010	0,87
Secondary Schools	2010	37,1	2010	19,95	2011	0,54
Tertiary Schools	2009	10,6			2009	0,38

PROGRESSION and COMPLETION

Primary Completion Rate (Total)	2009	63,4
Repetition Rates in Primary (all grades)	2010	13,4
Repetition Rates in Secondary (all grades)	2006	16,8
Survival Rate to Last Grade of Primary	2003	64,3
Transition Rate from Primary to Secondary	2005	71,3

LITERACY RATES (%)

Youth

Male	65,6
Female	44,6
Total	55,0

Adult

Male	55,2
Female	30,3
Total	42,4

RESOURCES for EDUCATION

Pupil / Teacher Ratio (primary)	2010	46,4
Public Education Spending (% of GDP)	2009	4,51
Gov't Expenditure on Edu. (per pupil % of GDP per Capita)	...	...

RESEARCH and DEVELOPMENT

Reserchers (per million people)	2007	123
Volumes per Academic Library	2009	27.500
GERD (% of GDP)	...	...
GERD per capita (cur. PPP $)	...	...
Patent Applications (total)	...	...
Scientific Published Articles	2011	353
Articles (per million people)	2011	38,79

INDICES

	Value	Rank
Human Development Index (2011)	0,427 (Low)	167
Knowledge Economy Index (2012)	1,880	125

Brunei Darussalam

GENERAL INFORMATION

Population (mln)	2011	0,41
Population Growth (%)	2011	1,74
Rural Population (% of total population)	2011	23,89
Labour Force (% of total population)	2009	48,94
Unemployment Rate (% of labor force)	1991	4,70
GDP per capita (PPP, cur. $)	2011	49.536
Infant Mortality (per 1,000)	2011	5,60
School Age Pop.official ent. age(% of total population)	2011	1,80
Average Years of Schooling	2010	7,50
Life Expectancy at birth (years)	2011	78,07

PARTICIPATION in EDUCATION

	GER		NER		GPI	
Pre-primary Schools	2010	88,1			2010	1,00
Primary Schools	2010	108,0	2010	99,1	2010	1,01
Secondary Schools	2010	109,7	2009	97,4	2010	1,03
Tertiary Schools	2010	17,2			2010	1,79

PROGRESSION and COMPLETION

Primary Completion Rate (Total)	2010	117,8
Repetition Rates in Primary (all grades)	2010	0,1
Repetition Rates in Secondary (all grades)	2010	6,9
Survival Rate to Last Grade of Primary	2009	96,1
Transition Rate from Primary to Secondary	2009	99,6

LITERACY RATES (%)

Youth

Male	99,8
Female	99,7
Total	99,7

Adult

Male	96,8
Female	93,6
Total	95,2

RESOURCES for EDUCATION

Pupil / Teacher Ratio (primary)	2010	11,3
Public Education Spending (% of GDP)	2010	2,0
Gov't Expenditure on Edu. (per pupil % of GDP per Capita)	2010	7,2

RESEARCH and DEVELOPMENT

Reserchers (per million people)	2004	686
Volumes per Academic Library	2009	131.500
GERD (% of GDP)	2004	0,08
GERD per capita (cur. PPP $)	2004	17,61
Patent Applications (total)	2009	42
Scientific Published Articles	2011	49
Articles (per million people)	2011	120,71

INDICES

	Value	Rank
Human Development Index (2011)	0,838 (Very High)	33
Knowledge Economy Index (2012)	...	...

Burkina Faso

GENERAL INFORMATION

Population (mln)	2011	16,97
Population Growth (%)	2011	2,99
Rural Population (% of total population)	2011	73,45
Labour Force (% of total population)	2009	45,81
Unemployment Rate (% of labor force)	2007	3,30
GDP per capita (PPP, cur. $)	2011	1.302
Infant Mortality (per 1,000)	2011	81,60
School Age Pop.off ent. age(% of total population)	2011	2,95
Average Years of Schooling	2010	2,69
Life Expectancy at birth (years)	2011	55,36

PARTICIPATION in EDUCATION

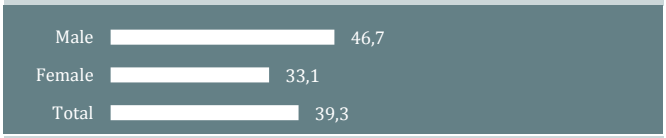
	GER		NER		GPI	
Pre-primary Schools	2011	3,0			2011	1,01
Primary Schools	2011	79,4	2011	63,17	2011	0,93
Secondary Schools	2011	22,6	2011	17,50	2011	0,78
Tertiary Schools	2011	3,9			2011	0,50

PROGRESSION and COMPLETION

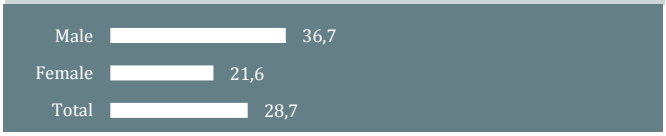
Primary Completion Rate (Total)	2010	45,1
Repetition Rates in Primary (all grades)	2010	10,1
Repetition Rates in Secondary (all grades)	2011	25,8
Survival Rate to Last Grade of Primary	2009	63,6
Transition Rate from Primary to Secondary	2010	52,1

LITERACY RATES (%)

Youth



Adult



RESOURCES for EDUCATION

Pupil / Teacher Ratio (primary)	2011	48,2
Public Education Spending (% of GDP)	2010	4,01
Gov't Expenditure on Edu. (per pupil % of GDP per Capita)	2010	24,644

RESEARCH and DEVELOPMENT

Reserchers (per million people)	2010	69
Volumes per Academic Library	2009	4.120
GERD (% of GDP)	2009	0,46
GERD per capita (cur. PPP $)	2009	2,42
Patent Applications (total)	2010	2
Scientific Published Articles	2011	272
Articles (per million people)	2011	16,03

INDICES

	Value	Rank
Human Development Index (2011)	0,331 (Low)	181
Knowledge Economy Index (2012)	1,910	124

Cameroon

GENERAL INFORMATION

Population (mln)	2011	20,03
Population Growth (%)	2011	2,18
Rural Population (% of total population)	2011	40,82
Labour Force (% of total population)	2009	41,89
Unemployment Rate (% of labor force)	2007	2,90
GDP per capita (PPP, cur. $)	2011	2.259
Infant Mortality (per 1,000)	2011	79,20
School Age Pop.official ent. age(% of total population)	2011	2,70
Average Years of Schooling	2010	6,07
Life Expectancy at birth (years)	2011	51,58

PARTICIPATION in EDUCATION

	GER		NER		GPI	
Pre-primary Schools	2010	28,4			2010	1,02
Primary Schools	2010	119,8	2010	92,4	2010	0,86
Secondary Schools	2010	42,2	...	...	2010	0,83
Tertiary Schools	2010	11,5			2010	0,81

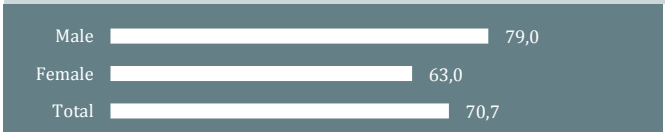
PROGRESSION and COMPLETION

Primary Completion Rate (Total)	2010	78,7
Repetition Rates in Primary (all grades)	2010	13,1
Repetition Rates in Secondary (all grades)	2009	18,6
Survival Rate to Last Grade of Primary	2009	66,2
Transition Rate from Primary to Secondary	2008	43,4

LITERACY RATES (%)

Youth

Adult



RESOURCES for EDUCATION

Pupil / Teacher Ratio (primary)	2010	45,5
Public Education Spending (% of GDP)	2010	3,5
Gov't Expenditure on Edu. (per pupil % of GDP per Capita)	2010	12,8

RESEARCH and DEVELOPMENT

Reserchers (per million people)	2008	243
Volumes per Academic Library	2009	34.712
GERD (% of GDP)	...	...
GERD per capita (cur. PPP $)	...	...
Patent Applications (total)	...	...
Scientific Published Articles	2011	586
Articles (per million people)	2011	29,26

INDICES

	Value	Rank
Human Development Index (2011)	0,482 (Low)	150
Knowledge Economy Index (2012)	1,690	133

Chad

GENERAL INFORMATION

Population (mln)	2011	11,53
Population Growth (%)	2011	2,62
Rural Population (% of total population)	2011	71,84
Labour Force (% of total population)	2009	39,40
Unemployment Rate (% of labor force)	1993	0,70
GDP per capita (PPP, cur. $)	2011	1.867
Infant Mortality (per 1,000)	2011	97,10
School Age Pop.off ent. age(% of total population)	2011	3,01
Average Years of Schooling	2010	3,39
Life Expectancy at birth (years)	2011	49,52

PARTICIPATION in EDUCATION

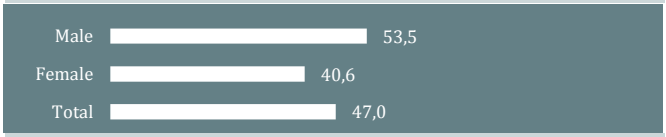
	GER		NER		GPI	
Pre-primary Schools	2010	1,9			2010	0,91
Primary Schools	2010	92,5	2010	62,29	2010	0,73
Secondary Schools	2010	24,6	2010	10,77	2010	0,42
Tertiary Schools	2010	2,2			2010	0,17

PROGRESSION and COMPLETION

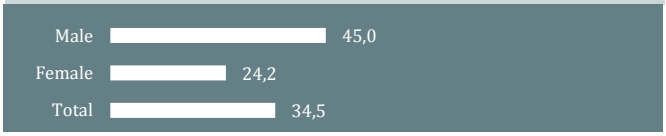
Primary Completion Rate (Total)	2010	34,5
Repetition Rates in Primary (all grades)	2010	22,4
Repetition Rates in Secondary (all grades)	2010	19,7
Survival Rate to Last Grade of Primary	2009	27,8
Transition Rate from Primary to Secondary	2009	71,4

LITERACY RATES (%)

Youth



Adult



RESOURCES for EDUCATION

Pupil / Teacher Ratio (primary)	2010	62,2
Public Education Spending (% of GDP)	2010	2,78
Gov't Expenditure on Edu. (per pupil % of GDP per Capita)	2010	14,1788

RESEARCH and DEVELOPMENT

Reserchers (per million people)	...	...
Volumes per Academic Library	2009	23.000
GERD (% of GDP)	...	...
GERD per capita (cur. PPP $)	...	...
Patent Applications (total)	...	...
Scientific Published Articles	2011	19
Articles (per million people)	2011	1,65

INDICES

	Value	Rank
Human Development Index (2011)	0,328 (Low)	183
Knowledge Economy Index (2012)	...	...

Comoros

GENERAL INFORMATION

Population (mln)	2011	0,75
Population Growth (%)	2011	2,58
Rural Population (% of total population)	2011	66,84
Labour Force (% of total population)	2009	33,00
Unemployment Rate (% of labor force)	1991	20,00
GDP per capita (PPP, cur. $)	2011	1.232
Infant Mortality (per 1,000)	2011	58,80
School Age Pop.official ent. age(% of total population)	2011	2,89
Average Years of Schooling	2010	5,69
Life Expectancy at birth (years)	2010	60,63

PARTICIPATION in EDUCATION

	GER		NER		GPI	
Pre-primary Schools	2008	21,8			2008	0,97
Primary Schools	2008	104,3	2007	77,8	2008	0,92
Secondary Schools	...	...	...	...	2011	0,76
Tertiary Schools	2010	7,9			2010	0,74

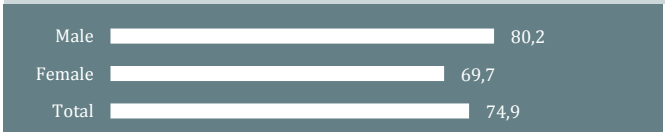
PROGRESSION and COMPLETION

Primary Completion Rate (Total)	2008	74,8
Repetition Rates in Primary (all grades)	2008	24,4
Repetition Rates in Secondary (all grades)	2005	16,4
Survival Rate to Last Grade of Primary	2004	74,1
Transition Rate from Primary to Secondary	2004	63,2

LITERACY RATES (%)

Youth

Adult



RESOURCES for EDUCATION

Pupil / Teacher Ratio (primary)	2008	30,2
Public Education Spending (% of GDP)	2008	7,6
Gov't Expenditure on Edu. (per pupil % of GDP per Capita)	...	...

RESEARCH and DEVELOPMENT

Reserchers (per million people)	...	...
Volumes per Academic Library	...	...
GERD (% of GDP)	...	...
GERD per capita (cur. PPP $)	...	...
Patent Applications (total)	...	...
Scientific Published Articles	2011	7
Articles (per million people)	2011	9,28

INDICES

	Value	Rank
Human Development Index (2011)	0,433 (Low)	163
Knowledge Economy Index (2012)	...	...

Cote d'Ivoire

GENERAL INFORMATION

Population (mln)	2011	20,15
Population Growth (%)	2011	2,08
Rural Population (% of total population)	2011	48,69
Labour Force (% of total population)	2010	39,45
Unemployment Rate (% of labor force)	1998	4,10
GDP per capita (PPP, cur. $)	2011	1.590
Infant Mortality (per 1,000)	2011	81,20
School Age Pop.off ent. age(% of total population)	2011	2,74
Average Years of Schooling	2010	3,70
Life Expectancy at birth (years)	2011	55,42

PARTICIPATION in EDUCATION

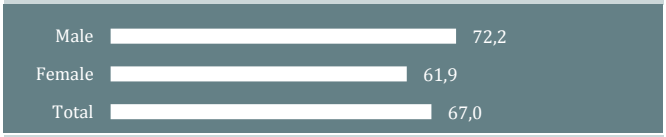
	GER		NER		GPI	
Pre-primary Schools	2011	4,4			2011	1,00
Primary Schools	2011	88,0	2009	61,48	2011	0,83
Secondary Schools	2010	27,1	2010	19,95	2011	0,55
Tertiary Schools	2007	8,9			2007	0,50

PROGRESSION and COMPLETION

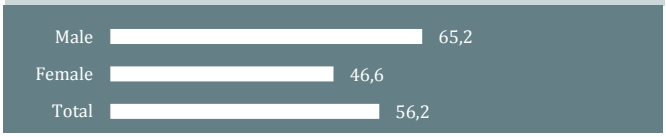
Primary Completion Rate (Total)	2011	58,6
Repetition Rates in Primary (all grades)	2011	16,6
Repetition Rates in Secondary (all grades)	2011	17,4
Survival Rate to Last Grade of Primary	2008	60,8
Transition Rate from Primary to Secondary	2008	46,1

LITERACY RATES (%)

Youth



Adult



RESOURCES for EDUCATION

Pupil / Teacher Ratio (primary)	2011	48,8
Public Education Spending (% of GDP)	2008	4,60
Gov't Expenditure on Edu. (per pupil % of GDP per Capita)	...	...

RESEARCH and DEVELOPMENT

Reserchers (per million people)	2005	133
Volumes per Academic Library	2008	10.028
GERD (% of GDP)	...	...
GERD per capita (cur. PPP $)	...	...
Patent Applications (total)	...	...
Scientific Published Articles	2011	216
Articles (per million people)	2011	10,72

INDICES

	Value	Rank
Human Development Index (2011)	0,400 (Low)	170
Knowledge Economy Index (2012)	1,540	136

Djibouti

GENERAL INFORMATION

Population (mln)	2011	0,91
Population Growth (%)	2011	1,88
Rural Population (% of total population)	2011	23,62
Labour Force (% of total population)	2010	32,87
Unemployment Rate (% of labor force)	2002	59,50
GDP per capita (PPP, cur. $)	2011	2.641
Infant Mortality (per 1,000)	2011	71,80
School Age Pop.official ent. age(% of total population)	2011	2,33
Average Years of Schooling	2010	...
Life Expectancy at birth (years)	2011	57,91

PARTICIPATION in EDUCATION

	GER		NER		GPI	
Pre-primary Schools	2011	4,3			2011	0,97
Primary Schools	2011	59,1	2009	44,5	2011	0,90
Secondary Schools	2011	36,1	2008	24,2	2011	0,80
Tertiary Schools	2011	4,9			2011	0,67

PROGRESSION and COMPLETION

Primary Completion Rate (Total)	2009	35,6
Repetition Rates in Primary (all grades)	2011	9,6
Repetition Rates in Secondary (all grades)	2011	6,2
Survival Rate to Last Grade of Primary	2008	64,3
Transition Rate from Primary to Secondary	2008	66,0

LITERACY RATES (%)

Youth

Male	na
Female	na
Total	na

Adult

Male	na
Female	na
Total	na

RESOURCES for EDUCATION

Pupil / Teacher Ratio (primary)	2011	35,2
Public Education Spending (% of GDP)	...	...
Gov't Expenditure on Edu. (per pupil % of GDP per Capita)	...	...

RESEARCH and DEVELOPMENT

Reserchers (per million people)	...	...
Volumes per Academic Library	2009	16.000
GERD (% of GDP)	...	...
GERD per capita (cur. PPP $)	...	...
Patent Applications (total)	...	...
Scientific Published Articles	2011	11
Articles (per million people)	2011	12,15

INDICES

	Value	Rank
Human Development Index (2011)	0,430 (Low)	165
Knowledge Economy Index (2012)	1,340	139

Egypt

GENERAL INFORMATION

Population (mln)	2011	82,54
Population Growth (%)	2011	1,73
Rural Population (% of total population)	2011	56,46
Labour Force (% of total population)	2010	33,41
Unemployment Rate (% of labor force)	2009	9,40
GDP per capita (PPP, cur. $)	2011	6.455
Infant Mortality (per 1,000)	2011	18,00
School Age Pop.off ent. age(% of total population)	2011	2,08
Average Years of Schooling	2010	7,15
Life Expectancy at birth (years)	2011	73,20

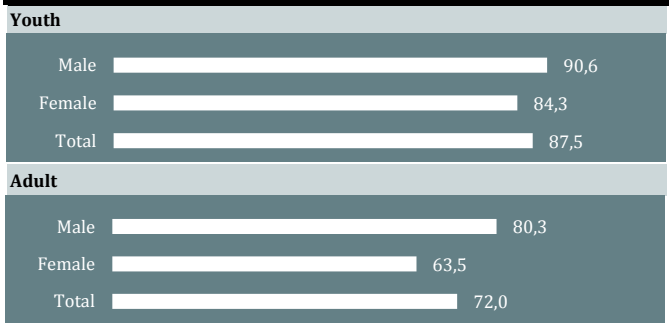
PARTICIPATION in EDUCATION

	GER		NER		GPI	
Pre-primary Schools	2009	23,7			2009	0,95
Primary Schools	2010	100,6	2010	94,43	2010	0,96
Secondary Schools	2010	72,5	2010	70,05	2010	0,96
Tertiary Schools	2010	32,4			2010	0,91

PROGRESSION and COMPLETION

Primary Completion Rate (Total)	2010	101,0
Repetition Rates in Primary (all grades)	2010	3,7
Repetition Rates in Secondary (all grades)	2010	7,6
Survival Rate to Last Grade of Primary	...	...
Transition Rate from Primary to Secondary	2003	86,1

LITERACY RATES (%)



RESOURCES for EDUCATION

Pupil / Teacher Ratio (primary)	2010	26,3
Public Education Spending (% of GDP)	2008	3,76
Gov't Expenditure on Edu. (per pupil % of GDP per Capita)	...	...

RESEARCH and DEVELOPMENT

Reserchers (per million people)	2009	1.018
Volumes per Academic Library	2005	11.665
GERD (% of GDP)	2009	0,53
GERD per capita (cur. PPP $)	2009	12,52
Patent Applications (total)	2010	2.230
Scientific Published Articles	2011	6.512
Articles (per million people)	2011	78,90

INDICES

	Value	Rank
Human Development Index (2011)	0,644 (Medium)	113
Knowledge Economy Index (2012)	3,780	97

Gabon

GENERAL INFORMATION

Population (mln)	2011	1,53
Population Growth (%)	2011	1,89
Rural Population (% of total population)	2011	13,56
Labour Force (% of total population)	2010	39,04
Unemployment Rate (% of labor force)	1993	17,80
GDP per capita (PPP, cur. $)	2011	16.313
Infant Mortality (per 1,000)	2011	49,30
School Age Pop.official ent. age(% of total population)	2011	2,31
Average Years of Schooling	2010	8,34
Life Expectancy at birth (years)	2011	62,69

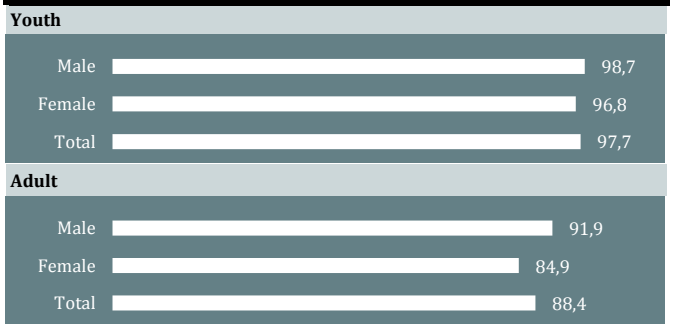
PARTICIPATION in EDUCATION

	GER		NER		GPI	
Pre-primary Schools	2011	41,8			2011	1,04
Primary Schools	2011	181,7	2010	91,8	2011	0,97
Secondary Schools	2010	53,1	...	...	2011	0,86
Tertiary Schools	...	...			2011	0,54

PROGRESSION and COMPLETION

Primary Completion Rate (Total)	2003	68,8
Repetition Rates in Primary (all grades)	2003	34,4
Repetition Rates in Secondary (all grades)	2002	21,7
Survival Rate to Last Grade of Primary	...	...
Transition Rate from Primary to Secondary	...	...

LITERACY RATES (%)



RESOURCES for EDUCATION

Pupil / Teacher Ratio (primary)	2011	24,5
Public Education Spending (% of GDP)	...	...
Gov't Expenditure on Edu. (per pupil % of GDP per Capita)	...	...

RESEARCH and DEVELOPMENT

Reserchers (per million people)	2009	359
Volumes per Academic Library	2009	8.875
GERD (% of GDP)	2009	1,24
GERD per capita (cur. PPP $)	2009	91,86
Patent Applications (total)	...	...
Scientific Published Articles	2011	118
Articles (per million people)	2011	76,91

INDICES

	Value	Rank
Human Development Index (2011)	0,674 (Medium)	106
Knowledge Economy Index (2012)	...	...

Gambia

GENERAL INFORMATION

Population (mln)	2011	1,78
Population Growth (%)	2011	2,72
Rural Population (% of total population)	2011	41,05
Labour Force (% of total population)	2010	43,47
Unemployment Rate (% of labor force)	...	...
GDP per capita (PPP, cur. $)	2011	1.943
Infant Mortality (per 1,000)	2011	57,60
School Age Pop.off ent. age(% of total population)	2011	2,85
Average Years of Schooling	2010	3,56
Life Expectancy at birth (years)	2011	58,48

PARTICIPATION in EDUCATION

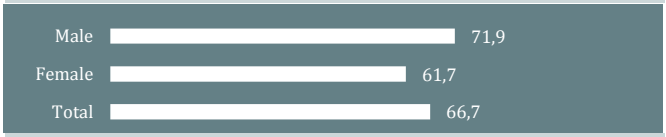
	GER		NER		GPI	
Pre-primary Schools	2010	30,4			2010	1,04
Primary Schools	2010	82,6	2010	65,51	2010	1,02
Secondary Schools	2010	54,1	...	...	2010	0,95
Tertiary Schools	2008	4,1			2011	0,22

PROGRESSION and COMPLETION

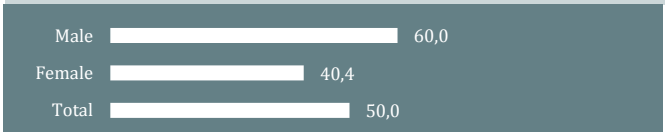
Primary Completion Rate (Total)	2010	70,5
Repetition Rates in Primary (all grades)	2010	5,5
Repetition Rates in Secondary (all grades)	2010	4,0
Survival Rate to Last Grade of Primary	2009	61,1
Transition Rate from Primary to Secondary	2009	81,1

LITERACY RATES (%)

Youth



Adult



RESOURCES for EDUCATION

Pupil / Teacher Ratio (primary)	2009	36,6
Public Education Spending (% of GDP)	2010	4,99
Gov't Expenditure on Edu. (per pupil % of GDP per Capita)	...	...

RESEARCH and DEVELOPMENT

Reserchers (per million people)	2009	106
Volumes per Academic Library	2009	5.376
GERD (% of GDP)	2009	0,05
GERD per capita (cur. PPP $)	2009	0,29
Patent Applications (total)	...	...
Scientific Published Articles	2011	69
Articles (per million people)	2011	38,85

INDICES

	Value	Rank
Human Development Index (2011)	0,420 (Low)	168
Knowledge Economy Index (2012)	...	...

Guinea

GENERAL INFORMATION

Population (mln)	2011	10,22
Population Growth (%)	2011	2,38
Rural Population (% of total population)	2011	64,12
Labour Force (% of total population)	2010	41,00
Unemployment Rate (% of labor force)	1994	3,10
GDP per capita (PPP, cur. $)	2011	1.086
Infant Mortality (per 1,000)	2011	78,90
School Age Pop.official ent. age(% of total population)	2011	2,74
Average Years of Schooling	2010	3,26
Life Expectancy at birth (years)	2011	54,09

PARTICIPATION in EDUCATION

	GER		NER		GPI	
Pre-primary Schools	2010	13,7			2010	0,99
Primary Schools	2010	94,4	2010	77,0	2010	0,84
Secondary Schools	2009	38,1	2009	29,5	2009	0,59
Tertiary Schools	2008	9,5			2008	0,33

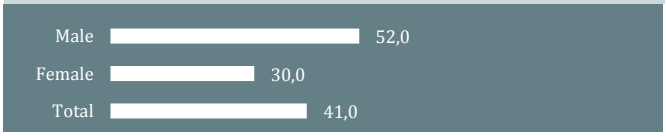
PROGRESSION and COMPLETION

Primary Completion Rate (Total)	2010	64,1
Repetition Rates in Primary (all grades)	2010	16,5
Repetition Rates in Secondary (all grades)	2010	15,8
Survival Rate to Last Grade of Primary	2009	65,7
Transition Rate from Primary to Secondary	2009	57,1

LITERACY RATES (%)

Youth

Adult



RESOURCES for EDUCATION

Pupil / Teacher Ratio (primary)	2010	42,2
Public Education Spending (% of GDP)	2008	2,4
Gov't Expenditure on Edu. (per pupil % of GDP per Capita)	...	...

RESEARCH and DEVELOPMENT

Reserchers (per million people)	2000	254
Volumes per Academic Library	2009	2.250
GERD (% of GDP)	...	...
GERD per capita (cur. PPP $)	...	...
Patent Applications (total)	...	...
Scientific Published Articles	2011	29
Articles (per million people)	2011	2,84

INDICES

	Value	Rank
Human Development Index (2011)	0,344 (Low)	178
Knowledge Economy Index (2012)	1,220	141

Guinea-Bissau

GENERAL INFORMATION

Population (mln)	2011	1,55
Population Growth (%)	2011	2,08
Rural Population (% of total population)	2011	69,81
Labour Force (% of total population)	2010	42,79
Unemployment Rate (% of labor force)	...	...
GDP per capita (PPP, cur. $)	2011	1.144
Infant Mortality (per 1,000)	2011	98,00
School Age Pop.off ent. age(% of total population)	2011	2,64
Average Years of Schooling	2010	...
Life Expectancy at birth (years)	2011	48,11

PARTICIPATION in EDUCATION

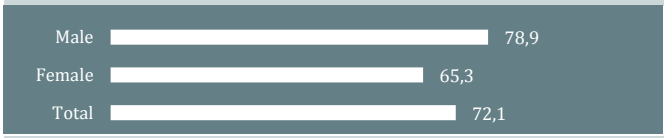
	GER		NER		GPI	
Pre-primary Schools	2010	6,9			2010	1,06
Primary Schools	2010	123,1	2010	73,92	2010	0,94
Secondary Schools	2006	36,0	2010	9,07	2011	0,55
Tertiary Schools	2006	2,7			2011	0,18

PROGRESSION and COMPLETION

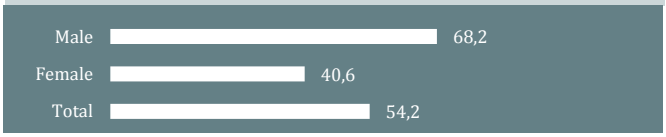
Primary Completion Rate (Total)	2010	67,6
Repetition Rates in Primary (all grades)	2010	14,1
Repetition Rates in Secondary (all grades)	2010	13,1
Survival Rate to Last Grade of Primary	...	...
Transition Rate from Primary to Secondary	1999	63,4

LITERACY RATES (%)

Youth



Adult



RESOURCES for EDUCATION

Pupil / Teacher Ratio (primary)	2010	51,9
Public Education Spending (% of GDP)	...	...
Gov't Expenditure on Edu. (per pupil % of GDP per Capita)	...	...

RESEARCH and DEVELOPMENT

Reserchers (per million people)	...	...
Volumes per Academic Library	2009	21.000
GERD (% of GDP)	...	...
GERD per capita (cur. PPP $)	...	...
Patent Applications (total)	...	...
Scientific Published Articles	2011	27
Articles (per million people)	2011	17,45

INDICES

	Value	Rank
Human Development Index (2011)	0,353 (Low)	176
Knowledge Economy Index (2012)	...	...

Guyana

GENERAL INFORMATION

Population (mln)	2011	0,76
Population Growth (%)	2011	0,20
Rural Population (% of total population)	2011	71,30
Labour Force (% of total population)	2010	39,99
Unemployment Rate (% of labor force)	2002	11,80
GDP per capita (PPP, cur. $)	2011	7.569
Infant Mortality (per 1,000)	2011	29,40
School Age Pop.official ent. age(% of total population)	2011	2,29
Average Years of Schooling	2010	8,98
Life Expectancy at birth (years)	2011	69,86

PARTICIPATION in EDUCATION

	GER		NER		GPI	
Pre-primary Schools	2010	75,9			2010	1,07
Primary Schools	2010	84,8	2010	80,6	2010	1,04
Secondary Schools	2010	91,0	2009	80,5	2010	1,11
Tertiary Schools	2010	11,9			2010	2,52

PROGRESSION and COMPLETION

Primary Completion Rate (Total)	2010	83,2
Repetition Rates in Primary (all grades)	2010	0,5
Repetition Rates in Secondary (all grades)	2010	10,4
Survival Rate to Last Grade of Primary	2008	83,5
Transition Rate from Primary to Secondary	2009	94,8

LITERACY RATES (%)

Youth

Male	na
Female	na
Total	na

Adult

Male	na
Female	na
Total	na

RESOURCES for EDUCATION

Pupil / Teacher Ratio (primary)	2010	24,6
Public Education Spending (% of GDP)	2010	3,7
Gov't Expenditure on Edu. (per pupil % of GDP per Capita)	2010	13,1

RESEARCH and DEVELOPMENT

Reserchers (per million people)	...	...
Volumes per Academic Library	2011	71.429
GERD (% of GDP)	...	...
GERD per capita (cur. PPP $)	...	...
Patent Applications (total)	...	...
Scientific Published Articles	2011	23
Articles (per million people)	2011	30,42

INDICES

	Value	Rank
Human Development Index (2011)	0,633 (Medium)	117
Knowledge Economy Index (2012)	4,670	78

Indonesia

GENERAL INFORMATION

Population (mln)	2011	242,33
Population Growth (%)	2011	1,02
Rural Population (% of total population)	2011	55,42
Labour Force (% of total population)	2010	49,18
Unemployment Rate (% of labor force)	2010	7,10
GDP per capita (PPP, cur. $)	2011	4.666
Infant Mortality (per 1,000)	2011	24,80
School Age Pop.off ent. age(% of total population)	2011	1,83
Average Years of Schooling	2010	6,11
Life Expectancy at birth (years)	2011	69,32

PARTICIPATION in EDUCATION

	GER		NER		GPI	
Pre-primary Schools	2010	43,4			2010	1,03
Primary Schools	2010	118,1	2010	96,00	2010	1,02
Secondary Schools	2010	77,2	2010	67,28	2010	1,00
Tertiary Schools	2010	23,1			2010	0,89

PROGRESSION and COMPLETION

Primary Completion Rate (Total)	2009	104,5
Repetition Rates in Primary (all grades)	2010	3,3
Repetition Rates in Secondary (all grades)	2009	0,6
Survival Rate to Last Grade of Primary	2007	80,0
Transition Rate from Primary to Secondary	2008	91,8

LITERACY RATES (%)

RESOURCES for EDUCATION

Pupil / Teacher Ratio (primary)	2010	16,0
Public Education Spending (% of GDP)	2010	3,01
Gov't Expenditure on Edu. (per pupil % of GDP per Capita)	2010	12,1816

RESEARCH and DEVELOPMENT

Reserchers (per million people)	2009	173
Volumes per Academic Library	2008	3.046
GERD (% of GDP)	2009	0,15
GERD per capita (cur. PPP $)	2009	3,41
Patent Applications (total)	2010	5.638
Scientific Published Articles	2011	1.128
Articles (per million people)	2011	4,65

INDICES

	Value	Rank
Human Development Index (2011)	0,617 (Medium)	124
Knowledge Economy Index (2012)	3,110	108

Iran

GENERAL INFORMATION

Population (mln)	2011	74,80
Population Growth (%)	2011	1,11
Rural Population (% of total population)	2011	28,66
Labour Force (% of total population)	2010	34,14
Unemployment Rate (% of labor force)	2008	10,50
GDP per capita (PPP, cur. $)	2011	13.184
Infant Mortality (per 1,000)	2011	21,10
School Age Pop.official ent. age(% of total population)	2011	1,45
Average Years of Schooling	2010	8,07
Life Expectancy at birth (years)	2010	72,75

PARTICIPATION in EDUCATION

	GER		NER		GPI	
Pre-primary Schools	2010	42,3			2010	1,08
Primary Schools	2010	114,3	2007	99,5	2010	1,01
Secondary Schools	2010	90,9	2010	86,1	2010	0,86
Tertiary Schools	2010	42,8			2010	1,01

PROGRESSION and COMPLETION

Primary Completion Rate (Total)	2009	103,6
Repetition Rates in Primary (all grades)	2009	2,0
Repetition Rates in Secondary (all grades)	...	...
Survival Rate to Last Grade of Primary	2008	94,3
Transition Rate from Primary to Secondary	2008	96,5

LITERACY RATES (%)

RESOURCES for EDUCATION

Pupil / Teacher Ratio (primary)	2009	20,3
Public Education Spending (% of GDP)	2010	4,7
Gov't Expenditure on Edu. (per pupil % of GDP per Capita)	2010	18,6

RESEARCH and DEVELOPMENT

Reserchers (per million people)	2008	1.491
Volumes per Academic Library	2008	1.982
GERD (% of GDP)	2008	1,84
GERD per capita (cur. PPP $)	2008	89,01
Patent Applications (total)	2006	6.527
Scientific Published Articles	2011	21.485
Articles (per million people)	2011	287,24

INDICES

	Value	Rank
Human Development Index (2011)	0,707 (High)	88
Knowledge Economy Index (2012)	3,910	94

Iraq

GENERAL INFORMATION

Population (mln)	2011	32,96
Population Growth (%)	2011	2,87
Rural Population (% of total population)	2011	33,90
Labour Force (% of total population)	2010	23,53
Unemployment Rate (% of labor force)	2006	17,50
GDP per capita (PPP, cur. $)	2011	4.225
Infant Mortality (per 1,000)	2011	30,90
School Age Pop.off ent. age(% of total population)	2011	2,87
Average Years of Schooling	2010	5,84
Life Expectancy at birth (years)	2010	68,49

PARTICIPATION in EDUCATION

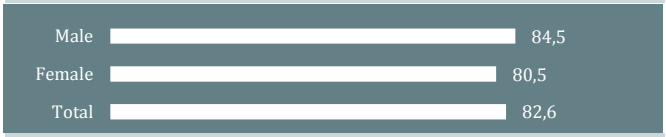
	GER		NER		GPI	
Pre-primary Schools	2007	6,2			2007	1,00
Primary Schools	2007	104,5	2007	89,23	2007	0,84
Secondary Schools	2007	52,9	2007	44,31	2007	0,75
Tertiary Schools	2010	16,4			2011	0,60

PROGRESSION and COMPLETION

Primary Completion Rate (Total)	2007	65,2
Repetition Rates in Primary (all grades)	2007	16,8
Repetition Rates in Secondary (all grades)	2007	21,3
Survival Rate to Last Grade of Primary	2003	66,7
Transition Rate from Primary to Secondary	2003	69,3

LITERACY RATES (%)

Youth



Adult

RESOURCES for EDUCATION

Pupil / Teacher Ratio (primary)	2007	17,0
Public Education Spending (% of GDP)	...	...
Gov't Expenditure on Edu. (per pupil % of GDP per Capita)	...	...

RESEARCH and DEVELOPMENT

Reserchers (per million people)	2009	49
Volumes per Academic Library	2009	115.472
GERD (% of GDP)	...	...
GERD per capita (cur. PPP $)	...	...
Patent Applications (total)	...	...
Scientific Published Articles	2011	360
Articles (per million people)	2011	11,02

INDICES

	Value	Rank
Human Development Index (2011)	0,573 (Medium)	132
Knowledge Economy Index (2012)	...	...

Jordan

GENERAL INFORMATION

Population (mln)	2011	6,18
Population Growth (%)	2011	2,19
Rural Population (% of total population)	2011	21,39
Labour Force (% of total population)	2010	25,68
Unemployment Rate (% of labor force)	2009	12,90
GDP per capita (PPP, cur. $)	2011	5.907
Infant Mortality (per 1,000)	2011	18,00
School Age Pop.official ent. age(% of total population)	2011	2,47
Average Years of Schooling	2010	9,23
Life Expectancy at birth (years)	2010	73,29

PARTICIPATION in EDUCATION

	GER		NER		GPI	
Pre-primary Schools	2010	32,4			2010	0,94
Primary Schools	2010	92,0	2010	90,7	2010	1,00
Secondary Schools	2010	86,9	2010	85,6	2010	1,06
Tertiary Schools	2010	37,7			2010	1,16

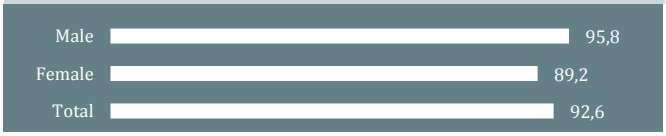
PROGRESSION and COMPLETION

Primary Completion Rate (Total)	2010	89,9
Repetition Rates in Primary (all grades)	2010	0,5
Repetition Rates in Secondary (all grades)	2010	1,3
Survival Rate to Last Grade of Primary	2006	93,4
Transition Rate from Primary to Secondary	2007	98,8

LITERACY RATES (%)

Youth

Adult



RESOURCES for EDUCATION

Pupil / Teacher Ratio (primary)	2003	19,9
Public Education Spending (% of GDP)	...	...
Gov't Expenditure on Edu. (per pupil % of GDP per Capita)	...	...

RESEARCH and DEVELOPMENT

Reserchers (per million people)	2008	1.934
Volumes per Academic Library	2009	49.030
GERD (% of GDP)	2008	0,60
GERD per capita (cur. PPP $)	2008	23,10
Patent Applications (total)	2010	474
Scientific Published Articles	2011	1.335
Articles (per million people)	2011	210,89

INDICES

	Value	Rank
Human Development Index (2011)	0,698 (Medium)	95
Knowledge Economy Index (2012)	4,950	75

Kazakhstan

GENERAL INFORMATION

Population (mln)	2011	16,56
Population Growth (%)	2011	1,43
Rural Population (% of total population)	2011	41,16
Labour Force (% of total population)	2010	53,84
Unemployment Rate (% of labor force)	2009	6,60
GDP per capita (PPP, cur. $)	2011	13.001
Infant Mortality (per 1,000)	2011	25,00
School Age Pop.off ent. age(% of total population)	2011	1,44
Average Years of Schooling	2010	10,38
Life Expectancy at birth (years)	2010	68,30

PARTICIPATION in EDUCATION

	GER		NER		GPI	
Pre-primary Schools	2011	47,7			2011	0,99
Primary Schools	2011	110,7	2011	88,22	2011	1,00
Secondary Schools	2011	99,6	2011	89,57	2011	0,97
Tertiary Schools	2011	40,8			2011	1,44

PROGRESSION and COMPLETION

Primary Completion Rate (Total)	2011	116,2
Repetition Rates in Primary (all grades)	2011	0,1
Repetition Rates in Secondary (all grades)	2011	0,1
Survival Rate to Last Grade of Primary	2010	99,8
Transition Rate from Primary to Secondary	2010	99,9

LITERACY RATES (%)

Youth

Male	99,8
Female	99,9
Total	99,8

Adult

Male	99,8
Female	99,6
Total	99,7

RESOURCES for EDUCATION

Pupil / Teacher Ratio (primary)	2011	16,4
Public Education Spending (% of GDP)	2009	3,06
Gov't Expenditure on Edu. (per pupil % of GDP per Capita)	2009	11,7086

RESEARCH and DEVELOPMENT

Reserchers (per million people)	2009	637
Volumes per Academic Library	2008	421.844
GERD (% of GDP)	2009	0,37
GERD per capita (cur. PPP $)	2009	26,57
Patent Applications (total)	2010	1.964
Scientific Published Articles	2011	290
Articles (per million people)	2011	17,89

INDICES

	Value	Rank
Human Development Index (2011)	0,745 (High)	68
Knowledge Economy Index (2012)	5,040	73

Kuwait

GENERAL INFORMATION

Population (mln)	2011	2,82
Population Growth (%)	2011	2,93
Rural Population (% of total population)	2011	1,60
Labour Force (% of total population)	2010	49,62
Unemployment Rate (% of labor force)	2005	2,00
GDP per capita (PPP, cur. $)	2011	41.701
Infant Mortality (per 1,000)	2011	9,30
School Age Pop.official ent. age(% of total population)	2008	1,66
Average Years of Schooling	2010	6,29
Life Expectancy at birth (years)	2010	74,60

PARTICIPATION in EDUCATION

	GER		NER		GPI	
Pre-primary Schools	2008	82,2			2008	1,02
Primary Schools	2008	105,6	2008	92,1	2008	1,03
Secondary Schools	2008	101,0	2008	89,0	2008	1,07
Tertiary Schools	2010	21,9			2011	2,20

PROGRESSION and COMPLETION

Primary Completion Rate (Total)	2007	112,1
Repetition Rates in Primary (all grades)	2010	0,7
Repetition Rates in Secondary (all grades)	2010	5,6
Survival Rate to Last Grade of Primary	2009	96,0
Transition Rate from Primary to Secondary	2009	99,0

LITERACY RATES (%)

Youth

Male	98,6
Female	98,7
Total	98,6

Adult

Male	95,0
Female	91,8
Total	93,9

RESOURCES for EDUCATION

Pupil / Teacher Ratio (primary)	2010	8,4
Public Education Spending (% of GDP)	...	...
Gov't Expenditure on Edu. (per pupil % of GDP per Capita)	...	...

RESEARCH and DEVELOPMENT

Reserchers (per million people)	2009	152
Volumes per Academic Library	2009	31.308
GERD (% of GDP)	2007	0,10
GERD per capita (cur. PPP $)	2007	45,21
Patent Applications (total)	...	...
Scientific Published Articles	2011	632
Articles (per million people)	2011	224,27

INDICES

	Value	Rank
Human Development Index (2011)	0,760 (High)	63
Knowledge Economy Index (2012)	5,330	64

Kyrgyz Republic

GENERAL INFORMATION

Population (mln)	2011	5,51
Population Growth (%)	2011	1,09
Rural Population (% of total population)	2011	65,47
Labour Force (% of total population)	2010	46,45
Unemployment Rate (% of labor force)	2010	8,60
GDP per capita (PPP, cur. $)	2011	2.372
Infant Mortality (per 1,000)	2011	27,00
School Age Pop.off ent. age(% of total population)	2011	1,78
Average Years of Schooling	2010	8,69
Life Expectancy at birth (years)	2010	69,37

PARTICIPATION in EDUCATION

	GER		NER		GPI	
Pre-primary Schools	2010	19,1			2010	1,02
Primary Schools	2010	99,6	2010	87,46	2010	0,99
Secondary Schools	2010	84,0	2010	78,92	2010	0,99
Tertiary Schools	2009	48,8			2009	1,30

PROGRESSION and COMPLETION

Primary Completion Rate (Total)	2010	96,6
Repetition Rates in Primary (all grades)	2010	0,1
Repetition Rates in Secondary (all grades)	2010	0,1
Survival Rate to Last Grade of Primary	2009	97,6
Transition Rate from Primary to Secondary	2009	99,3

LITERACY RATES (%)

Youth

Male	99,7
Female	99,8
Total	99,8

Adult

Male	99,5
Female	99,0
Total	99,2

RESOURCES for EDUCATION

Pupil / Teacher Ratio (primary)	2010	24,3
Public Education Spending (% of GDP)	2009	6,23
Gov't Expenditure on Edu. (per pupil % of GDP per Capita)	2009	23,2025

RESEARCH and DEVELOPMENT

Reserchers (per million people)	2009	434
Volumes per Academic Library	2009	230.650
GERD (% of GDP)	2009	0,42
GERD per capita (cur. PPP $)	2009	3,71
Patent Applications (total)	2010	140
Scientific Published Articles	2011	69
Articles (per million people)	2011	12,80

INDICES

	Value	Rank
Human Development Index (2011)	0,615 (Medium)	126
Knowledge Economy Index (2012)	3,820	95

Lebanon

GENERAL INFORMATION

Population (mln)	2011	4,26
Population Growth (%)	2011	0,75
Rural Population (% of total population)	2011	12,63
Labour Force (% of total population)	2010	34,37
Unemployment Rate (% of labor force)	2007	9,00
GDP per capita (PPP, cur. $)	2011	15.523
Infant Mortality (per 1,000)	2011	8,00
School Age Pop.official ent. age(% of total population)	2011	1,51
Average Years of Schooling	2010	...
Life Expectancy at birth (years)	2011	72,59

PARTICIPATION in EDUCATION

	GER		NER		GPI	
Pre-primary Schools	2010	81,5			2010	0,98
Primary Schools	2010	104,6	2010	91,7	2010	0,97
Secondary Schools	2010	81,4	2010	74,7	2010	1,12
Tertiary Schools	2010	54,0			2010	1,19

PROGRESSION and COMPLETION

Primary Completion Rate (Total)	2010	87,3
Repetition Rates in Primary (all grades)	2010	8,1
Repetition Rates in Secondary (all grades)	2010	10,1
Survival Rate to Last Grade of Primary	2008	91,8
Transition Rate from Primary to Secondary	2009	87,7

LITERACY RATES (%)

Youth

Male	98,4
Female	99,1
Total	98,7

Adult

Male	93,4
Female	86,0
Total	89,6

RESOURCES for EDUCATION

Pupil / Teacher Ratio (primary)	2010	14,1
Public Education Spending (% of GDP)	2009	1,8
Gov't Expenditure on Edu. (per pupil % of GDP per Capita)	2009	6,2

RESEARCH and DEVELOPMENT

Reserchers (per million people)	...	...
Volumes per Academic Library	2008	140.109
GERD (% of GDP)	...	...
GERD per capita (cur. PPP $)	...	...
Patent Applications (total)	2006	316
Scientific Published Articles	2011	1.381
Articles (per million people)	2011	324,22

INDICES

	Value	Rank
Human Development Index (2011)	0,739 (High)	71
Knowledge Economy Index (2012)	4,560	81

Libya

GENERAL INFORMATION

Population (mln)	2011	6,42
Population Growth (%)	2011	1,06
Rural Population (% of total population)	2011	21,91
Labour Force (% of total population)	2010	37,44
Unemployment Rate (% of labor force)	...	...
GDP per capita (PPP, cur. $)	2011	6.017
Infant Mortality (per 1,000)	2011	12,80
School Age Pop.off ent. age(% of total population)	2011	2,11
Average Years of Schooling	2010	7,85
Life Expectancy at birth (years)	2011	74,95

PARTICIPATION in EDUCATION

	GER		NER		GPI	
Pre-primary Schools	2006	9,3			2006	0,98
Primary Schools	2006	114,2	...	...	2006	0,96
Secondary Schools	2006	110,3	...	...	2006	1,18
Tertiary Schools	2010	54,4			2011	1,09

PROGRESSION and COMPLETION

Primary Completion Rate (Total)	...	...
Repetition Rates in Primary (all grades)	...	...
Repetition Rates in Secondary (all grades)	...	...
Survival Rate to Last Grade of Primary	...	...
Transition Rate from Primary to Secondary	...	...

LITERACY RATES (%)

Youth

Male	99,9
Female	99,8
Total	99,9

Adult

Male	95,6
Female	82,7
Total	89,2

RESOURCES for EDUCATION

Pupil / Teacher Ratio (primary)	...	...
Public Education Spending (% of GDP)	...	...
Gov't Expenditure on Edu. (per pupil % of GDP per Capita)	...	...

RESEARCH and DEVELOPMENT

Reserchers (per million people)	2009	73
Volumes per Academic Library	2009	30.235
GERD (% of GDP)	...	...
GERD per capita (cur. PPP $)	...	...
Patent Applications (total)	...	...
Scientific Published Articles	2011	125
Articles (per million people)	2011	19,46

INDICES

	Value	Rank
Human Development Index (2011)	0,760 (High)	64
Knowledge Economy Index (2012)	...	...

Malaysia

GENERAL INFORMATION

Population (mln)	2011	28,86
Population Growth (%)	2011	1,60
Rural Population (% of total population)	2011	27,04
Labour Force (% of total population)	2010	42,15
Unemployment Rate (% of labor force)	2009	3,70
GDP per capita (PPP, cur. $)	2011	16.240
Infant Mortality (per 1,000)	2011	5,60
School Age Pop.official ent. age(% of total population)	2011	2,04
Average Years of Schooling	2010	10,14
Life Expectancy at birth (years)	2011	74,26

PARTICIPATION in EDUCATION

	GER		NER		GPI	
Pre-primary Schools	2009	66,6			2009	1,08
Primary Schools	2010	96,3	2010	95,9	2011	1,00
Secondary Schools	2009	68,3	2009	67,9	2009	1,07
Tertiary Schools	2009	40,2			2009	1,29

PROGRESSION and COMPLETION

Primary Completion Rate (Total)	2005	99,0
Repetition Rates in Primary (all grades)	...	...
Repetition Rates in Secondary (all grades)	...	...
Survival Rate to Last Grade of Primary	2008	97,7
Transition Rate from Primary to Secondary	2008	99,6

LITERACY RATES (%)

Youth

Male	98,4
Female	98,5
Total	98,4

Adult

Male	95,4
Female	90,7
Total	93,1

RESOURCES for EDUCATION

Pupil / Teacher Ratio (primary)	2009	13,2
Public Education Spending (% of GDP)	2009	5,8
Gov't Expenditure on Edu. (per pupil % of GDP per Capita)	2009	21,6

RESEARCH and DEVELOPMENT

Reserchers (per million people)	2006	715
Volumes per Academic Library	2008	339.990
GERD (% of GDP)	2006	1,28
GERD per capita (cur. PPP $)	2006	78,63
Patent Applications (total)	2010	6.463
Scientific Published Articles	2011	7.755
Articles (per million people)	2011	268,72

INDICES

	Value	Rank
Human Development Index (2011)	0,761 (High)	61
Knowledge Economy Index (2012)	6,100	48

Maldives

GENERAL INFORMATION

Population (mln)	2011	0,32
Population Growth (%)	2011	1,32
Rural Population (% of total population)	2011	58,75
Labour Force (% of total population)	2010	48,29
Unemployment Rate (% of labor force)	2006	14,40
GDP per capita (PPP, cur. $)	2011	8.603
Infant Mortality (per 1,000)	2011	9,20
School Age Pop.off ent. age(% of total population)	2011	1,63
Average Years of Schooling	2010	6,14
Life Expectancy at birth (years)	2011	76,88

PARTICIPATION in EDUCATION

	GER		NER		GPI	
Pre-primary Schools	2011	113,9			2011	1,02
Primary Schools	2011	108,8	2011	96,18	2011	0,96
Secondary Schools	...	...	...	...	2011	1,13
Tertiary Schools	...	...			2008	1,08

PROGRESSION and COMPLETION

Primary Completion Rate (Total)	2011	118,2
Repetition Rates in Primary (all grades)	2011	3,8
Repetition Rates in Secondary (all grades)	2008	7,1
Survival Rate to Last Grade of Primary	...	...
Transition Rate from Primary to Secondary	2008	86,1

LITERACY RATES (%)

RESOURCES for EDUCATION

Pupil / Teacher Ratio (primary)	2011	11,7
Public Education Spending (% of GDP)	2009	8,71
Gov't Expenditure on Edu. (per pupil % of GDP per Capita)	...	...

RESEARCH and DEVELOPMENT

Reserchers (per million people)	...	...
Volumes per Academic Library	2009	22.000
GERD (% of GDP)	...	...
GERD per capita (cur. PPP $)	...	...
Patent Applications (total)	...	...
Scientific Published Articles	2011	5
Articles (per million people)	2011	15,62

INDICES

	Value	Rank
Human Development Index (2011)	0,661 (Medium)	109
Knowledge Economy Index (2012)	...	...

Mali

GENERAL INFORMATION

Population (mln)	2011	15,84
Population Growth (%)	2011	3,01
Rural Population (% of total population)	2011	63,36
Labour Force (% of total population)	2010	27,95
Unemployment Rate (% of labor force)	2004	8,80
GDP per capita (PPP, cur. $)	2011	1.128
Infant Mortality (per 1,000)	2011	98,20
School Age Pop.official ent. age(% of total population)	2011	2,98
Average Years of Schooling	2010	2,03
Life Expectancy at birth (years)	2011	51,37

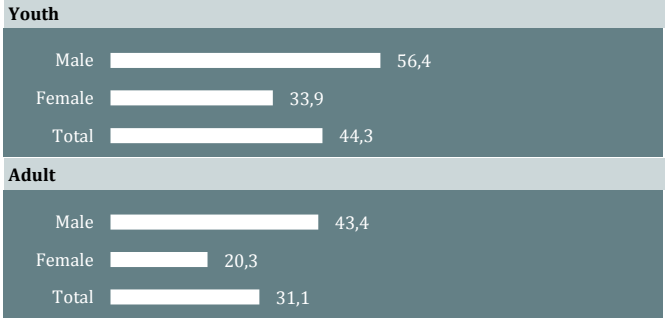
PARTICIPATION in EDUCATION

	GER		NER		GPI	
Pre-primary Schools	2011	3,4			2011	1,05
Primary Schools	2011	81,7	2011	62,9	2011	0,88
Secondary Schools	2011	39,4	2011	31,0	2011	0,71
Tertiary Schools	2011	6,1			2011	0,46

PROGRESSION and COMPLETION

Primary Completion Rate (Total)	2011	55,4
Repetition Rates in Primary (all grades)	2011	12,9
Repetition Rates in Secondary (all grades)	2011	19,9
Survival Rate to Last Grade of Primary	2010	75,5
Transition Rate from Primary to Secondary	2009	73,5

LITERACY RATES (%)



RESOURCES for EDUCATION

Pupil / Teacher Ratio (primary)	2011	48,5
Public Education Spending (% of GDP)	2010	4,5
Gov't Expenditure on Edu. (per pupil % of GDP per Capita)	2010	23,5

RESEARCH and DEVELOPMENT

Reserchers (per million people)	2007	63
Volumes per Academic Library	2009	2.067
GERD (% of GDP)	2007	0,47
GERD per capita (cur. PPP $)	2007	2,42
Patent Applications (total)	...	...
Scientific Published Articles	2011	153
Articles (per million people)	2011	9,66

INDICES

	Value	Rank
Human Development Index (2011)	0,359 (Low)	175
Knowledge Economy Index (2012)	1,860	126

Mauritania

GENERAL INFORMATION

Population (mln)	2011	3,54
Population Growth (%)	2011	2,34
Rural Population (% of total population)	2011	58,27
Labour Force (% of total population)	2010	32,28
Unemployment Rate (% of labor force)	2004	33,00
GDP per capita (PPP, cur. $)	2011	2.008
Infant Mortality (per 1,000)	2011	75,60
School Age Pop.off ent. age(% of total population)	2011	2,64
Average Years of Schooling	2010	4,62
Life Expectancy at birth (years)	2011	58,55

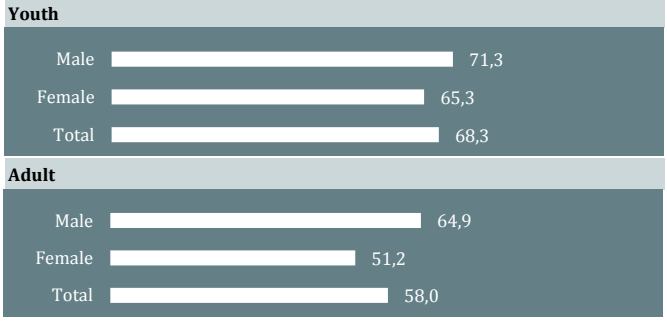
PARTICIPATION in EDUCATION

	GER		NER		GPI	
Pre-primary Schools	2010	1,9			...	...
Primary Schools	2010	102,0	2010	74,03	2010	1,05
Secondary Schools	2010	24,4	2007	15,91	2010	0,85
Tertiary Schools	2010	4,4			2010	0,41

PROGRESSION and COMPLETION

Primary Completion Rate (Total)	2010	74,8
Repetition Rates in Primary (all grades)	2010	3,5
Repetition Rates in Secondary (all grades)	2009	11,5
Survival Rate to Last Grade of Primary	2009	70,7
Transition Rate from Primary to Secondary	2008	34,5

LITERACY RATES (%)



RESOURCES for EDUCATION

Pupil / Teacher Ratio (primary)	2010	37,2
Public Education Spending (% of GDP)	2010	4,33
Gov't Expenditure on Edu. (per pupil % of GDP per Capita)	...	...

RESEARCH and DEVELOPMENT

Reserchers (per million people)	...	...
Volumes per Academic Library	2011	25.000
GERD (% of GDP)	...	...
GERD per capita (cur. PPP $)	...	...
Patent Applications (total)	...	...
Scientific Published Articles	2011	20
Articles (per million people)	2011	5,65

INDICES

	Value	Rank
Human Development Index (2011)	0,453 (Low)	159
Knowledge Economy Index (2012)	1,650	134

Morocco

GENERAL INFORMATION

Population (mln)	2011	32,27
Population Growth (%)	2011	1,00
Rural Population (% of total population)	2011	41,15
Labour Force (% of total population)	2010	35,64
Unemployment Rate (% of labor force)	2009	10,00
GDP per capita (PPP, cur. $)	2011	5.080
Infant Mortality (per 1,000)	2011	28,20
School Age Pop.official ent. age(% of total population)	2011	1,80
Average Years of Schooling	2010	4,99
Life Expectancy at birth (years)	2011	72,13

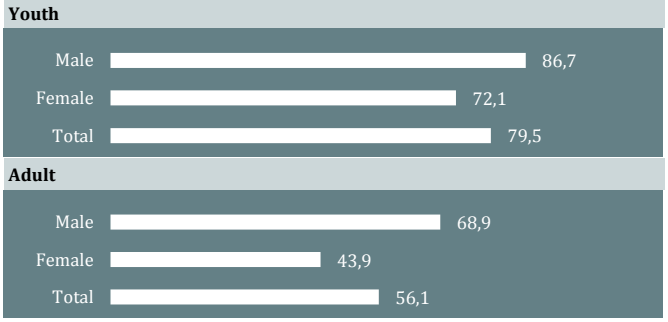
PARTICIPATION in EDUCATION

	GER		NER		GPI	
Pre-primary Schools	2011	63,3			2011	0,72
Primary Schools	2011	113,7	2011	95,7	2011	0,94
Secondary Schools	2007	56,1	2010	35,1	2007	0,86
Tertiary Schools	2009	13,2			2009	0,87

PROGRESSION and COMPLETION

Primary Completion Rate (Total)	2010	84,7
Repetition Rates in Primary (all grades)	2010	10,7
Repetition Rates in Secondary (all grades)	2011	15,6
Survival Rate to Last Grade of Primary	2009	90,5
Transition Rate from Primary to Secondary	2010	82,2

LITERACY RATES (%)



RESOURCES for EDUCATION

Pupil / Teacher Ratio (primary)	2011	26,4
Public Education Spending (% of GDP)	2009	5,4
Gov't Expenditure on Edu. (per pupil % of GDP per Capita)	...	...

RESEARCH and DEVELOPMENT

Reserchers (per million people)	2008	935
Volumes per Academic Library	2008	13.047
GERD (% of GDP)	2006	1,17
GERD per capita (cur. PPP $)	2006	24,92
Patent Applications (total)	2010	1.034
Scientific Published Articles	2011	1.451
Articles (per million people)	2011	44,96

INDICES

	Value	Rank
Human Development Index (2011)	0,582 (Medium)	130
Knowledge Economy Index (2012)	3,610	102

Mozambique

GENERAL INFORMATION

Population (mln)	2011	23,93
Population Growth (%)	2011	2,28
Rural Population (% of total population)	2011	60,77
Labour Force (% of total population)	2010	47,36
Unemployment Rate (% of labor force)	1997	2,20
GDP per capita (PPP, cur. $)	2011	1.090
Infant Mortality (per 1,000)	2011	71,60
School Age Pop.off ent. age(% of total population)	2011	3,09
Average Years of Schooling	2010	1,76
Life Expectancy at birth (years)	2011	50,15

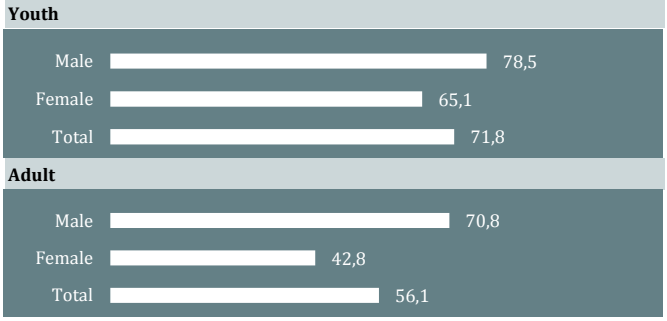
PARTICIPATION in EDUCATION

	GER		NER		GPI	
Pre-primary Schools	...	...			...	...
Primary Schools	2011	110,9	2011	89,62	2011	0,91
Secondary Schools	2011	26,4	2011	17,32	2011	0,87
Tertiary Schools	...	...			2011	0,50

PROGRESSION and COMPLETION

Primary Completion Rate (Total)	2011	56,2
Repetition Rates in Primary (all grades)	2010	7,7
Repetition Rates in Secondary (all grades)	2011	13,7
Survival Rate to Last Grade of Primary	2010	27,0
Transition Rate from Primary to Secondary	2010	50,4

LITERACY RATES (%)



RESOURCES for EDUCATION

Pupil / Teacher Ratio (primary)	2011	55,4
Public Education Spending (% of GDP)	...	...
Gov't Expenditure on Edu. (per pupil % of GDP per Capita)	...	...

RESEARCH and DEVELOPMENT

Reserchers (per million people)	2007	24
Volumes per Academic Library	2009	5.850
GERD (% of GDP)	2007	0,44
GERD per capita (cur. PPP $)	2007	1,63
Patent Applications (total)	2007	40
Scientific Published Articles	2011	171
Articles (per million people)	2011	7,15

INDICES

	Value	Rank
Human Development Index (2011)	0,322 (Low)	184
Knowledge Economy Index (2012)	1,760	130

Niger

GENERAL INFORMATION

Population (mln)	2011	16,07
Population Growth (%)	2011	3,53
Rural Population (% of total population)	2011	82,76
Labour Force (% of total population)	2010	32,97
Unemployment Rate (% of labor force)	2001	1,50
GDP per capita (PPP, cur. $)	2011	771
Infant Mortality (per 1,000)	2011	66,40
School Age Pop.official ent. age(% of total population)	2011	3,07
Average Years of Schooling	2010	1,84
Life Expectancy at birth (years)	2011	54,69

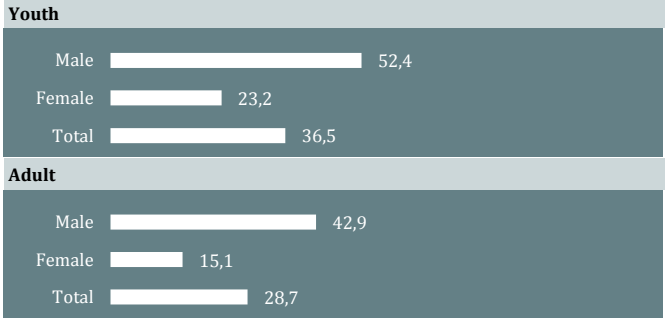
PARTICIPATION in EDUCATION

	GER		NER		GPI	
Pre-primary Schools	2011	6,0			2011	1,07
Primary Schools	2011	70,8	2011	62,5	2011	0,84
Secondary Schools	2010	13,4	2008	10,2	2010	0,66
Tertiary Schools	2011	1,5			2011	0,38

PROGRESSION and COMPLETION

Primary Completion Rate (Total)	2011	46,2
Repetition Rates in Primary (all grades)	2010	3,7
Repetition Rates in Secondary (all grades)	2011	19,0
Survival Rate to Last Grade of Primary	2010	69,3
Transition Rate from Primary to Secondary	2010	61,5

LITERACY RATES (%)



RESOURCES for EDUCATION

Pupil / Teacher Ratio (primary)	2011	39,0
Public Education Spending (% of GDP)	2010	3,8
Gov't Expenditure on Edu. (per pupil % of GDP per Capita)	2010	28,2

RESEARCH and DEVELOPMENT

Reserchers (per million people)	2005	10
Volumes per Academic Library	2009	19.000
GERD (% of GDP)	...	...
GERD per capita (cur. PPP $)	...	...
Patent Applications (total)	...	...
Scientific Published Articles	2011	143
Articles (per million people)	2011	8,90

INDICES

	Value	Rank
Human Development Index (2011)	0,295 (Low)	186
Knowledge Economy Index (2012)	...	...

Nigeria

GENERAL INFORMATION

Population (mln)	2011	162,47
Population Growth (%)	2011	2,52
Rural Population (% of total population)	2011	49,48
Labour Force (% of total population)	2010	31,74
Unemployment Rate (% of labor force)	1986	3,90
GDP per capita (PPP, cur. $)	2011	2.582
Infant Mortality (per 1,000)	2011	78,00
School Age Pop.off ent. age(% of total population)	2011	2,84
Average Years of Schooling	2010	6,78
Life Expectancy at birth (years)	2011	51,86

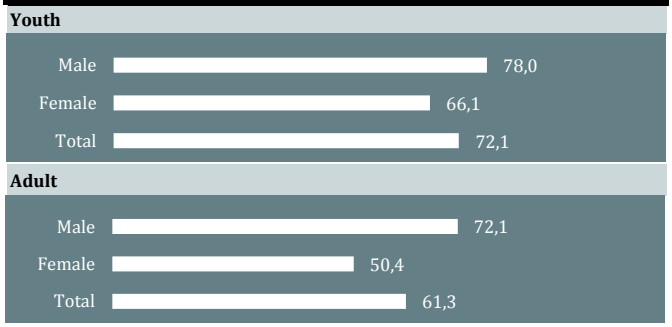
PARTICIPATION in EDUCATION

	GER		NER		GPI	
Pre-primary Schools	2010	13,9			2010	0,99
Primary Schools	2010	83,3	2010	57,55	2010	0,91
Secondary Schools	2010	44,0	...	...	2010	0,88
Tertiary Schools	2010	10,3			2011	0,71

PROGRESSION and COMPLETION

Primary Completion Rate (Total)	2010	74,4
Repetition Rates in Primary (all grades)	2003	3,1
Repetition Rates in Secondary (all grades)	2003	4,0
Survival Rate to Last Grade of Primary	2009	79,9
Transition Rate from Primary to Secondary	2006	43,9

LITERACY RATES (%)



RESOURCES for EDUCATION

Pupil / Teacher Ratio (primary)	2010	36,0
Public Education Spending (% of GDP)	...	...
Gov't Expenditure on Edu. (per pupil % of GDP per Capita)	...	...

RESEARCH and DEVELOPMENT

Reserchers (per million people)	2007	120
Volumes per Academic Library	2008	93.004
GERD (% of GDP)	2007	0,39
GERD per capita (cur. PPP $)	2007	4,39
Patent Applications (total)	...	...
Scientific Published Articles	2011	2.226
Articles (per million people)	2011	13,70

INDICES

	Value	Rank
Human Development Index (2011)	0,459 (Low)	156
Knowledge Economy Index (2012)	2,200	119

Oman

GENERAL INFORMATION

Population (mln)	2011	2,85
Population Growth (%)	2011	2,26
Rural Population (% of total population)	2011	26,70
Labour Force (% of total population)	2010	43,70
Unemployment Rate (% of labor force)	...	...
GDP per capita (PPP, cur. $)	2011	27.567
Infant Mortality (per 1,000)	2011	7,30
School Age Pop.official ent. age(% of total population)	2011	1,78
Average Years of Schooling	2010	...
Life Expectancy at birth (years)	2011	73,34

PARTICIPATION in EDUCATION

	GER		NER		GPI	
Pre-primary Schools	2010	45,0			2010	0,99
Primary Schools	2009	105,3	2009	93,6	2009	0,97
Secondary Schools	2009	100,3	2009	89,7	2009	0,99
Tertiary Schools	2010	24,5			2010	1,39

PROGRESSION and COMPLETION

Primary Completion Rate (Total)	2009	100,9
Repetition Rates in Primary (all grades)	2009	1,4
Repetition Rates in Secondary (all grades)	2003	7,9
Survival Rate to Last Grade of Primary	2002	97,3
Transition Rate from Primary to Secondary	2002	98,7

LITERACY RATES (%)

RESOURCES for EDUCATION

Pupil / Teacher Ratio (primary)	2003	19,9
Public Education Spending (% of GDP)	2009	4,3
Gov't Expenditure on Edu. (per pupil % of GDP per Capita)	2009	15,8

RESEARCH and DEVELOPMENT

Reserchers (per million people)	...	...
Volumes per Academic Library	2009	34.700
GERD (% of GDP)	...	...
GERD per capita (cur. PPP $)	...	...
Patent Applications (total)	...	...
Scientific Published Articles	2011	453
Articles (per million people)	2011	159,16

INDICES

	Value	Rank
Human Development Index (2011)	0,705 (High)	89
Knowledge Economy Index (2012)	6,140	47

Pakistan

GENERAL INFORMATION

Population (mln)	2011	176,75
Population Growth (%)	2011	1,80
Rural Population (% of total population)	2011	63,78
Labour Force (% of total population)	2010	34,38
Unemployment Rate (% of labor force)	2008	5,00
GDP per capita (PPP, cur. $)	2011	2.786
Infant Mortality (per 1,000)	2011	59,20
School Age Pop.off ent. age(% of total population)	2011	2,20
Average Years of Schooling	2010	5,56
Life Expectancy at birth (years)	2010	65,20

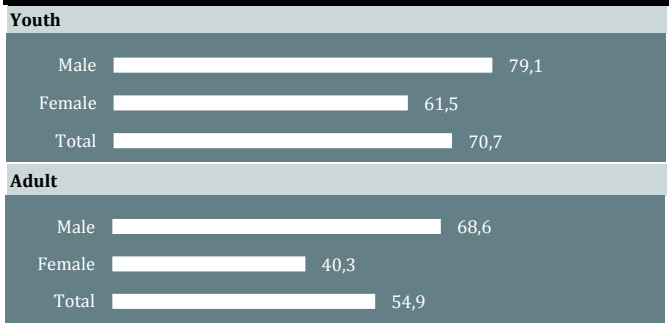
PARTICIPATION in EDUCATION

	GER		NER		GPI	
Pre-primary Schools	2010	49,2			2011	0,89
Primary Schools	2010	94,9	2010	74,06	2010	0,82
Secondary Schools	2010	34,2	2010	33,85	2010	0,76
Tertiary Schools	2008	5,4			2008	0,83

PROGRESSION and COMPLETION

Primary Completion Rate (Total)	2010	67,1
Repetition Rates in Primary (all grades)	2010	4,3
Repetition Rates in Secondary (all grades)	2010	6,5
Survival Rate to Last Grade of Primary	2009	61,5
Transition Rate from Primary to Secondary	2009	73,7

LITERACY RATES (%)



RESOURCES for EDUCATION

Pupil / Teacher Ratio (primary)	2010	40,5
Public Education Spending (% of GDP)	2010	2,37
Gov't Expenditure on Edu. (per pupil % of GDP per Capita)	...	...

RESEARCH and DEVELOPMENT

Reserchers (per million people)	2009	321
Volumes per Academic Library	2008	5.486
GERD (% of GDP)	2009	1,28
GERD per capita (cur. PPP $)	2009	12,12
Patent Applications (total)	2010	1.094
Scientific Published Articles	2011	5.625
Articles (per million people)	2011	31,83

INDICES

	Value	Rank
Human Development Index (2011)	0,504 (Low)	145
Knowledge Economy Index (2012)	2,450	117

Palestine

GENERAL INFORMATION

Population (mln)	2011	4,02
Population Growth (%)	2011	2,88
Rural Population (% of total population)	2011	25,63
Labour Force (% of total population)	2010	23,46
Unemployment Rate (% of labor force)	2009	24,50
GDP per capita (PPP, cur. $)	...	...
Infant Mortality (per 1,000)	2011	19,70
School Age Pop.official ent. age(% of total population)	2011	2,74
Average Years of Schooling	...	...
Life Expectancy at birth (years)	2010	72,64

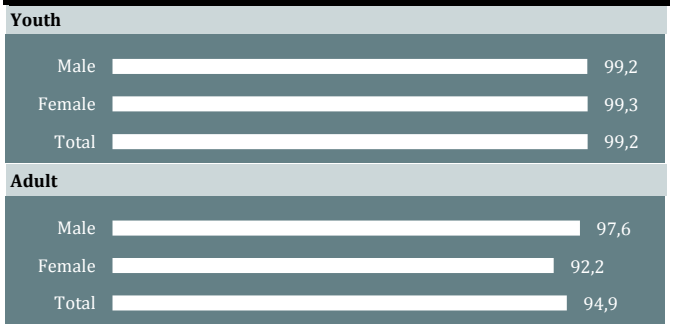
PARTICIPATION in EDUCATION

	GER		NER		GPI	
Pre-primary Schools	2010	39,5			2010	0,98
Primary Schools	2010	90,8	2010	86,5	2010	0,98
Secondary Schools	2010	86,0	2010	83,5	2010	1,08
Tertiary Schools	2010	50,2			2010	1,34

PROGRESSION and COMPLETION

Primary Completion Rate (Total)	2010	95,0
Repetition Rates in Primary (all grades)	2008	0,5
Repetition Rates in Secondary (all grades)	2010	2,0
Survival Rate to Last Grade of Primary	2006	98,5
Transition Rate from Primary to Secondary	2009	96,8

LITERACY RATES (%)



RESOURCES for EDUCATION

Pupil / Teacher Ratio (primary)	2010	27,8
Public Education Spending (% of GDP)	...	...
Gov't Expenditure on Edu. (per pupil % of GDP per Capita)	...	...

RESEARCH and DEVELOPMENT

Reserchers (per million people)	2010	581
Volumes per Academic Library	2009	47.426
GERD (% of GDP)	...	...
GERD per capita (cur. PPP $)	...	...
Patent Applications (total)	...	...
Scientific Published Articles	2011	85
Articles (per million people)	2011	20,47

INDICES

	Value	Rank
Human Development Index (2011)	0,641 (Medium)	114
Knowledge Economy Index (2012)	...	...

Qatar

GENERAL INFORMATION

Population (mln)	2011	1,87
Population Growth (%)	2011	6,13
Rural Population (% of total population)	2011	4,12
Labour Force (% of total population)	2010	74,75
Unemployment Rate (% of labor force)	2007	0,50
GDP per capita (PPP, cur. $)	2011	98.948
Infant Mortality (per 1,000)	2011	6,40
School Age Pop.off ent. age(% of total population)	2011	0,87
Average Years of Schooling	2010	7,45
Life Expectancy at birth (years)	2011	78,25

PARTICIPATION in EDUCATION

	GER		NER		GPI	
Pre-primary Schools	2009	55,4			2009	0,96
Primary Schools	2010	102,9	2010	91,97	2010	1,00
Secondary Schools	2010	93,7	2010	83,41	2010	1,21
Tertiary Schools	2010	10,0			2010	5,38

PROGRESSION and COMPLETION

Primary Completion Rate (Total)	2009	99,7
Repetition Rates in Primary (all grades)	2009	0,5
Repetition Rates in Secondary (all grades)	2009	2,9
Survival Rate to Last Grade of Primary	2007	93,6
Transition Rate from Primary to Secondary	2008	99,1

LITERACY RATES (%)

Youth

Male	96,3
Female	98,3
Total	96,8

Adult

Male	96,5
Female	95,4
Total	96,3

RESOURCES for EDUCATION

Pupil / Teacher Ratio (primary)	2010	12,0
Public Education Spending (% of GDP)	2008	2,42
Gov't Expenditure on Edu. (per pupil % of GDP per Capita)	...	...

RESEARCH and DEVELOPMENT

Reserchers (per million people)	...	...
Volumes per Academic Library	2008	42.625
GERD (% of GDP)	...	...
GERD per capita (cur. PPP $)	...	...
Patent Applications (total)	...	...
Scientific Published Articles	2011	434
Articles (per million people)	2011	232,08

INDICES

	Value	Rank
Human Development Index (2011)	0,831 (Very High)	37
Knowledge Economy Index (2012)	5,840	54

Saudi Arabia

GENERAL INFORMATION

Population (mln)	2011	28,08
Population Growth (%)	2011	2,29
Rural Population (% of total population)	2011	17,71
Labour Force (% of total population)	2010	34,83
Unemployment Rate (% of labor force)	2009	5,40
GDP per capita (PPP, cur. $)	2011	24.411
Infant Mortality (per 1,000)	2011	7,90
School Age Pop.official ent. age(% of total population)	2011	2,02
Average Years of Schooling	2010	8,47
Life Expectancy at birth (years)	2010	73,85

PARTICIPATION in EDUCATION

	GER		NER		GPI	
Pre-primary Schools	2010	11,0			2008	0,95
Primary Schools	2010	106,0	2009	89,9	2010	0,99
Secondary Schools	2010	100,6	2010	80,7	2010	0,95
Tertiary Schools	2010	36,8			2010	1,12

PROGRESSION and COMPLETION

Primary Completion Rate (Total)	2010	93,3
Repetition Rates in Primary (all grades)	2008	3,3
Repetition Rates in Secondary (all grades)	2009	4,1
Survival Rate to Last Grade of Primary	2007	93,3
Transition Rate from Primary to Secondary	2008	93,8

LITERACY RATES (%)

Youth

Male	98,9
Female	96,8
Total	97,8

Adult

Male	90,4
Female	81,3
Total	86,6

RESOURCES for EDUCATION

Pupil / Teacher Ratio (primary)	2010	11,2
Public Education Spending (% of GDP)	2008	5,6
Gov't Expenditure on Edu. (per pupil % of GDP per Capita)	...	...

RESEARCH and DEVELOPMENT

Reserchers (per million people)	2009	47
Volumes per Academic Library	2008	208.933
GERD (% of GDP)	2009	0,13
GERD per capita (cur. PPP $)	2009	18,78
Patent Applications (total)	2010	931
Scientific Published Articles	2011	5.583
Articles (per million people)	2011	198,81

INDICES

	Value	Rank
Human Development Index (2011)	0,770 (High)	56
Knowledge Economy Index (2012)	5,960	50

Senegal

GENERAL INFORMATION

Population (mln)	2011	12,77
Population Growth (%)	2011	2,65
Rural Population (% of total population)	2011	57,31
Labour Force (% of total population)	2010	43,31
Unemployment Rate (% of labor force)	2006	10,00
GDP per capita (PPP, cur. $)	2011	1.970
Infant Mortality (per 1,000)	2011	46,70
School Age Pop.off ent. age(% of total population)	2011	2,80
Average Years of Schooling	2010	4,05
Life Expectancy at birth (years)	2011	59,27

PARTICIPATION in EDUCATION

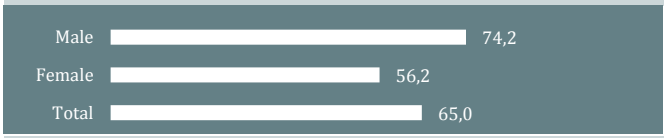
	GER		NER		GPI	
Pre-primary Schools	2010	13,2			2010	1,12
Primary Schools	2010	86,8	2010	75,50	2010	1,06
Secondary Schools	2010	37,4	2006	21,61	2010	0,88
Tertiary Schools	2010	7,9			2010	0,60

PROGRESSION and COMPLETION

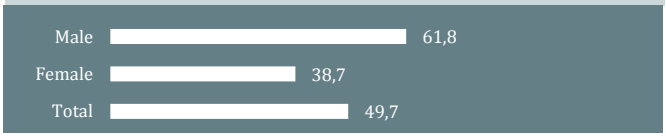
Primary Completion Rate (Total)	2010	59,2
Repetition Rates in Primary (all grades)	2010	6,3
Repetition Rates in Secondary (all grades)	2010	15,9
Survival Rate to Last Grade of Primary	2009	59,6
Transition Rate from Primary to Secondary	2009	68,8

LITERACY RATES (%)

Youth



Adult



RESOURCES for EDUCATION

Pupil / Teacher Ratio (primary)	2010	33,7
Public Education Spending (% of GDP)	2010	5,63
Gov't Expenditure on Edu. (per pupil % of GDP per Capita)	2010	26,3422

RESEARCH and DEVELOPMENT

Reserchers (per million people)	2008	667
Volumes per Academic Library	2009	58.104
GERD (% of GDP)	2008	0,61
GERD per capita (cur. PPP $)	2008	6,89
Patent Applications (total)	...	...
Scientific Published Articles	2011	345
Articles (per million people)	2011	27,02

INDICES

	Value	Rank
Human Development Index (2011)	0,459 (Low)	155
Knowledge Economy Index (2012)	2,700	114

Sierra Leone

GENERAL INFORMATION

Population (mln)	2011	6,00
Population Growth (%)	2011	2,19
Rural Population (% of total population)	2011	61,25
Labour Force (% of total population)	2010	38,53
Unemployment Rate (% of labor force)	2004	3,40
GDP per capita (PPP, cur. $)	2011	1.132
Infant Mortality (per 1,000)	2011	119,20
School Age Pop.official ent. age(% of total population)	2011	2,86
Average Years of Schooling	2010	3,42
Life Expectancy at birth (years)	2011	47,78

PARTICIPATION in EDUCATION

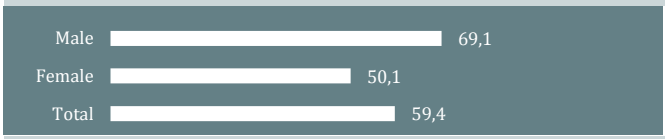
	GER		NER		GPI	
Pre-primary Schools	2011	6,8			2011	1,03
Primary Schools	2011	124,7	...	...	2011	0,93
Secondary Schools	2010	27,6	...	...	2011	0,68
Tertiary Schools	...	...			2011	0,39

PROGRESSION and COMPLETION

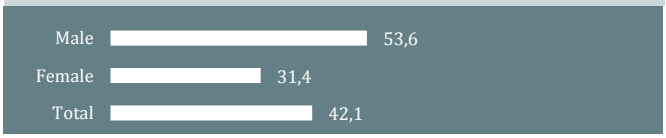
Primary Completion Rate (Total)	2011	74,4
Repetition Rates in Primary (all grades)	2011	15,6
Repetition Rates in Secondary (all grades)	2011	12,8
Survival Rate to Last Grade of Primary	...	...
Transition Rate from Primary to Secondary	...	...

LITERACY RATES (%)

Youth



Adult



RESOURCES for EDUCATION

Pupil / Teacher Ratio (primary)	2011	31,3
Public Education Spending (% of GDP)	2009	4,3
Gov't Expenditure on Edu. (per pupil % of GDP per Capita)	...	...

RESEARCH and DEVELOPMENT

Reserchers (per million people)	...	...
Volumes per Academic Library	2009	17.244
GERD (% of GDP)	...	...
GERD per capita (cur. PPP $)	...	...
Patent Applications (total)	...	...
Scientific Published Articles	2011	25
Articles (per million people)	2011	4,17

INDICES

	Value	Rank
Human Development Index (2011)	0,336 (Low)	180
Knowledge Economy Index (2012)	0,970	144

Somalia

GENERAL INFORMATION

Population (mln)	2011	9,56
Population Growth (%)	2011	2,39
Rural Population (% of total population)	2011	62,06
Labour Force (% of total population)	2010	31,33
Unemployment Rate (% of labor force)	...	...
GDP per capita (PPP, cur. $)	...	...
Infant Mortality (per 1,000)	2011	108,30
School Age Pop.off ent. age(% of total population)	2011	2,99
Average Years of Schooling	2010	...
Life Expectancy at birth (years)	2011	51,19

PARTICIPATION in EDUCATION

	GER		NER		GPI	
Pre-primary Schools	...	...			...	...
Primary Schools	...	...	...	...	2007	0,55
Secondary Schools	...	...	...	...	2007	0,46
Tertiary Schools	...	...			...	...

PROGRESSION and COMPLETION

Primary Completion Rate (Total)	...	...
Repetition Rates in Primary (all grades)	...	...
Repetition Rates in Secondary (all grades)	...	...
Survival Rate to Last Grade of Primary	...	...
Transition Rate from Primary to Secondary	...	...

LITERACY RATES (%)

Youth	
Male	na
Female	na
Total	na
Adult	
Male	na
Female	na
Total	na

RESOURCES for EDUCATION

Pupil / Teacher Ratio (primary)	2007	35,5
Public Education Spending (% of GDP)	...	...
Gov't Expenditure on Edu. (per pupil % of GDP per Capita)	...	...

RESEARCH and DEVELOPMENT

Reserchers (per million people)	...	...
Volumes per Academic Library	1983	42.500
GERD (% of GDP)	...	...
GERD per capita (cur. PPP $)	...	...
Patent Applications (total)	...	...
Scientific Published Articles	2011	7
Articles (per million people)	2011	0,73

INDICES

	Value	Rank
Human Development Index (2011)	.. ..	..
Knowledge Economy Index (2012)	...	...

Sudan

GENERAL INFORMATION

Population (mln)	2011	34,32
Population Growth (%)	2011	2,10
Rural Population (% of total population)	2011	59,16
Labour Force (% of total population)	2010	32,11
Unemployment Rate (% of labor force)	...	...
GDP per capita (PPP, cur. $)	2011	2.730
Infant Mortality (per 1,000)	2011	56,60
School Age Pop.official ent. age(% of total population)	2011	2,67
Average Years of Schooling	2010	3,02
Life Expectancy at birth (years)	2011	61,45

PARTICIPATION in EDUCATION

	GER		NER		GPI	
Pre-primary Schools	2009	26,5			2009	1,04
Primary Schools	2009	72,7	2010	43,0	2009	0,90
Secondary Schools	2009	39,0	...	...	2009	0,88
Tertiary Schools	2010	6,1			2011	0,92

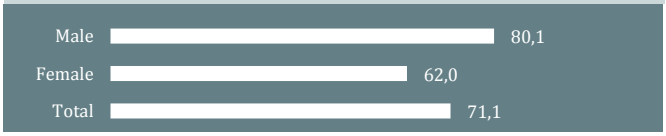
PROGRESSION and COMPLETION

Primary Completion Rate (Total)	2009	57,9
Repetition Rates in Primary (all grades)	2009	3,7
Repetition Rates in Secondary (all grades)	2008	2,6
Survival Rate to Last Grade of Primary	2007	90,9
Transition Rate from Primary to Secondary	2008	93,8

LITERACY RATES (%)

Youth

Adult



RESOURCES for EDUCATION

Pupil / Teacher Ratio (primary)	2009	38,4
Public Education Spending (% of GDP)	...	...
Gov't Expenditure on Edu. (per pupil % of GDP per Capita)	...	...

RESEARCH and DEVELOPMENT

Reserchers (per million people)	2005	292
Volumes per Academic Library	2009	14.928
GERD (% of GDP)	2005	0,66
GERD per capita (cur. PPP $)	...	...
Patent Applications (total)	2007	16
Scientific Published Articles	2011	285
Articles (per million people)	2011	6,39

INDICES

	Value	Rank
Human Development Index (2011)	0,408 (Low)	169
Knowledge Economy Index (2012)	1,480	138

Suriname

GENERAL INFORMATION

Population (mln)	2011	0,53
Population Growth (%)	2011	0,91
Rural Population (% of total population)	2011	30,25
Labour Force (% of total population)	2010	38,79
Unemployment Rate (% of labor force)	2004	9,50
GDP per capita (PPP, cur. $)	2011	11.751
Infant Mortality (per 1,000)	2011	26,00
School Age Pop.off ent. age(% of total population)	2011	1,93
Average Years of Schooling	2010	...
Life Expectancy at birth (years)	2011	70,58

PARTICIPATION in EDUCATION

	GER		NER		GPI	
Pre-primary Schools	2009	85,5			2009	1,01
Primary Schools	2009	113,4	2009	90,91	2009	0,95
Secondary Schools	2009	74,8	2009	50,31	2009	1,23
Tertiary Schools	...	...			2011	1,72

PROGRESSION and COMPLETION

Primary Completion Rate (Total)	2009	86,0
Repetition Rates in Primary (all grades)	2009	17,1
Repetition Rates in Secondary (all grades)	2009	18,5
Survival Rate to Last Grade of Primary	2008	90,3
Transition Rate from Primary to Secondary	2008	47,0

LITERACY RATES (%)

Youth

Male	98,0
Female	98,8
Total	98,4

Adult

Male	95,4
Female	94,0
Total	94,7

RESOURCES for EDUCATION

Pupil / Teacher Ratio (primary)	2009	15,4
Public Education Spending (% of GDP)	...	...
Gov't Expenditure on Edu. (per pupil % of GDP per Capita)	...	...

RESEARCH and DEVELOPMENT

Reserchers (per million people)	...	...
Volumes per Academic Library	2011	76.122
GERD (% of GDP)	...	...
GERD per capita (cur. PPP $)	...	...
Patent Applications (total)	...	...
Scientific Published Articles	2011	7
Articles (per million people)	2011	13,22

INDICES

	Value	Rank
Human Development Index (2011)	0,680 (Medium)	104
Knowledge Economy Index (2012)	...	...

Syria

GENERAL INFORMATION

Population (mln)	2011	20,82
Population Growth (%)	2011	1,81
Rural Population (% of total population)	2011	43,85
Labour Force (% of total population)	2010	26,69
Unemployment Rate (% of labor force)	2010	8,40
GDP per capita (PPP, cur. $)	...	...
Infant Mortality (per 1,000)	2011	13,20
School Age Pop.official ent. age(% of total population)	2011	2,50
Average Years of Schooling	2010	5,28
Life Expectancy at birth (years)	2010	75,70

PARTICIPATION in EDUCATION

	GER		NER		GPI	
Pre-primary Schools	2010	9,7			2010	0,97
Primary Schools	2010	117,8	2009	92,9	2010	0,98
Secondary Schools	2010	72,4	2010	67,0	2010	1,01
Tertiary Schools	2010	14,8			2011	0,72

PROGRESSION and COMPLETION

Primary Completion Rate (Total)	2010	103,6
Repetition Rates in Primary (all grades)	2010	7,6
Repetition Rates in Secondary (all grades)	2010	7,0
Survival Rate to Last Grade of Primary	2009	94,6
Transition Rate from Primary to Secondary	2009	95,0

LITERACY RATES (%)

Youth

Male	96,1
Female	93,6
Total	94,9

Adult

Male	89,9
Female	76,9
Total	83,4

RESOURCES for EDUCATION

Pupil / Teacher Ratio (primary)	2002	25,3
Public Education Spending (% of GDP)	...	...
Gov't Expenditure on Edu. (per pupil % of GDP per Capita)	...	...

RESEARCH and DEVELOPMENT

Reserchers (per million people)	...	...
Volumes per Academic Library	2009	1.440
GERD (% of GDP)	...	...
GERD per capita (cur. PPP $)	...	...
Patent Applications (total)	2006	266
Scientific Published Articles	2011	335
Articles (per million people)	2011	16,13

INDICES

	Value	Rank
Human Development Index (2011)	0,632 (Medium)	119
Knowledge Economy Index (2012)	2,770	112

Tajikistan

GENERAL INFORMATION

Population (mln)	2011	6,98
Population Growth (%)	2011	1,42
Rural Population (% of total population)	2011	73,63
Labour Force (% of total population)	2010	41,40
Unemployment Rate (% of labor force)	...	...
GDP per capita (PPP, cur. $)	2011	2.079
Infant Mortality (per 1,000)	2011	52,80
School Age Pop.off ent. age(% of total population)	2011	2,38
Average Years of Schooling	2010	9,25
Life Expectancy at birth (years)	2011	67,54

PARTICIPATION in EDUCATION

	GER		NER		GPI	
Pre-primary Schools	2010	8,7			2010	0,84
Primary Schools	2010	101,9	2010	97,28	2010	0,96
Secondary Schools	2010	87,2	2010	84,96	2010	0,87
Tertiary Schools	2010	19,7			2010	0,41

PROGRESSION and COMPLETION

Primary Completion Rate (Total)	2010	104,0
Repetition Rates in Primary (all grades)	2010	0,3
Repetition Rates in Secondary (all grades)	2010	0,4
Survival Rate to Last Grade of Primary	2009	98,9
Transition Rate from Primary to Secondary	2009	98,5

LITERACY RATES (%)

Youth

Male	99,9
Female	99,9
Total	99,9

Adult

Male	99,8
Female	99,6
Total	99,7

RESOURCES for EDUCATION

Pupil / Teacher Ratio (primary)	2010	25,2
Public Education Spending (% of GDP)	2010	4,01
Gov't Expenditure on Edu. (per pupil % of GDP per Capita)	2010	14,0094

RESEARCH and DEVELOPMENT

Reserchers (per million people)	2009	254
Volumes per Academic Library	2009	202.054
GERD (% of GDP)	2009	0,25
GERD per capita (cur. PPP $)	2009	1,80
Patent Applications (total)	2010	10
Scientific Published Articles	2011	57
Articles (per million people)	2011	8,17

INDICES

	Value	Rank
Human Development Index (2011)	0,607 (Medium)	127
Knowledge Economy Index (2012)	3,130	106

Togo

GENERAL INFORMATION

Population (mln)	2011	6,15
Population Growth (%)	2011	2,09
Rural Population (% of total population)	2011	55,86
Labour Force (% of total population)	2010	48,76
Unemployment Rate (% of labor force)	...	...
GDP per capita (PPP, cur. $)	2011	1.048
Infant Mortality (per 1,000)	2011	72,90
School Age Pop.official ent. age(% of total population)	2011	2,63
Average Years of Schooling	2010	5,91
Life Expectancy at birth (years)	2011	57,03

PARTICIPATION in EDUCATION

	GER		NER		GPI	
Pre-primary Schools	2010	8,6			2010	1,02
Primary Schools	2010	139,6	2008	91,8	2010	0,90
Secondary Schools	2007	45,5	2010	24,7	2007	0,53
Tertiary Schools	2007	5,9			2011	0,20

PROGRESSION and COMPLETION

Primary Completion Rate (Total)	2010	73,7
Repetition Rates in Primary (all grades)	2010	22,1
Repetition Rates in Secondary (all grades)	2010	22,9
Survival Rate to Last Grade of Primary	2009	59,4
Transition Rate from Primary to Secondary	2009	70,5

LITERACY RATES (%)

Youth

Male	87,6
Female	74,6
Total	81,7

Adult

Male	71,2
Female	43,6
Total	57,1

RESOURCES for EDUCATION

Pupil / Teacher Ratio (primary)	2010	40,6
Public Education Spending (% of GDP)	2010	4,5
Gov't Expenditure on Edu. (per pupil % of GDP per Capita)	...	...

RESEARCH and DEVELOPMENT

Reserchers (per million people)	2007	148
Volumes per Academic Library	2009	104.350
GERD (% of GDP)	...	...
GERD per capita (cur. PPP $)	...	...
Patent Applications (total)	...	...
Scientific Published Articles	2011	75
Articles (per million people)	2011	12,19

INDICES

	Value	Rank
Human Development Index (2011)	0,435 (Low)	162
Knowledge Economy Index (2012)	...	...

Tunisia

GENERAL INFORMATION

Population (mln)	2011	10,67
Population Growth (%)	2010	1,04
Rural Population (% of total population)	2011	32,33
Labour Force (% of total population)	2010	36,28
Unemployment Rate (% of labor force)	2008	14,20
GDP per capita (PPP, cur. $)	2011	9.389
Infant Mortality (per 1,000)	2011	13,90
School Age Pop.off ent. age(% of total population)	2011	1,49
Average Years of Schooling	2010	7,33
Life Expectancy at birth (years)	2010	74,60

PARTICIPATION in EDUCATION

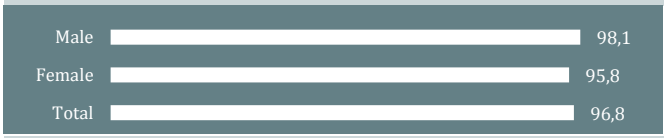
	GER		NER		GPI	
Pre-primary Schools	2010	22,4			2011	0,97
Primary Schools	2009	108,8	2009	98,48	2009	0,96
Secondary Schools	2009	90,5	2010	65,15	2009	1,06
Tertiary Schools	2009	34,4			2009	1,51

PROGRESSION and COMPLETION

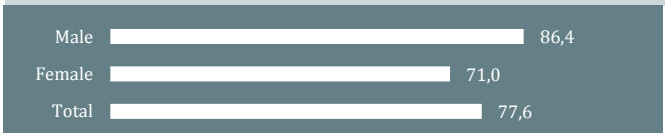
Primary Completion Rate (Total)	2009	91,2
Repetition Rates in Primary (all grades)	2009	6,8
Repetition Rates in Secondary (all grades)	2009	16,9
Survival Rate to Last Grade of Primary	2008	94,7
Transition Rate from Primary to Secondary	2008	83,9

LITERACY RATES (%)

Youth



Adult



RESOURCES for EDUCATION

Pupil / Teacher Ratio (primary)	2009	17,0
Public Education Spending (% of GDP)	2008	6,27
Gov't Expenditure on Edu. (per pupil % of GDP per Capita)	...	...

RESEARCH and DEVELOPMENT

Reserchers (per million people)	2008	3.240
Volumes per Academic Library	2008	806
GERD (% of GDP)	2009	2,45
GERD per capita (cur. PPP $)	2009	102,67
Patent Applications (total)	2005	338
Scientific Published Articles	2011	2.873
Articles (per million people)	2011	271,19

INDICES

	Value	Rank
Human Development Index (2011)	0,698 (High)	94
Knowledge Economy Index (2012)	4,560	80

Turkey

GENERAL INFORMATION

Population (mln)	2011	73,64
Population Growth (%)	2011	1,21
Rural Population (% of total population)	2011	29,90
Labour Force (% of total population)	2010	36,45
Unemployment Rate (% of labor force)	2010	11,90
GDP per capita (PPP, cur. $)	2011	14.393
Infant Mortality (per 1,000)	2011	11,50
School Age Pop.official ent. age(% of total population)	2011	1,68
Average Years of Schooling	2010	7,02
Life Expectancy at birth (years)	2011	73,94

PARTICIPATION in EDUCATION

	GER		NER		GPI	
Pre-primary Schools	2009	21,7			2009	0,95
Primary Schools	2009	102,4	2009	97,5	2009	0,98
Secondary Schools	2009	77,6	2009	74,1	2009	0,91
Tertiary Schools	2009	45,8			2009	0,79

PROGRESSION and COMPLETION

Primary Completion Rate (Total)	2009	99,2
Repetition Rates in Primary (all grades)	2009	1,8
Repetition Rates in Secondary (all grades)	2005	2,1
Survival Rate to Last Grade of Primary	2008	91,8
Transition Rate from Primary to Secondary	2008	96,7

LITERACY RATES (%)

Youth

Adult

RESOURCES for EDUCATION

Pupil / Teacher Ratio (primary)	...	...
Public Education Spending (% of GDP)	...	...
Gov't Expenditure on Edu. (per pupil % of GDP per Capita)	...	...

RESEARCH and DEVELOPMENT

Reserchers (per million people)	2010	1.715
Volumes per Academic Library	2008	47.605
GERD (% of GDP)	2010	1,31
GERD per capita (cur. PPP $)	2010	131,71
Patent Applications (total)	2010	3.357
Scientific Published Articles	2011	23.157
Articles (per million people)	2011	314,46

INDICES

	Value	Rank
Human Development Index (2011)	0,699 (High)	92
Knowledge Economy Index (2012)	5,160	69

Turkmenistan

GENERAL INFORMATION

Population (mln)	2011	5,11
Population Growth (%)	2011	1,25
Rural Population (% of total population)	2011	50,03
Labour Force (% of total population)	2010	42,89
Unemployment Rate (% of labor force)	...	...
GDP per capita (PPP, cur. $)	2011	7.842
Infant Mortality (per 1,000)	2011	44,60
School Age Pop.off ent. age(% of total population)	2011	1,94
Average Years of Schooling	2010	10,15
Life Expectancy at birth (years)	2011	65,00

PARTICIPATION in EDUCATION

	GER		NER		GPI	
Pre-primary Schools	...	...			...	...
Primary Schools	...	...	...	...	...	...
Secondary Schools	...	...	...	...	...	...
Tertiary Schools	2010	21,7			...	...

PROGRESSION and COMPLETION

Primary Completion Rate (Total)	...	...
Repetition Rates in Primary (all grades)	...	...
Repetition Rates in Secondary (all grades)	...	...
Survival Rate to Last Grade of Primary	...	...
Transition Rate from Primary to Secondary	...	...

LITERACY RATES (%)

Youth

Male	99,8
Female	99,9
Total	99,8

Adult

Male	99,7
Female	99,5
Total	99,6

RESOURCES for EDUCATION

Pupil / Teacher Ratio (primary)	...	...
Public Education Spending (% of GDP)	...	...
Gov't Expenditure on Edu. (per pupil % of GDP per Capita)	...	...

RESEARCH and DEVELOPMENT

Reserchers (per million people)	...	...
Volumes per Academic Library	2009	248.750
GERD (% of GDP)	...	...
GERD per capita (cur. PPP $)	...	...
Patent Applications (total)	...	...
Scientific Published Articles	2011	13
Articles (per million people)	2011	2,55

INDICES

	Value	Rank
Human Development Index (2011)	0,686 (Medium)	102
Knowledge Economy Index (2012)	...	...

Uganda

GENERAL INFORMATION

Population (mln)	2011	34,51
Population Growth (%)	2011	3,19
Rural Population (% of total population)	2011	86,52
Labour Force (% of total population)	2010	40,17
Unemployment Rate (% of labor force)	2009	4,20
GDP per capita (PPP, cur. $)	2011	1.385
Infant Mortality (per 1,000)	2011	57,90
School Age Pop.official ent. age(% of total population)	2011	3,31
Average Years of Schooling	2010	5,37
Life Expectancy at birth (years)	2011	54,07

PARTICIPATION in EDUCATION

	GER		NER		GPI	
Pre-primary Schools	2010	13,9			2010	1,05
Primary Schools	2010	121,1	2010	90,9	2010	1,01
Secondary Schools	2010	28,1	2010	15,5	2010	0,85
Tertiary Schools	2009	4,2			2009	0,79

PROGRESSION and COMPLETION

Primary Completion Rate (Total)	2010	57,2
Repetition Rates in Primary (all grades)	2010	10,8
Repetition Rates in Secondary (all grades)	2010	2,3
Survival Rate to Last Grade of Primary	2009	31,8
Transition Rate from Primary to Secondary	2009	58,7

LITERACY RATES (%)

Youth

Male	89,6
Female	85,5
Total	87,4

Adult

Male	82,6
Female	64,6
Total	73,2

RESOURCES for EDUCATION

Pupil / Teacher Ratio (primary)	2010	48,6
Public Education Spending (% of GDP)	2009	3,2
Gov't Expenditure on Edu. (per pupil % of GDP per Capita)	2009	10,3

RESEARCH and DEVELOPMENT

Reserchers (per million people)	2009	53
Volumes per Academic Library	2009	115.779
GERD (% of GDP)	2009	1,03
GERD per capita (cur. PPP $)	2009	5,10
Patent Applications (total)	2007	7
Scientific Published Articles	2011	692
Articles (per million people)	2011	20,05

INDICES

	Value	Rank
Human Development Index (2011)	0,446 (Low)	161
Knowledge Economy Index (2012)	2,370	118

United Arab Emirates

GENERAL INFORMATION

Population (mln)	2011	7,89
Population Growth (%)	2011	4,93
Rural Population (% of total population)	2011	15,63
Labour Force (% of total population)	2010	65,63
Unemployment Rate (% of labor force)	2008	4,00
GDP per capita (PPP, cur. $)	2011	47.729
Infant Mortality (per 1,000)	2011	5,60
School Age Pop.off ent. age(% of total population)	2006	1,21
Average Years of Schooling	2010	9,47
Life Expectancy at birth (years)	2011	76,74

PARTICIPATION in EDUCATION

	GER		NER		GPI	
Pre-primary Schools	2006	80,6			2006	1,01
Primary Schools	2006	104,3	2006	88,38	2006	1,03
Secondary Schools	2006	92,3	2006	81,04	2006	1,01
Tertiary Schools	2010	22,5			2011	3,16

PROGRESSION and COMPLETION

Primary Completion Rate (Total)	2006	99,6
Repetition Rates in Primary (all grades)	2010	2,0
Repetition Rates in Secondary (all grades)	2010	3,0
Survival Rate to Last Grade of Primary	2006	96,7
Transition Rate from Primary to Secondary	2009	96,1

LITERACY RATES (%)

Youth

Male	93,6
Female	97,0
Total	95,0

Adult

Male	89,5
Female	91,5
Total	90,0

RESOURCES for EDUCATION

Pupil / Teacher Ratio (primary)	2010	16,8
Public Education Spending (% of GDP)	2009	0,99
Gov't Expenditure on Edu. (per pupil % of GDP per Capita)	2009	8,28666

RESEARCH and DEVELOPMENT

Reserchers (per million people)	...	...
Volumes per Academic Library	2009	17.998
GERD (% of GDP)	...	...
GERD per capita (cur. PPP $)	...	...
Patent Applications (total)	...	...
Scientific Published Articles	2011	1.153
Articles (per million people)	2011	146,12

INDICES

	Value	Rank
Human Development Index (2011)	0,846 (Very High)	30
Knowledge Economy Index (2012)	6,940	42

Uzbekistan

GENERAL INFORMATION

Population (mln)	2011	29,34
Population Growth (%)	2011	2,69
Rural Population (% of total population)	2011	63,75
Labour Force (% of total population)	2010	42,95
Unemployment Rate (% of labor force)	...	...
GDP per capita (PPP, cur. $)	2011	3.273
Infant Mortality (per 1,000)	2011	41,50
School Age Pop.official ent. age(% of total population)	2011	1,82
Average Years of Schooling	2010	10,88
Life Expectancy at birth (years)	2010	68,00

PARTICIPATION in EDUCATION

	GER		NER		GPI	
Pre-primary Schools	2011	25,6			2011	1,00
Primary Schools	2011	94,6	2011	89,8	2011	0,97
Secondary Schools	2011	105,7	2009	92,0	2011	0,98
Tertiary Schools	2011	8,9			2011	0,65

PROGRESSION and COMPLETION

Primary Completion Rate (Total)	2011	92,9
Repetition Rates in Primary (all grades)	2011	0,0
Repetition Rates in Secondary (all grades)	2011	0,0
Survival Rate to Last Grade of Primary	2010	98,1
Transition Rate from Primary to Secondary	2010	99,0

LITERACY RATES (%)

Youth

Male	99,89
Female	99,99
Total	99,94

Adult

Male	99,6
Female	99,2
Total	99,4

RESOURCES for EDUCATION

Pupil / Teacher Ratio (primary)	2011	15,6
Public Education Spending (% of GDP)	...	...
Gov't Expenditure on Edu. (per pupil % of GDP per Capita)	...	...

RESEARCH and DEVELOPMENT

Reserchers (per million people)	...	...
Volumes per Academic Library	2008	418.695
GERD (% of GDP)	...	...
GERD per capita (cur. PPP $)	...	...
Patent Applications (total)	2010	632
Scientific Published Articles	2011	384
Articles (per million people)	2011	13,83

INDICES

	Value	Rank
Human Development Index (2011)	0,641 (Medium)	115
Knowledge Economy Index (2012)	3,140	105

Yemen

GENERAL INFORMATION

Population (mln)	2011	24,80
Population Growth (%)	2011	3,06
Rural Population (% of total population)	2011	67,60
Labour Force (% of total population)	2010	26,88
Unemployment Rate (% of labor force)	2009	14,60
GDP per capita (PPP, cur. $)	2011	2.307
Infant Mortality (per 1,000)	2011	57,00
School Age Pop.off ent. age(% of total population)	2011	2,88
Average Years of Schooling	2010	3,69
Life Expectancy at birth (years)	2011	65,45

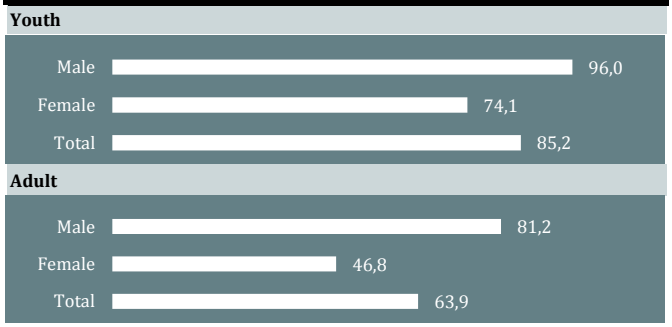
PARTICIPATION in EDUCATION

	GER		NER		GPI	
Pre-primary Schools	2010	1,2			2010	0,90
Primary Schools	2010	87,3	2010	77,56	2010	0,82
Secondary Schools	2010	44,1	2010	39,78	2010	0,62
Tertiary Schools	2007	10,2			2007	0,42

PROGRESSION and COMPLETION

Primary Completion Rate (Total)	2010	63,2
Repetition Rates in Primary (all grades)	2010	6,5
Repetition Rates in Secondary (all grades)	2010	7,3
Survival Rate to Last Grade of Primary	...	...
Transition Rate from Primary to Secondary	2004	82,7

LITERACY RATES (%)



RESOURCES for EDUCATION

Pupil / Teacher Ratio (primary)	2010	30,8
Public Education Spending (% of GDP)	2008	5,15
Gov't Expenditure on Edu. (per pupil % of GDP per Capita)	...	...

RESEARCH and DEVELOPMENT

Reserchers (per million people)	...	...
Volumes per Academic Library	2007	48.833
GERD (% of GDP)	...	...
GERD per capita (cur. PPP $)	...	...
Patent Applications (total)	2010	75
Scientific Published Articles	2011	162
Articles (per million people)	2011	6,53

INDICES

	Value	Rank
Human Development Index (2011)	0,462 (Low)	154
Knowledge Economy Index (2012)	1,920	122

STATISTICAL, ECONOMIC AND SOCIAL RESEARCH
AND TRAINING CENTRE FOR ISLAMIC COUNTRIES

Kudüs Cad. No:9 Diplomatik Site 06450 ORAN-Ankara, Turkey
Tel: (90-312) 468 61 72-76 Fax: (90-312) 468 57 26
Email: oicankara@sesric.org Web: www.sesric.org