Contents

Page

Education and labour markets: Analysing global patterns with the KILM [1]

1. Introduction

Education and training are at the core of any effort to increase a country's productivity and to improve people's likelihood not only of accessing employment at all, but of accessing good quality employment. The educational attainment and skills base of the workforce have a clear impact at both the individual and the national level. Accordingly, effective policy-making depends on understanding the ways in which educational trends and labour market trends are related, and how these shape individual and national well-being.

In general terms, higher levels of education are associated with greater labour market success, enhancing the opportunities for individuals to enter the labour market in a better position and protect them from unemployment. Where highly educated individuals are unemployed, this may in some cases reflect their unwillingness to settle for jobs of lesser quality than they deem appropriate based on their skill level. The effect of educational attainment on individuals' labour market outcomes refers not only to improved access to employment, but also to the quality of their employment in terms of working conditions. Higher levels of educational attainment are associated with higher salaries. Even overeducated individuals (those in jobs that require a lower skill level than they have) earn more, overall, than those doing the same job with no more than the skills needed (Rubb, 2003).

Educational attainment also influences other crucial aspects of working conditions, such as the type of contract and working time arrangements. A higher educational level can put workers in a better position to negotiate more satisfactory terms of employment. However, in highly segmented labour markets, where casual work and temporary contracts are common and formal permanent contracts are not widespread, human capital might be traded off for job security. In such environments, workers with greater skills than those required for their position are more likely to be found in permanent jobs than in temporary ones (Ortiz, 2010). Education therefore can provide protection, to a certain extent, from vulnerable employment. One study found that the proportion of youth in vulnerable employment educated at only the primary level or below is greater than that of similarly educated youth in non-vulnerable employment (Sparreboom and Staneva, 2014).

At the national level, there is a positive correlation between the proportion of highly educated adults in the labour force in a given country and that country's income per capita (OECD and Statistics Canada, 2000; Holland, Liadze, Rienzo and Wilkinson, 2013). A study involving 18 developing countries found that in most of the countries analysed, an increase in national literacy rates was accompanied by a higher rate of national economic growth. That is, human capital has a statistically significant positive impact on economic growth (Vinod and Kaushik, 2007). In addition, higher levels of educational attainment are associated with lower income inequalities, and national expenditure (per student) in education strongly influences a country's income distribution (Keller, 2010).

[1] The analysis of this section was prepared by Rosina Gammarano and Yves Perardel with the support of colleagues in the ILO Department of Statistics. Helpful comments on this section were provided by Laura Brewer, Sara Elder, Lawrence Jeff Johnson, Sangheon Lee, Sandra Polaski and Theo Sparreboom.

Studies on these critical linkages between education and labour markets tend to focus on developed economies. Less is known about the corresponding dynamics in the developing world; however, Keller's finding cited above is particularly marked for less developed countries. Given that levels of educational attainment remain comparatively low in many developing countries, further exploration of such linkages is vital (ILO, 2015).

To this end, the ninth edition of the KILM includes four indicators that directly examine the link between education and the labour market, presenting time series for a large number of countries at all stages of development. These four indicators correspond to table 14a, which looks at the labour force by level of educational attainment, disaggregated by sex and age group (total, youth and adult); table 14b, covering unemployment by level of educational attainment, disaggregated by sex and age group; table 14c, which shows unemployment rates by level of educational attainment, also disaggregated by sex and age group; and table 10c, containing rates for those not in education, employment or training (NEET), disaggregated by sex.

Throughout this chapter, we use the wealth of data included in the ninth edition of the KILM to explore the linkages between education and the labour market, and, more specifically, to examine whether the expected relationships between educational attainment and labour market outcomes are confirmed by the available data. The KILM offers the advantage of allowing us to conduct this study at the global level, revealing patterns for both developed and developing economies, and across regions.

Section 2 of the chapter begins this exploration by analysing the trends observed during the past 10–15 years for the four indicators identified above for all countries for which data are available. This provides a general picture of the recent evolution of the educational attainment of the labour force worldwide. Section 3 investigates more closely the linkages between education, labour market outcomes and economic performance, by comparing the four education-related indicators to other KILM indicators, namely, labour productivity (table 16a), the employment-to-population ratio (table 2b) and status in employment (table 3).

Section 4 looks at the same indicators, focusing in more detail on a set of 12 selected countries. These countries have been chosen to represent all income groups, as defined in the World Bank classification of countries by income (based on GNI per capita), that is, low income economies, lower middle income economies, upper middle income economies and high income economies. Data for all 12 countries are available in the KILM, and the group also covers all regions of the world. Finally, a brief section 5 concludes.

Box 1.1. Data on the labour market and education: Statistical issues

There are a number of challenges associated with the use of data on education, and in particular, of labour market data in relation to education. The first pertains to data availability. The preferred source for this type of data is a labour force survey, since it provides reliable information on both the educational attainment and the labour market status of individuals. Other types of household surveys and population censuses can also be used to derive these data. This means that, in general terms, it can be hard to obtain reliable and frequent statistics on the labour force by educational attainment for those countries that do not have a regular labour force or household survey in place.

Other key challenges relate to the international comparability of education statistics. The configuration of the national educational system, the levels of education required in the workplace and even traditions in terms of education are all heavily dependent on the national context. Even though there is an internationally agreed standard classification of educational levels (the International Standard Classification of Education, whose latest version dates from 2011), it cannot be assumed that educational categories used at the national level always accurately match the categories in this standard classification.

There is also the potential for confusion as to how a person's educational level is to be defined. Ideally, when making cross-country comparisons, all data should refer to the highest level of education completed, rather than the level in which the person is currently enrolled, or the level begun, but not successfully completed. However, because data are usually derived from household surveys, the actual definition ultimately used will inevitably depend on each respondent's own interpretation.

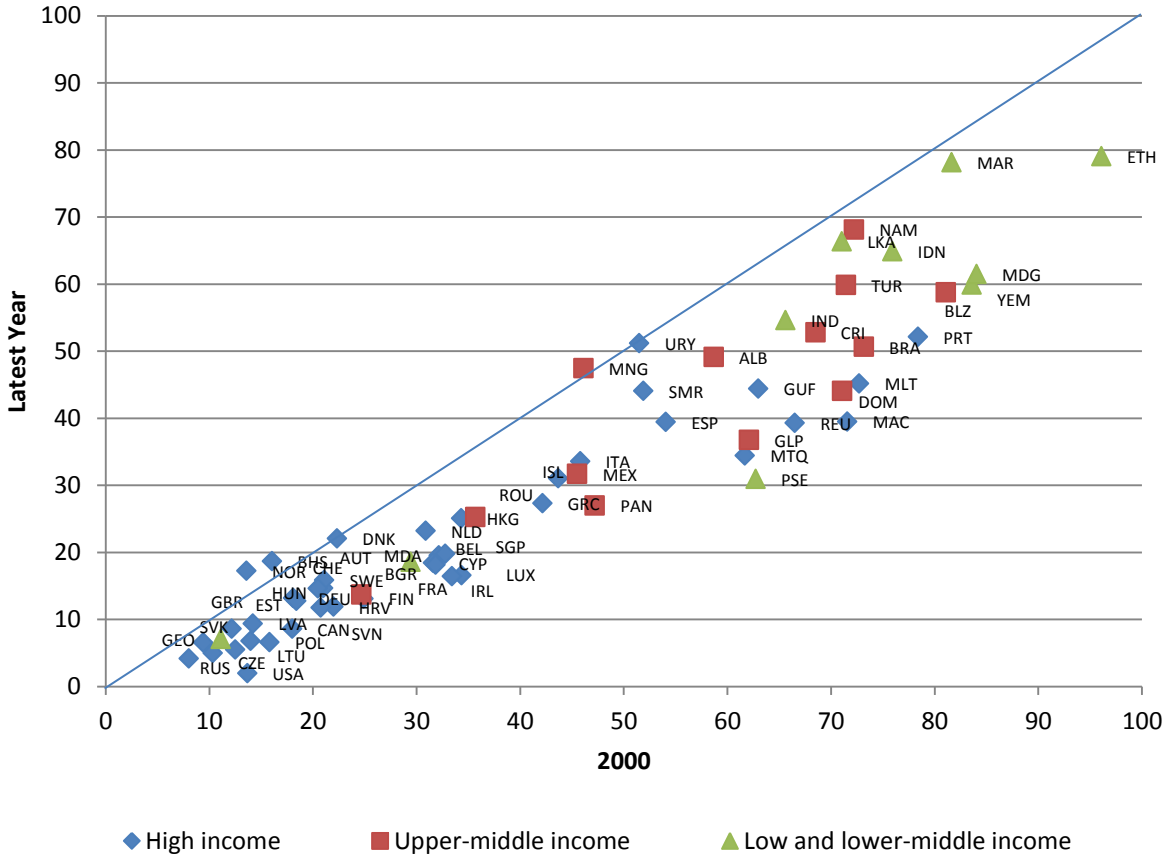
2. Global trends by indicator

In this section, we present the four KILM indicators at the centre of our analysis. We start by comparing, for all countries with available data, the situation in 2000 (or the closest year available) to that in the latest year available.[2] The aim is to understand what has changed during the past 15 years, and to reveal any trends for these key indicators.

2.1. Labour force distribution by level of educational attainment

Table 14a of the KILM provides data on the distribution of the labour force by level of educational attainment. Figure 2.1 focuses specifically on the share of the labour force with primary or less than primary level educational attainment.

Figure 2.1 Share of the labour force with primary or less than primary level educational attainment (%)



Note: In all the scatter plots included in this chapter, countries are referred to by the corresponding ISO 3166 alpha-3 country code. The full list of codes is presented in the annex at the end of this chapter, and is also accessible at https://www.iso.org/obp/ui/#search.
Source: KILM, 9th edn, table 14a, ages 15+, 1997–2004 and latest year available after 2009.

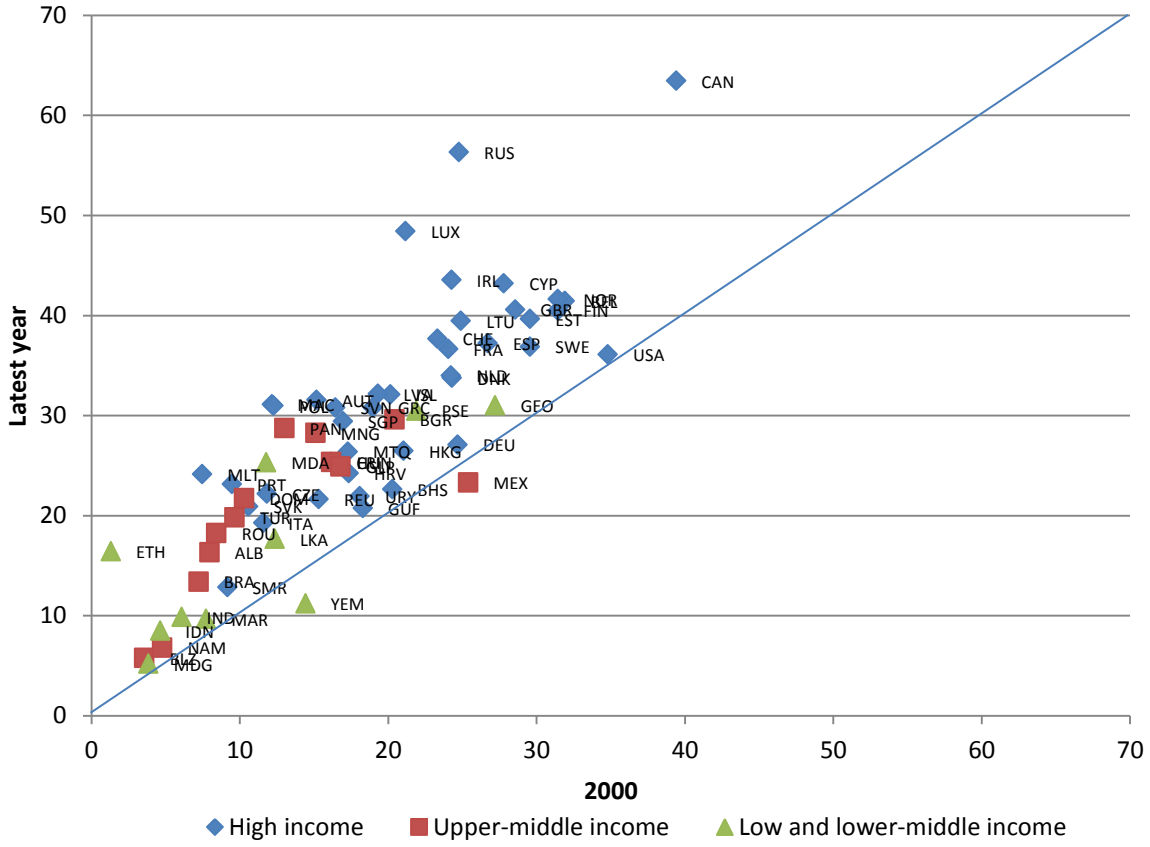
The key finding is that, worldwide, the educational level of the labour force is improving. Of the 64 countries for which data are available, only three registered an increase in the share of the labour force that has attained no higher than primary

[2] In cases where data were not available for 2000, we selected the closest year for which data were available between 1997 and 2004. The latest year available is always after 2009.

educational level. Among the developed economies, the situation does not seem to have changed appreciably. In most of these countries, the share of the labour force with no higher than primary level educational attainment was already quite low in 2000, and has declined only moderately over the following 15 years. Conversely, upper middle income economies and low and lower middle income economies have tended to experience more significant improvements, though starting from a lower educational base. The decrease in the share of the labour force with primary or less than primary level educational attainment is particularly striking for Macau (China) and the Occupied Palestinian Territory, where it fell by around 30 percentage points. The corollary of this, of course, is that the proportions of the population attaining some higher level of education have increased.

It is also crucial to study the changes in the share of the labour force with a higher level of educational attainment, in order to establish what levels of further educational attainment have been achieved where the share of workers with primary education or less has fallen – in particular, how many people are achieving tertiary level educational attainment. An increase in the share of a country's labour force with tertiary level education could facilitate an expansion in production of higher value added goods and services and a speeding up of productivity growth, thereby supporting economic growth and development. Accordingly, the changes in tertiary level educational attainment are shown in figure 2.2.

Figure 2.2 Share of the labour force with tertiary level educational attainment (%)



Source: KILM, 9th edn, table 14a, ages 15+, 1997–2003 and latest year available after 2009.

In line with the trends observed in figure 2.1, figure 2.2 also reflects a general improvement, this time in the share of the labour force having completed tertiary education. Of the 64 countries for which data are available, 62 registered an increase: most impressively, Canada, Luxembourg and the Russian Federation, where the increase

exceeded 20 percentage points, taking these three countries to the top of the rankings in terms of share of the labour force with tertiary education in the latest year available. In contrast, only two countries, Mexico and Yemen, experienced a (modest) decrease in the share of the labour force with tertiary education.

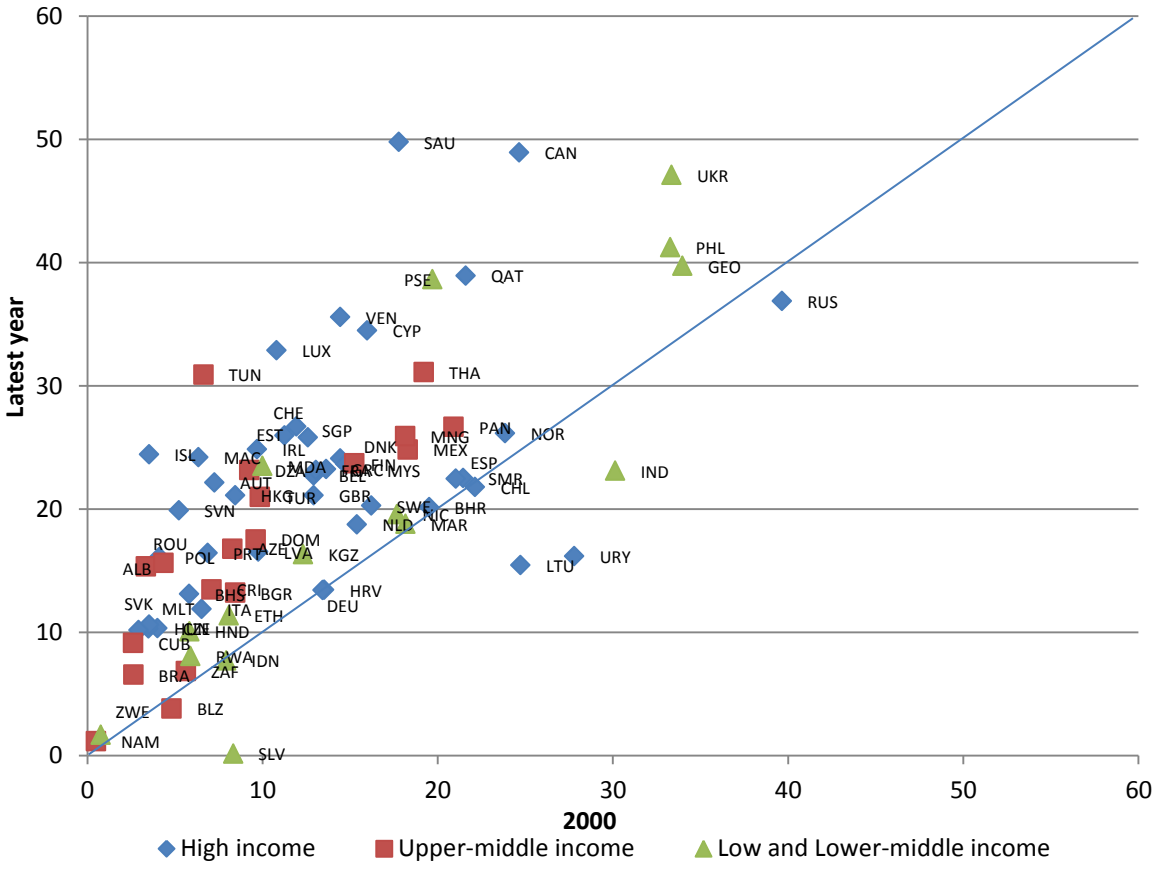
One special consideration to keep in mind when looking at data referring to tertiary education is the difference between vocational education and university degrees, since vocational education plays a significant role in productivity and sustainable growth for many countries. However, whether vocational education is considered secondary or tertiary-level varies from country to country, which renders its analysis more difficult.

2.2. Unemployment distribution by level of educational attainment

While the level of educational attainment in the overall labour supply is an important indicator for assessing changes in an economy's productive potential, if sufficient and suitable employment opportunities are not available, the macroeconomic benefits of a more highly educated labour force are unlikely to materialize. Assessing the educational profile of the unemployed alongside that of the labour force provides important insights into the extent of mismatch between supply and demand in the labour market.

Table 14b of the KILM presents the distribution of the unemployed by level of educational attainment. Figure 2.3 displays the share of unemployed persons educated to tertiary level in 2000 (or the closest year available) compared to that in the latest year available for 76 countries for which data are available.

Figure 2.3 Share of unemployed with tertiary level educational attainment (%)

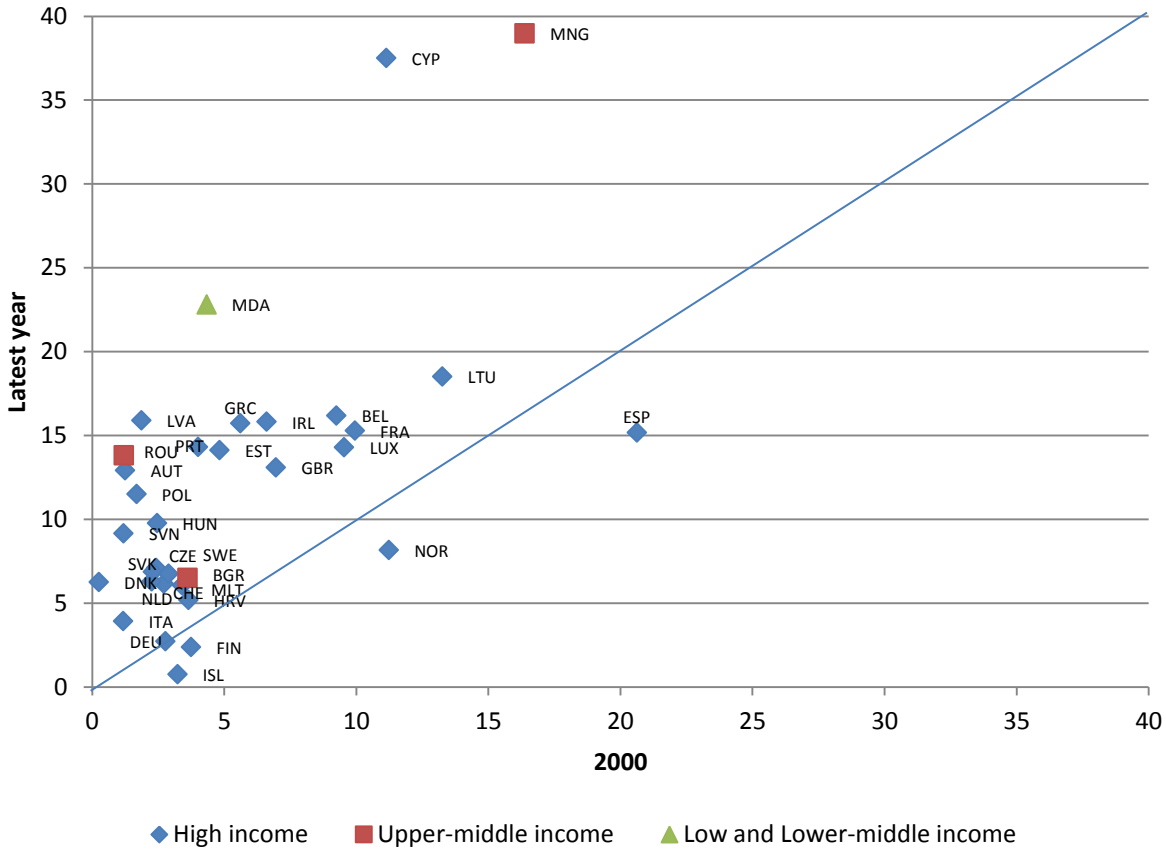


Source: KILM, 9th edn, table 14b, ages 15+, 1997–2003 and latest year available after 2009.

The share of unemployed with tertiary level educational attainment declined in only 10 of these countries between 2000 and the latest year available. A trend increase in the share of the unemployed with tertiary education is in line with the rising level of educational attainment of the labour force experienced by most countries. However, the findings also indicate that a higher level of education may be less and less effective in preventing unemployment. In Saudi Arabia and Canada, the share of unemployed with tertiary level educational attainment doubled over these years. In Tunisia, the share of unemployed with a tertiary education increased dramatically, from only 6.6 per cent to 30.9 per cent.

Figure 2.4 focuses on the situation of youth, specifically on changes in the past 10–15 years in the share of unemployed youth with tertiary level educational attainment.

Figure 2.4. Share of young unemployed with tertiary level educational attainment (%)



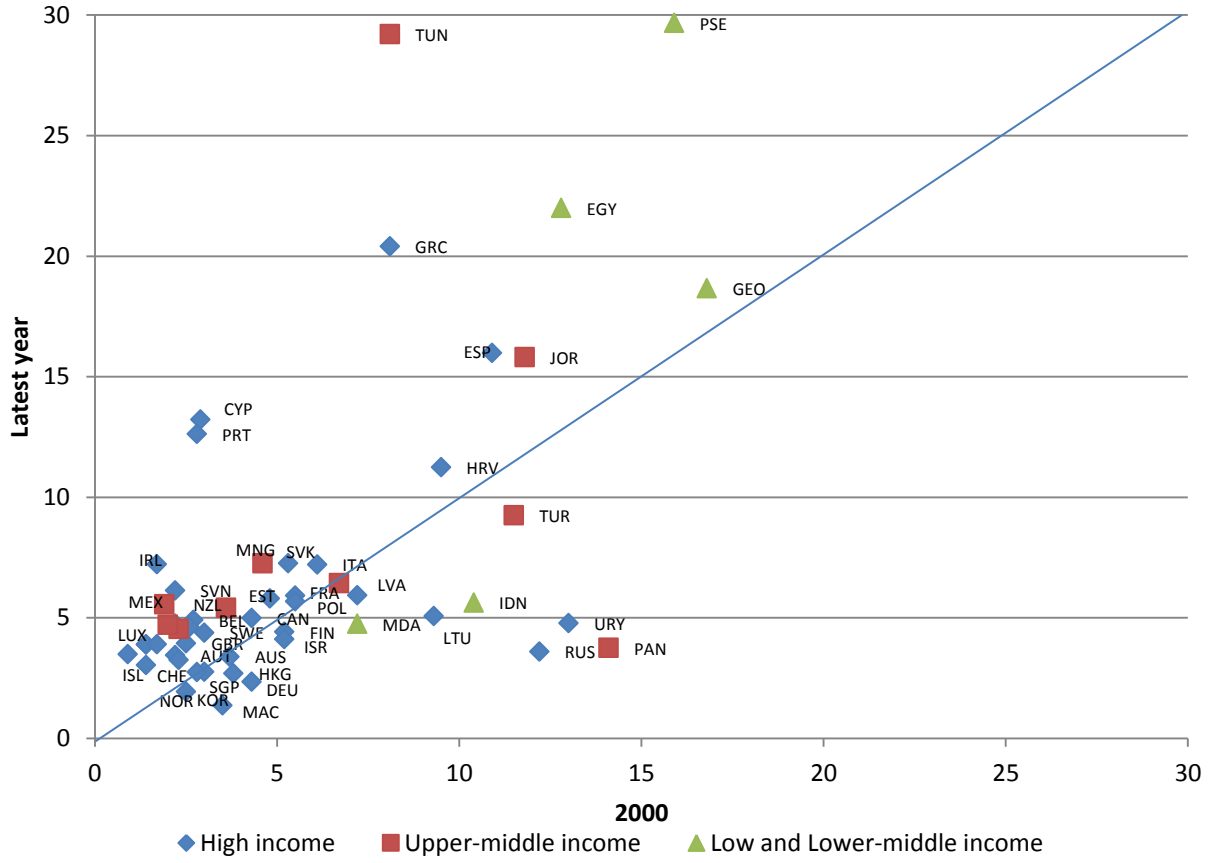
Source: KILM, 9th edn, table 14b, ages 15–24, 1997–2003 and latest year available after 2009.

Among the 33 countries for which data are available, only five experienced a decrease in the share of unemployed youth with tertiary level educational attainment. Trends in Spain are worth highlighting, since high educational levels here seem to have protected the younger generation against the considerable increase in unemployment overall during the period. In other countries, by contrast, such as Cyprus, Moldova and Mongolia, highly educated young people seem to be facing an employment bottleneck. This could imply a lack of sufficient professional and high-level technical jobs to absorb the number of skilled individuals in the labour force. However, it is important to interpret these results with caution since tertiary education is usually completed only towards the end of the youth age band (15–24).

2.3. Unemployment rate by level of educational attainment

Table 14c of the KILM presents data on unemployment rates by level of educational attainment. In doing so, it provides insights into changes in demand for workers with different education and skill levels. Figure 2.5 focuses on the unemployment rate of persons with tertiary level education.

Figure 2.5. Unemployment rate of persons with tertiary level educational attainment (%)

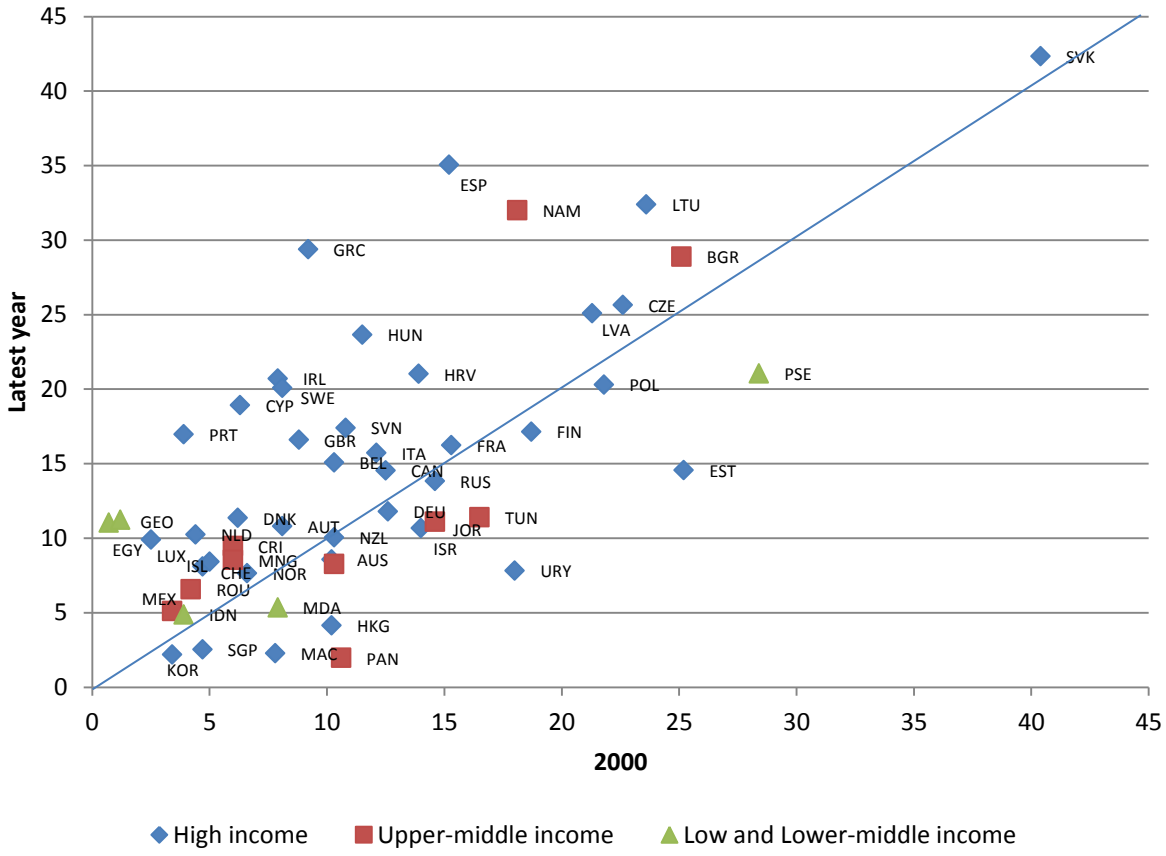


Source: KILM, 9th edn, table 14c, ages 15+, 1997–2003 and latest year available after 2009.

In contrast to the first two indicators studied in this chapter, where data for the past 10–15 years showed a clear trend, the results for the unemployment rate of persons with tertiary level educational attainment are more scattered. Of the 53 countries for which data are available, 35 experienced an increase in the unemployment rate of the most highly educated in the labour force over the period. The situation is particularly critical in Tunisia, where the unemployment rate of tertiary graduates increased by more than 21 percentage points. Increases exceeding 10 percentage points were also observed in the Occupied Palestinian Territory, Greece and Cyprus. In Egypt and Georgia, the unemployment rate among tertiary graduates was already at very high levels in 2000 and continued to increase during the period studied. Conversely, in 18 countries the unemployment rate of persons with tertiary level education declined. The largest decreases (of around 10 percentage points in each case) occurred in Uruguay, Panama and the Russian Federation.

In order to assess the relationship between educational level and unemployment, it is important to compare the respective situations of those who have achieved tertiary level education and those with primary level education or less. The results for the latter group are displayed in figure 2.6.

Figure 2.6. Unemployment rate of persons with primary or less than primary level educational attainment (%)



Source: KILM, 9th edn, table 14c, ages 15+, 1997–2003 and latest year available after 2009.

Once again, the results are rather scattered, and generate no visible pattern. In 19 out of the 53 countries included, the unemployment rate fell for persons with no higher than primary level education. In some Latin American countries, such as Uruguay and Panama, the unemployment rate of persons with primary level education or less decreased significantly, as it did for persons with tertiary education. In the Occupied Palestinian Territory, however, where the unemployment rate increased for the most highly educated, it fell by 7.3 percentage points for those with primary level education or less. Here, as in many developing economies, it appears that the country's less educated labour force cannot afford to remain unemployed. Conversely, in Spain and Greece, the unemployment rate of persons with primary level education or less increased by an astonishing 20 percentage points in each case, reflecting the severity of the economic crisis that affected these two countries after 2008. It is also worth pointing out that in Spain in 2013, the unemployment rate was more than twice as high among persons with primary level education or less (35.1 per cent) as for those with a tertiary degree (16.0 per cent). Finally, in Slovakia, the unemployment rate among persons with no higher than primary education remains very high and, as in Spain, the highest rate of unemployment is among persons with the lowest educational level.

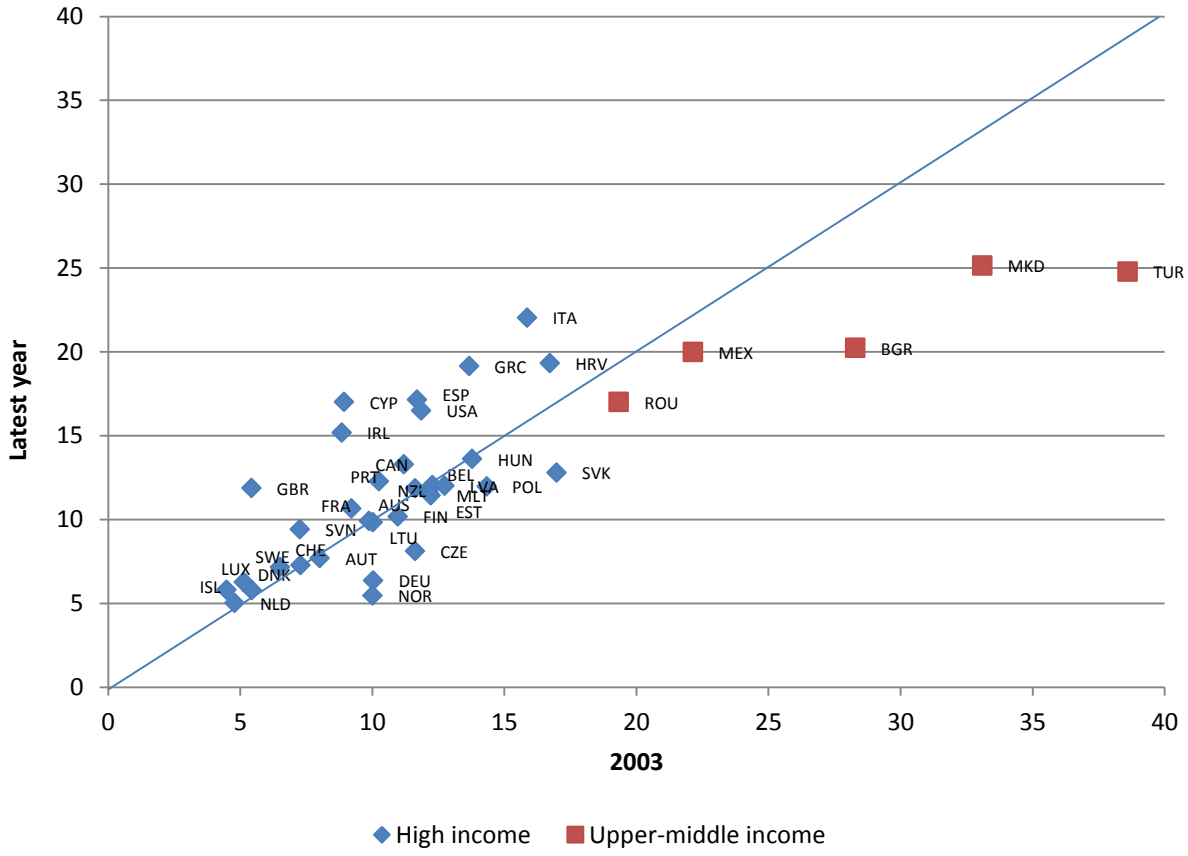
In terms of the overall trends in unemployment rates across different levels of education, persons in the labour force with a tertiary education have the lowest likelihood of being unemployed in 41 out of 53 countries with available data. Tertiary graduates are the least likely to be unemployed in 34 out of 37 high-income economies, but in only 7 out of 16 middle income economies. Looking at changes in unemployment rates over the past 15 years, unemployment rate dynamics were most favourable (either decreasing the most

or increasing the least) among those with a tertiary education in 19 out of the 53 countries, among those with secondary education in 24 out of 53 countries and among those with a primary education in only 10 countries.

2.4. Share of youth not in education, employment or training (NEET)

Table 10c of the KILM presents data on the share of youth not in education, employment or training (NEET). By its nature, this indicator represents a broader measure of potential youth labour market entrants than either youth unemployment or youth inactivity. In figure 2.7, this indicator is displayed for 2003 and for the latest year available.

Figure 2.7. Share of youth not in education, employment, or training (%)



Source: KILM, 9th edn, table 10c, ages 15–24, 1998–2007 and latest year available after 2011.

Among the 38 countries for which data are available, there does not seem to be a clear underlying pattern. Nonetheless, it is still noteworthy that the countries in which the NEET share of youth has increased the most in the past decade (Cyprus, Greece, Ireland, Italy, Spain and the United Kingdom) are all high income economies that were badly hit by the global financial crisis. The crisis in these countries disproportionately affected young people, leaving them more vulnerable to unemployment and without the means to take their education or training further. Conversely, the countries in which the NEET share of youth decreased the most are upper-middle-income economies (Turkey, Former Yugoslav Republic of Macedonia and Bulgaria). However, for the majority of the countries included in figure 2.7, there were no significant changes during the period under review. More specifically, in 23 of the 38 countries included here, the NEET share of youth rose or fell

by less than 2.5 percentage points between 2003 (or the closest year available) and the latest year available.

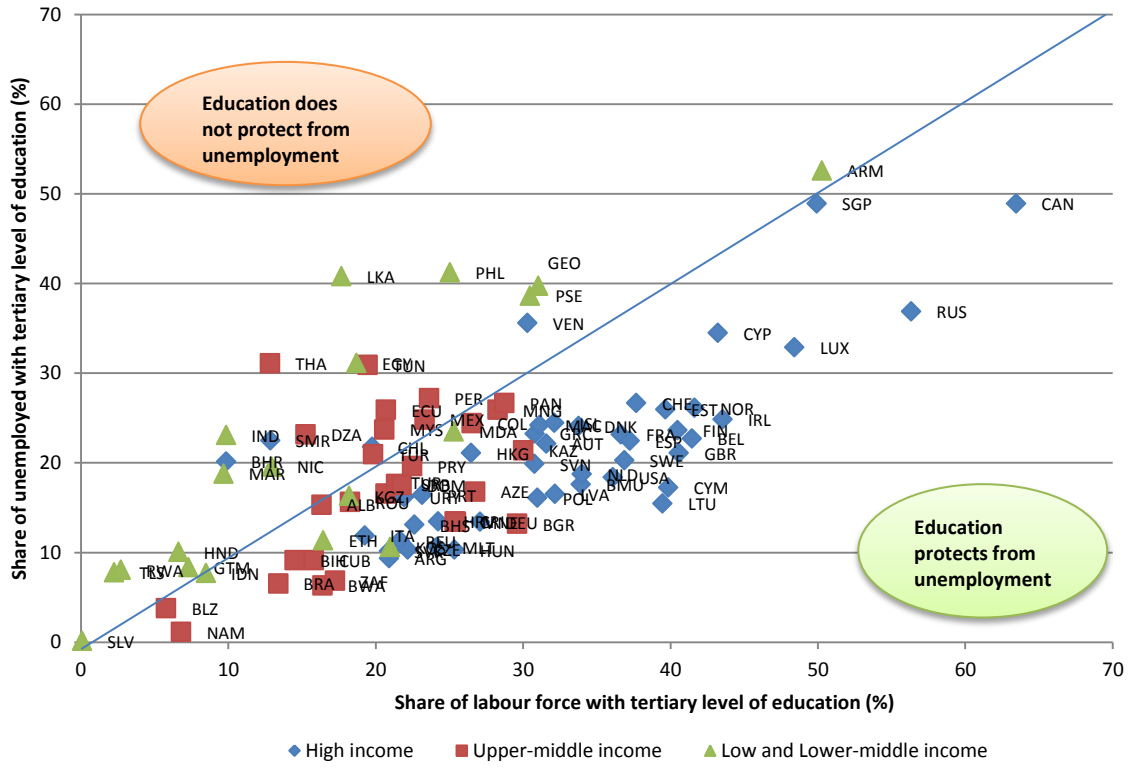
3. Impact of education on labour market outcomes

Having analysed trends over the past 10–15 years for the four KILM indicators pertaining to education, with particular attention to the relationship between educational attainment and labour market outcomes, we turn in this section to investigate whether there are links between these indicators and other key labour market indicators, specifically unemployment rates, labour productivity, the employment-to-population ratio and the share of employees.

3.1. Unemployment and education

Figure 3.1 depicts values for two labour market indicators among those with a tertiary education, comparing the respective shares of persons educated to this level in the labour force and in the unemployed.

Figure 3.1. Share of labour force and unemployment with tertiary level of educational attainment, latest year available (%)



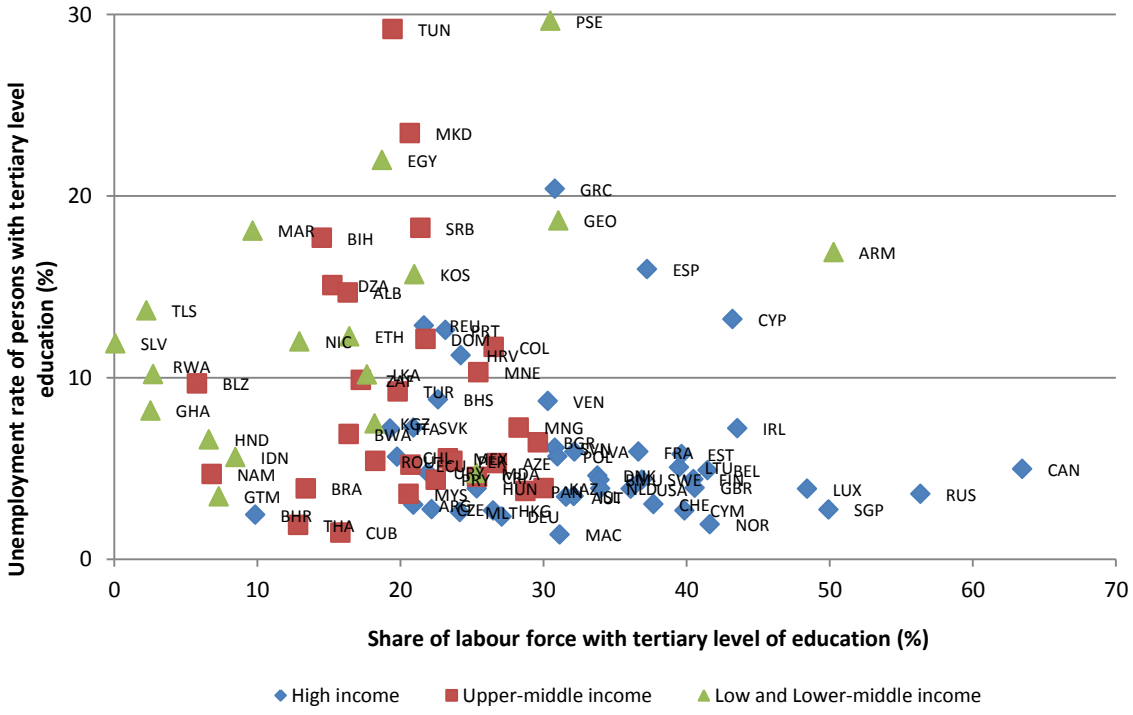
Source: KILM, 9th edn, tables 14a, 14b, ages 15+, latest year available after 2009.

In 67 of the 93 countries for which data are available, education seems to be an effective tool for protecting people from unemployment: that is, the share of unemployed with tertiary level education is lower than the share of the labour force with the same educational level. The difference is particularly marked in Lithuania, where the difference stood at 24 percentage points (39.5 per cent of the labour force, but only 15.5 per cent of the unemployed, have a tertiary degree). In Belgium, the Cayman Islands, Ireland and the Russian Federation, the difference is also close to 20 percentage points, indicating that high levels of education play a major role in preventing unemployment. On the other hand, there are 26 countries where the opposite is observed, that is, where persons in the labour force with a tertiary degree are more likely than those with a lower level of education to be

unemployed. This is especially the case in the Philippines, Sri Lanka and Thailand, where the difference exceeds 15 percentage points. We also find considerable differences (over 10 percentage points) in Bahrain, Egypt, India and Tunisia.

An overview of the situation across countries in different income groups suggests that higher levels of education tend to protect workers from unemployment in high income economies. Among upper middle income economies the situation is more mixed, and in low and lower middle income economies, people with high levels of education tend to be more likely to be unemployed. In these developing economies, there is a clear bottleneck, with skilled persons far outnumbering the available jobs matching their competencies and expectations. When studying these trends in unemployment, it is crucial to take into account the national context in terms of unemployment insurance policies. In contexts where these are limited or do not exist, unemployment might not be seen as an option (ILO, 2016- forthcoming). Other possible explanations for the pattern observed in low and lower middle income economies include family income being significant enough for those that have higher education to remain unemployed while they look for a job that fully meets their expectations.

Figure 3.2. Share of labour force and unemployment rate for tertiary level of educational attainment (%)



Source: KILM, 9th edn, tables 14a, 14c, ages 15+, latest year available after 2009.

Figure 3.2 compares data in tables 14a and 14c for the tertiary level of educational attainment. The coefficient of determination (R^2) is close to 0, reflecting the scattered results. However, even though there is no clear indication that a tertiary degree plays a role in protecting people from high unemployment rates, the figure still presents some interesting patterns. Countries in this group with a high share of the labour force educated to tertiary level and a low unemployment rate are all high income economies. In these cases, education clearly appears to act as a barrier against unemployment. The relationship is most marked in Canada, Luxembourg, Norway, the Russian Federation and Singapore.

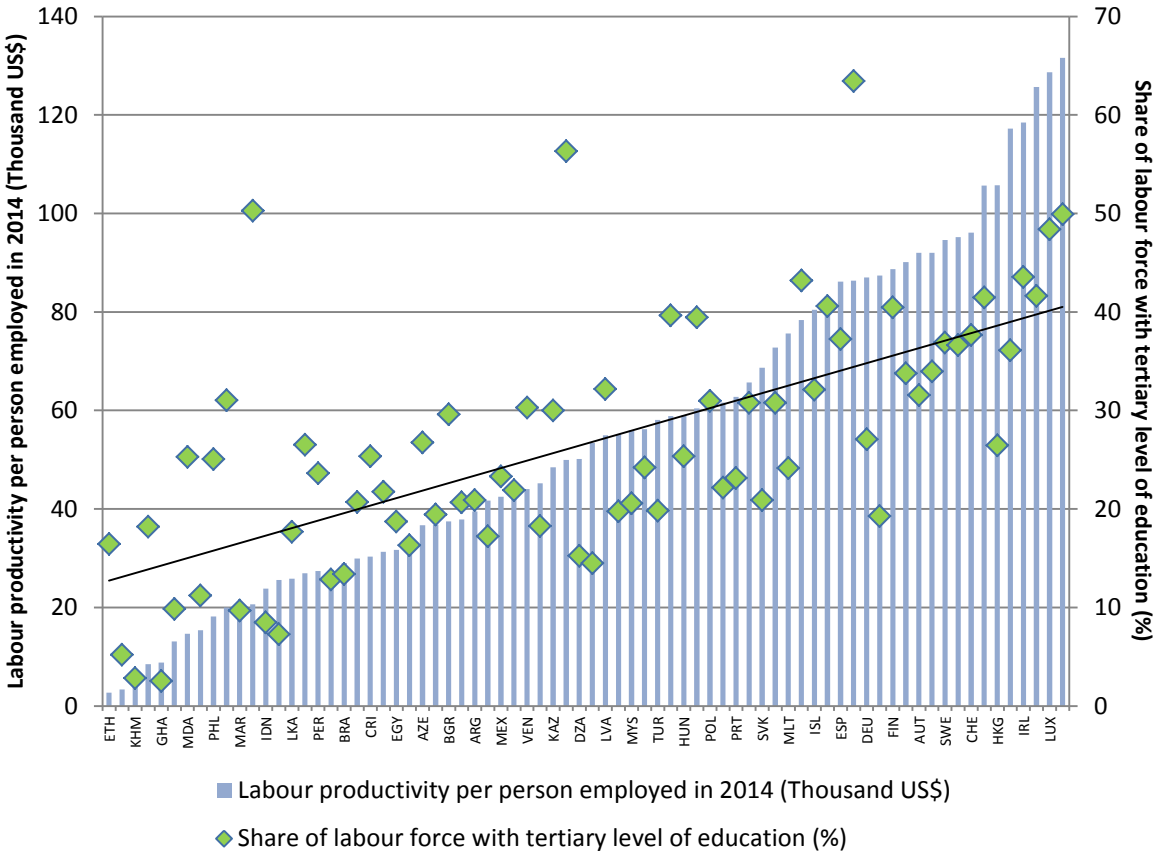
Conversely, the countries in this group with a relatively low share of the labour force with tertiary level education but a high unemployment rate for this category tend to be mostly upper middle, lower middle and low income countries. These include Egypt, the

Former Yugoslav Republic of Macedonia, Greece, Tunisia and the Occupied Palestinian Territory. This may seem surprising, since in these countries the tertiary educated labour force is not very large and it might therefore be expected that these highly educated people would easily find skilled jobs. However, in these countries there are still too few employment opportunities for them, either because the labour market is in a crisis (Former Yugoslav Republic of Macedonia, Greece) or because skilled jobs are lacking, revealing a skills mismatch situation (Egypt, Occupied Palestinian Territory, Tunisia).

3.2. Labour productivity and education

This section presents information on the relationship between labour productivity (table 16a) for the aggregate economy and tertiary education. Labour productivity, which we define here as output per person employed, measures the efficiency with which inputs are used in an economy to produce goods and services; it offers an indication of both competitiveness and living standards within a country. In figure 3.3, we look at the relationship between tertiary level educational attainment and labour productivity.

Figure 3.3. Tertiary level of educational attainment and labour productivity (PPP US$)



Note: The trend line included in the graph shows to what extent there is a linear relationship between labour productivity and the share of the labour force with a tertiary education.

Source: KILM, 9th edn, tables 14a, 16a, ages 15+, latest year available after 2009.

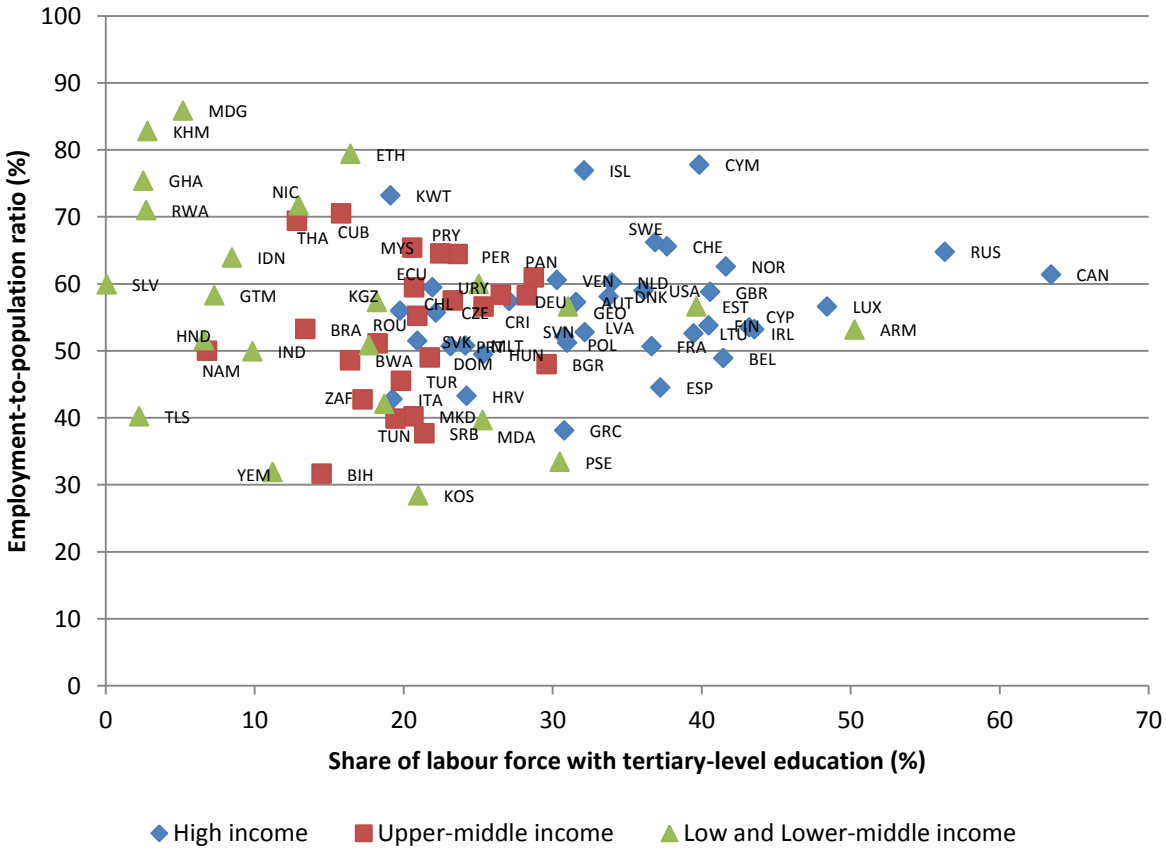
It is clear from the figure that a link exists between these two indicators. A greater proportion of the labour force with a tertiary education is associated with higher levels of labour productivity. When the 74 countries included are sorted according to their level of labour productivity, the trend line of the share of the labour force with tertiary level education is clearly positive, with a coefficient of determination (R^2) of 0.44. However, notwithstanding a clear global underlying trend, there are some noticeable exceptions, such

as Armenia, Canada and the Russian Federation, where the share of the labour force with tertiary level education appears to be much higher than would be expected, given the corresponding levels of labour productivity.

3.3. Employment-to-population ratio and education

Table 2b of the KILM presents data on employment-to-population ratios based on national estimates. The employment-to-population ratio is defined as the proportion of a country's working-age population that is employed. A high ratio means that a large proportion of a country's working-age population is employed, while a low ratio means that a large share of the working-age population is not involved directly in labour market related activities, either because they are unemployed or (more likely) because they are not in the labour force. In figure 3.4, this indicator is shown together with the share of the labour force educated to tertiary level.

Figure 3.4 Employment-to-population ratio and labour force with tertiary level educational attainment



Source: KILM, 9th edn, tables 2b, 14a, ages 15+, latest year available after 2009.

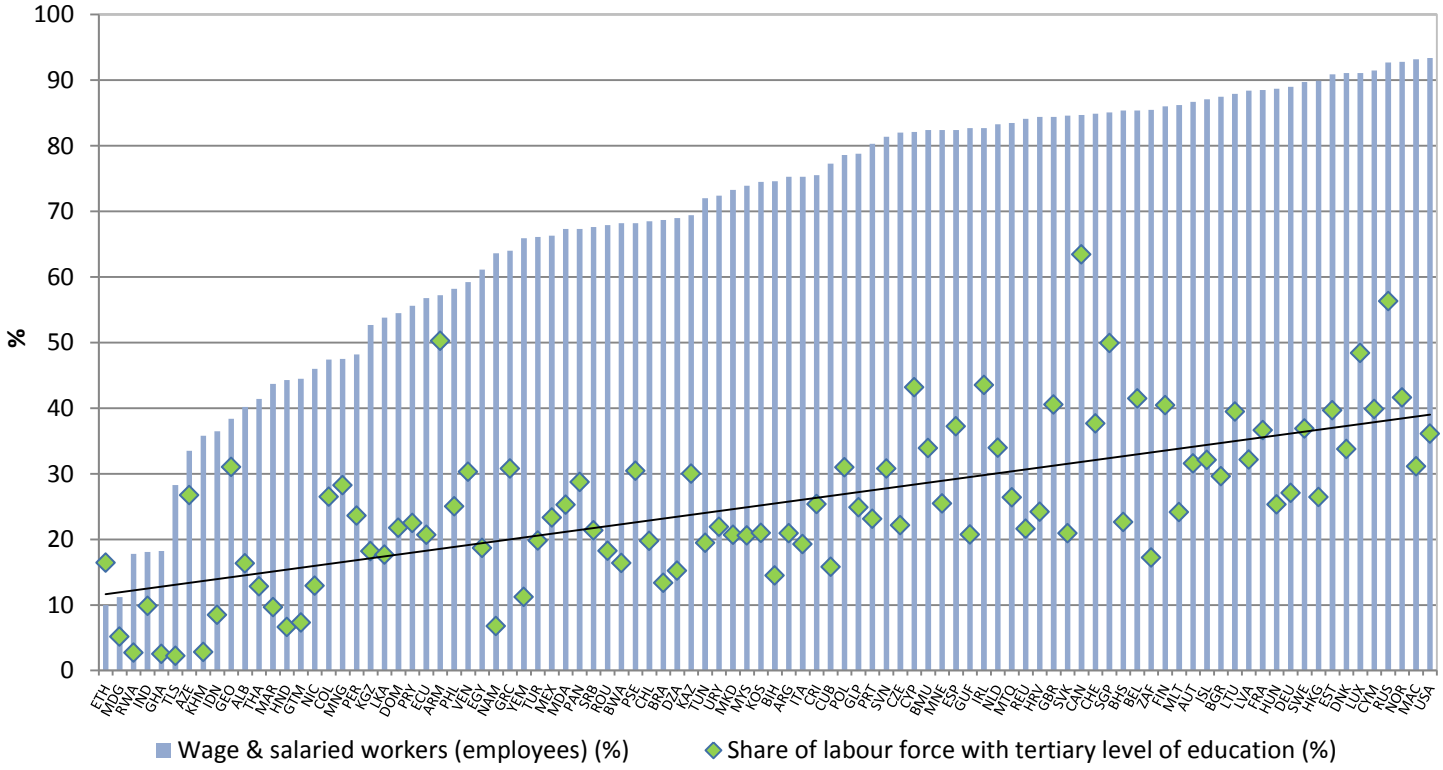
No clear relationship between these two indicators can be deduced from this figure, and the coefficient of determination (R^2) is almost exactly 0. However, the variability in the employment-to-population ratio is much higher for countries where the share of labour force with tertiary education is low. Bosnia and Herzegovina and Ethiopia, for example, have similar shares of the labour force with tertiary level education (14.5 per cent and 16.4 per cent, respectively), but the two countries' employment-to-population ratios differ by nearly 50 percentage points (31.6 per cent and 79.4 per cent, respectively). It would seem that the higher the share of the labour force with a tertiary degree, the smaller the

variability: whenever this share exceeds 45 per cent, the employment-to-population ratio falls within the range 45–65 per cent.

3.4. Share of employees and education

Table 3 of the KILM presents data on employment by status in employment, according to the categories set out in the 1993 International Classification by Status in Employment (ICSE). We focus here on "employees", the category of status in employment that typically benefits from the highest levels of income and job security in the labour market. Figure 3.5 shows data on the share of employees in total employment alongside data on the share of the labour force with tertiary level education.

Figure 3.5. Share of employees in total employment, and share of labour force with tertiary level of educational attainment



Note: The trend line included in the graph shows to what extent there is a linear relationship between wage & salaried workers (employees) and the share of the labour force with tertiary level of education.

Source: KILM, 9th edn, tables 3, 14a, ages 15+, latest year available after 2009.

The figure shows a clear, positive relationship between the two indicators. The higher the share of employees in a country, the higher the proportion of persons with a tertiary education degree. Educational attainment is clearly related to the probability of being in the labour market as an employee. As in section 3.2, Armenia, Canada and the Russian Federation stand out, with a much higher share of tertiary educational attainment in the labour force than would be expected given their shares of employees. Conversely, Namibia, South Africa and, to a lesser extent, Botswana have very low shares of employees compared to the educational attainment of their labour forces. These results may suggest a regional pattern, reflecting an environment in which, while the educational level of the labour force is improving, the configuration of the economy and labour market is fairly stagnant, with self-employment remaining prevalent.

This section of the chapter has explored the links between education and several key labour indicators. The findings comparing educational attainment with labour productivity and share of employees suggest a clear link between the educational level achieved within a labour force and labour market outcomes. However, the link cannot be established with equal confidence for all the labour market indicators studied. In particular, the employment-to-population ratio appears to be completely independent of variations in educational attainment.

4. The current situation in 12 selected countries

4.1 Data for latest year available on the four selected indicators

In the previous section the analysis incorporated all countries for which recent data are available. In this section, we look in greater detail at the current situation in a selection of 12 countries covering all levels of development. Table 4.1 lists the 12 countries, along with selected labour market data and income group for each.

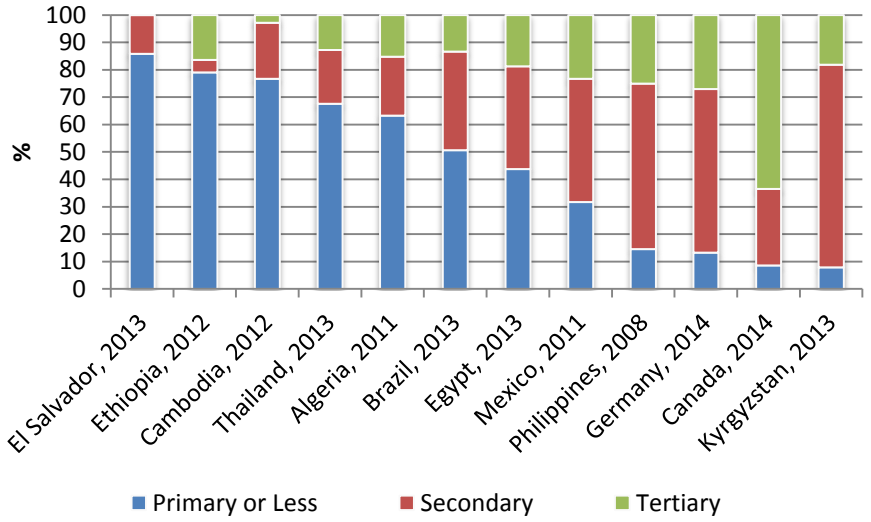
Table 4.1. Key information for selected countries

Country	Working-age population (000s, aged 15+)	Employment-to-population ratio (%)	Unemployment rate (%)	World Bank income group
Canada	29 952	61.4	6.9	High income
Germany	71 875	57.4	5.0	High income
Algeria	29 100	36.2	9.8	Upper middle income
Brazil	157 000	64.0	4.8	Upper middle income
Mexico	90 875	56.9	4.8	Upper middle income
Thailand	55 636	69.4	0.8	Upper middle income
Egypt	58 572	42.1	13.2	Lower middle income
El Salvador	4 572	59.9	5.9	Lower middle income
Kyrgyzstan	3 942	57.2	8.3	Lower middle income
Philippines	67 814	60.0	6.8	Lower middle income
Cambodia	10 811	82.8	0.3	Low income
Ethiopia	57 948	79.4	4.5	Low income

Sources: World Bank, ILOSTAT, KILM, 9th edn, latest year available.

In figure 4.1, labour force by educational attainment (KILM table 14a) is displayed for the latest year available across the 12 selected countries. The highest share of the labour force with primary or less than primary educational attainment is found in El Salvador, where it reaches 85.9 per cent. The next highest shares are found in Ethiopia and Cambodia, the two low income economies among our selection. More than three-quarters of the labour force in these two countries did not complete education beyond primary schooling, indicating a large share of workers with little education. In Thailand and Algeria, more than half of the labour force (67.5 and 63.2 per cent, respectively) did not attain a secondary level education. These two countries are classified as upper middle income economies. Therefore, in these cases, a relatively high GNI per capita is not accompanied by a relatively high level of educational attainment. In contrast, Kyrgyzstan, classified as a lower middle income economy, has the lowest share of the labour force with primary education or less (7.9 per cent). Germany and Canada, the two high income economies in our sample, have the highest shares of the labour force with tertiary level education (27.1 per cent and 63.4 per cent, respectively).

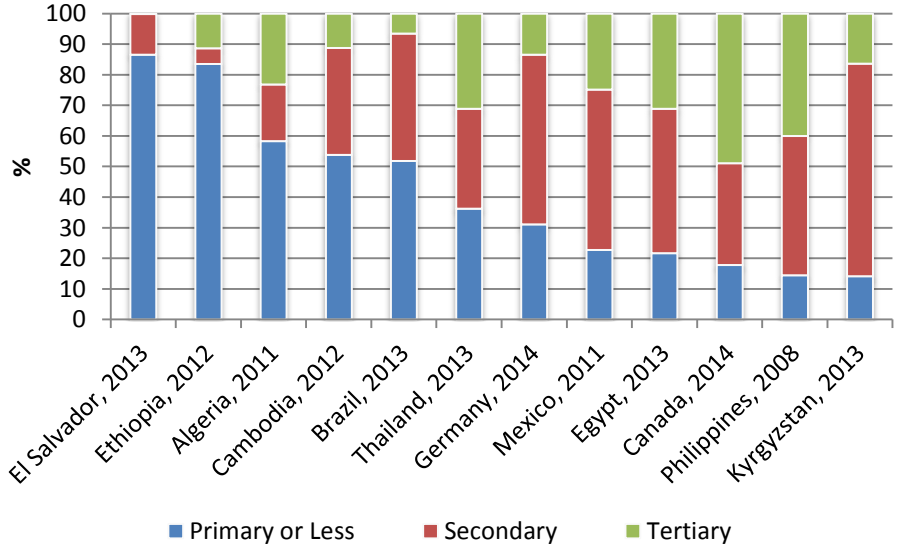
Figure 4.1. Labour force by level of educational attainment



Source: KILM, 9th edn, table 14a, ages 15+, latest year available.

In figure 4.2, the unemployment distribution by level of educational attainment (KILM table 14b) is displayed for the latest year available in our selected countries. Owing to the large share of the labour force with primary education or less in many low income economies, the share of the unemployed with primary education or less tends to be significant in these countries. Conversely, high income economies have a higher proportion of people with tertiary level education, which might lead one to expect a larger share of the unemployed with higher education in these countries. However, in Germany, unemployment seems to be strongly related to level of education. While only 13.2 per cent of the labour force has no more than primary level education, 31.1 per cent of the unemployed have this low level of education. Less educated workers in Germany therefore have a higher probability of being unemployed. In Egypt, on the other hand, the opposite relationship is observed. Only 18.7 per cent of the labour force have attained a tertiary level education, but 31.1 per cent of the unemployed are educated to this level.

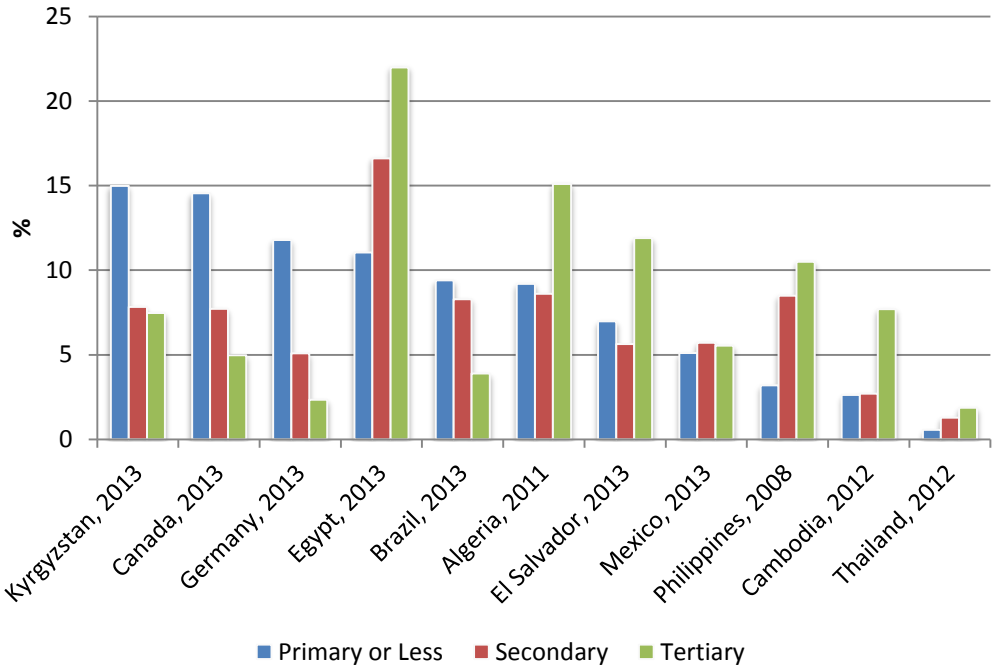
Figure 4.2. Unemployment distribution by level of educational attainment



Source: KILM, 9th edn, table 14b, ages 15+, latest year available.

In figure 4.3, unemployment rates by level of educational attainment (KILM table 14c) are displayed for the latest year available in our selected countries.[3] In Kyrgyzstan, Canada, Germany and Brazil, unemployment rates are lower among workers with higher levels of educational attainment. In Germany, individuals with only primary education or less are more than four times as likely to be unemployed as those with tertiary education. In four countries (Egypt, Philippines, Cambodia and Thailand) the situation is exactly the opposite: here the rate of unemployment increases in line with the level of education. In the Philippines, individuals in the labour force with a tertiary education are three times as likely to be unemployed as those with only a primary (or less) education. The other three countries do not show any consistent trend.

Figure 4.3. Unemployment rate by level of educational attainment

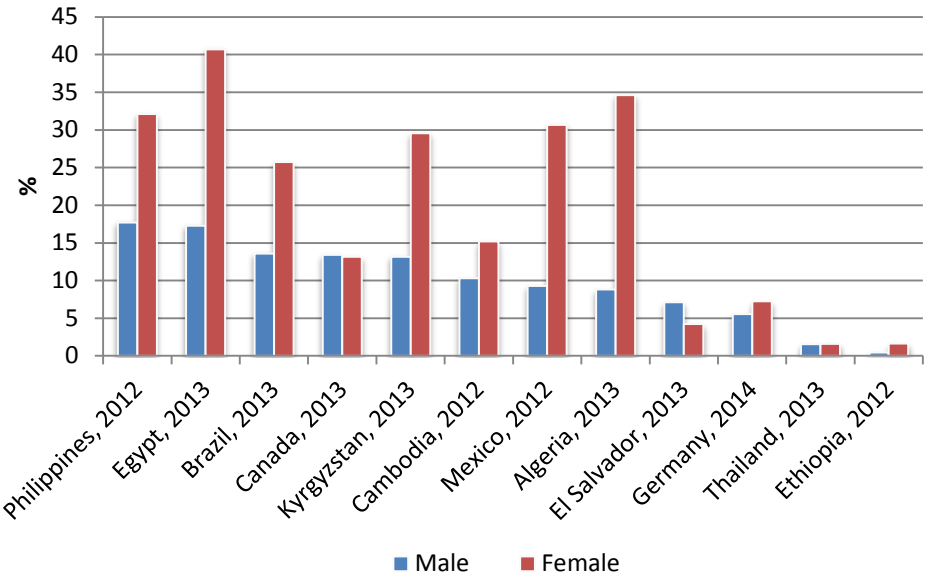


Source: KILM, 9th edn, table 14c, ages 15+, latest year available.

Figure 4.4 displays the proportion of young people aged 15–24 not in education, employment or training (NEET; KILM table 10c) in the selected countries for the latest year available. While NEETs are almost non-existent in Thailand and Ethiopia, they make up significant shares of young people, and particularly large shares of young women, in several of the other countries. In Egypt, 40.7 per cent of young women are NEET (as compared with 17.3 per cent of young men). In Algeria, young women are four times as likely to be NEET than young men (respectively, 34.6 and 8.8 per cent). The gender gap is also very significant in the Philippines, Brazil, Kyrgyzstan and Mexico (in each case more than 10 percentage points). Only Canada and El Salvador have a higher NEET rate for males than females (with gaps of less than 3 percentage points).

[3] Owing to a lack of data in KILM table 14b, Ethiopia is not included in this section.

Figure 4.4. Share of youth (aged 15–24) not in education, employment, or training, by sex



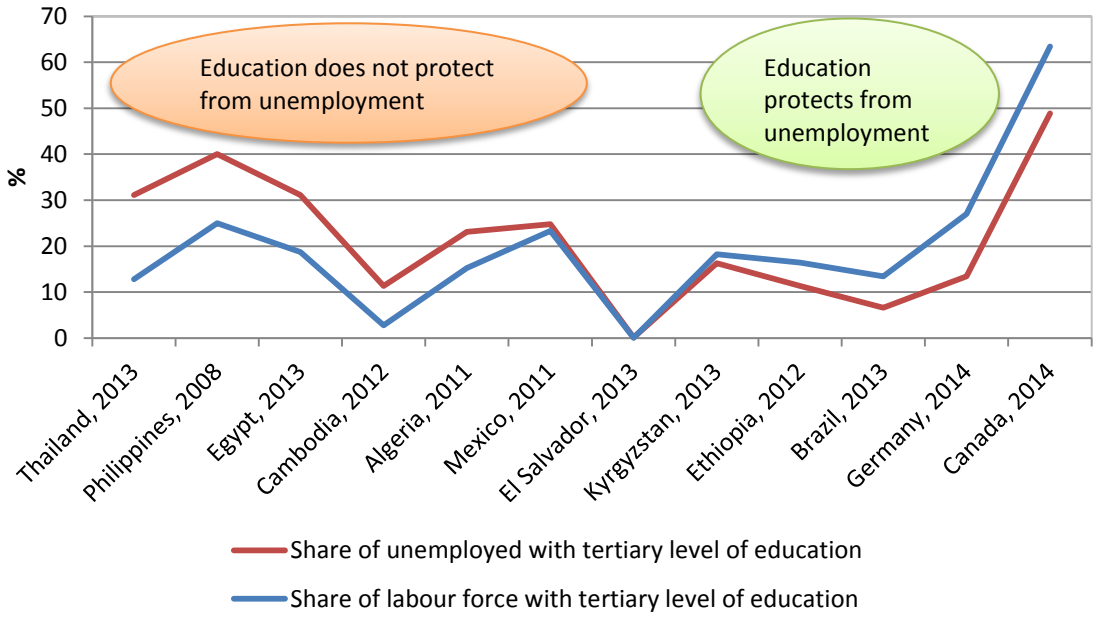
Source: KILM, 9th edn, table 10c, latest year available.

4.2. Educational attainment compared to other key labour market indicators

This section aims to establish whether links exist in these countries between the four indicators described in the previous section and the other labour market indicators examined in section 3.

Figure 4.5 focuses on persons who have attained a tertiary level education and compares their share in the labour force with their share in the unemployed.

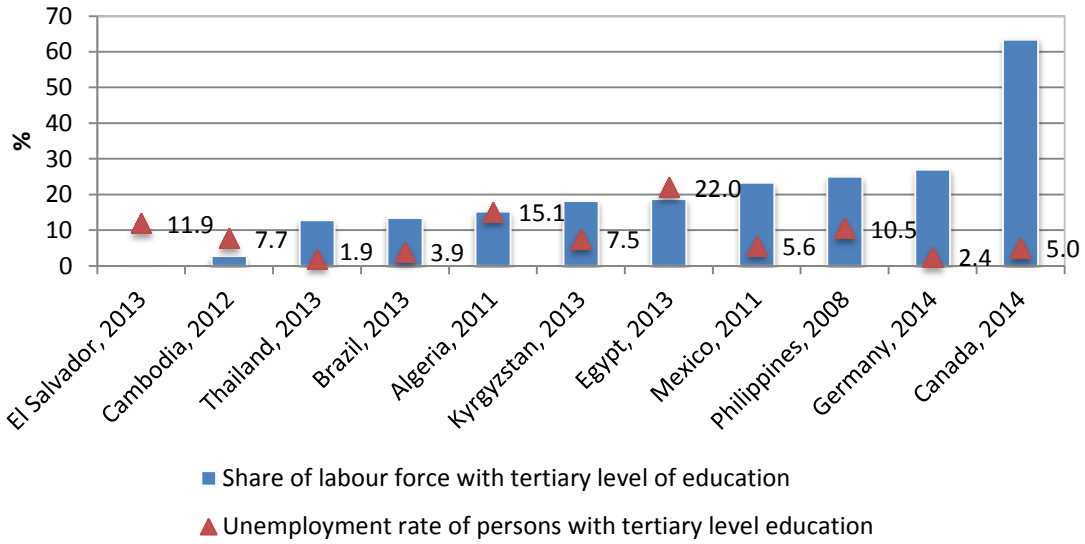
Figure 4.5. Tertiary level educational attainment and unemployment



Source: KILM, 9th edn, table 14b, ages 15+, latest year available.

In only five of our sample of countries is the share of unemployed with a tertiary degree actually lower than the share of persons in the labour force with a tertiary degree. Moreover, only in Canada and Germany is the difference significant (greater than 10 percentage points). In Canada, 63.4 per cent of the labour force but only 48.9 per cent of the unemployed have a tertiary degree. Thus in Canada (and in Germany) investing in one's education can be seen as a means of reducing the probability of becoming unemployed. On the other hand, seven countries show the opposite result, with tertiary graduates comprising a disproportionately large share of the unemployed. The largest relative disadvantage among tertiary graduates is observed in Egypt, the Philippines and Thailand. In Thailand, only 12.8 per cent of the labour force but 31 per cent of the unemployed have a tertiary degree. This indicates a bottleneck, with too many skilled persons for the number of available jobs matching their competencies and expectations. In Thailand, the overall unemployment rate remains very low, but in Egypt and Philippines, those with a tertiary degree often have difficulty finding jobs matching their level of education.

Figure 4.6. Tertiary level educational attainment and unemployment rate

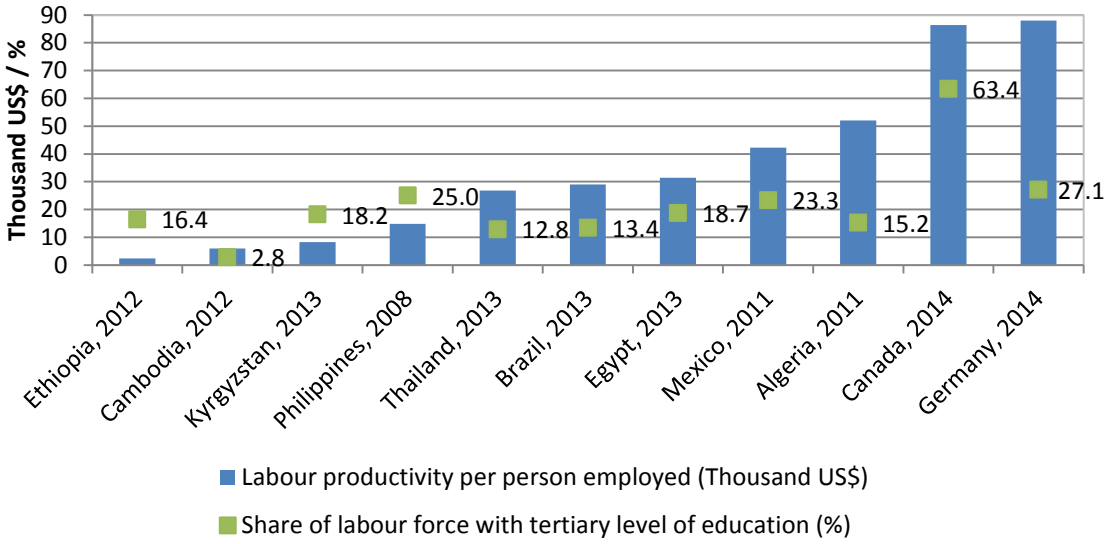


Note: Owing to lack of data, unemployment rates are for different years in the cases of Germany (2013), Canada (2013), Mexico (2013) and Thailand (2012).
Source: KILM, 9th edn, tables 14a, 14c, ages 15+, latest year available for each country.

Figure 4.6 compares data in KILM tables 14a and 14c[4] for the tertiary level of educational attainment. As in section 3, there is no clear link between these two indicators. In Cambodia, Thailand and Brazil, the unemployment rate among those who have attained a tertiary education is low and the share of persons with high education is limited. In Algeria and Egypt, the share of persons with tertiary education is somewhat greater; however, the labour market is not providing sufficient opportunities for them, and therefore the unemployment rate of persons educated to this level is relatively high (22.0 per cent in Egypt). Finally, in high income economies (Germany and Canada), the share of the labour force with tertiary education is high and the unemployment rate for tertiary graduates is low. Education clearly acts as a barrier against unemployment in these countries.

[4] Owing to a lack of data in KILM table 14c, Ethiopia is not included in this section.

Figure 4.7. Tertiary level educational attainment and labour productivity



Source: KILM, 9th edn, tables 14a, 16a, latest year available for each country.

Figure 4.7 examines the link between attainment of tertiary education and labour productivity (per person employed in PPP US$).[5] As in section 3, a greater proportion of the labour force with a tertiary education is associated with higher levels of labour productivity. Yet some countries show contrasting results. Labour productivity is particularly low in Ethiopia, Kyrgyzstan and the Philippines compared to the proportion of the labour force educated to tertiary level. On the other hand, Algeria, despite a relatively low share of the labour force with tertiary education (15.2 per cent), has a labour productivity level above US$50,000 per person employed – the third highest among our selected countries. This is probably attributable to the impact on the results of the national production of oil and gas.

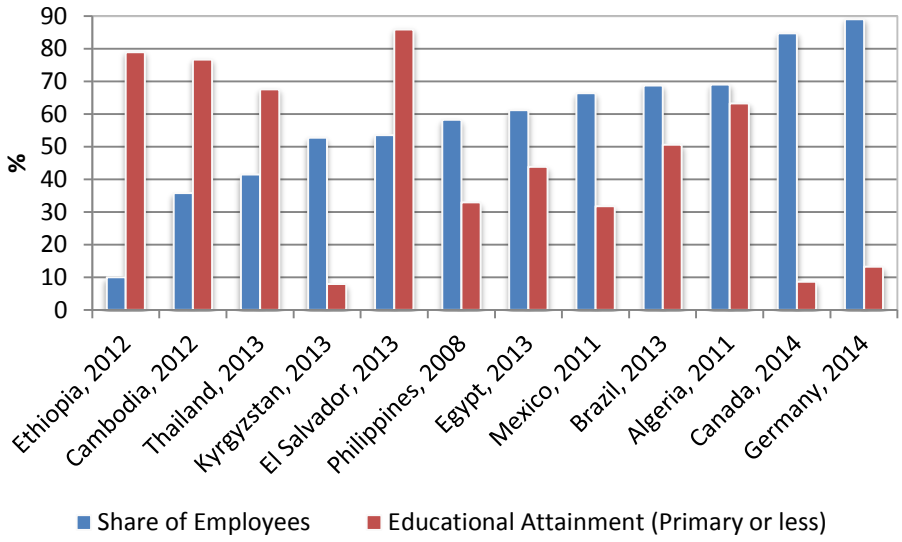
Figure 4.8. Employment-to-population ratio and educational attainment

Source: KILM, 9th edn, tables 2b, 14a, ages 15+, latest year available.

[5] Owing to a lack of data in KILM table 16a, El Salvador is not included in this section.

In figure 4.8, the employment-to-population ratio is displayed together with a breakdown of educational attainment in the 12 selected countries. As in section 3, the data do not show a clear relationship between educational attainment and employment-to-population ratio. Countries with the lowest shares of primary or less educational attainment (Kyrgyzstan, Canada, Germany, Philippines and Mexico) all have employment-to-population ratios between 50 and 60 per cent. Among countries with lower average educational attainment, there is a wide range of employment-to-population ratios, from Egypt (42.1 per cent) and Algeria (36.2 per cent) to Thailand (69.4 per cent), Cambodia (82.8 per cent) and Ethiopia (79.4 per cent). El Salvador has an employment-to-population ratio of 59.9 per cent, similar to those of Canada and the Philippines, despite having a very different structure of educational attainment. These data show no obvious pattern that could establish a link between levels of education and employment-to-population ratios.

Figure 4.9. Share of employees and educational attainment



Source: KILM, 9th edn, tables 3, 14a, ages 15+, latest year available for each country.

As in section 3.4, in figure 4.9 we have used data from KILM table 3 on employment by status in employment, focusing particularly on the category "employees" and setting this share of total employment alongside the share of the labour force educated to no higher than primary level. In Ethiopia, the likelihood of having no more than a primary level of education is high (almost 80 per cent) while the share of employees is low (10 per cent). In Germany and Canada, the results are exactly the opposite. One interesting exception is Kyrgyzstan, where the proportion of those with a low level of education is similar to that in the high income countries but the share of employees stands at only 53.5 per cent.

This section of the chapter has highlighted once again the clear association that exists between higher levels of education and positive outcomes on some key labour indicators, such as the share of employees in total employment and labour productivity. However, no consistent link is apparent between unemployment rates and education levels. In developing countries, unemployment may increase with educational attainment, while in the developed economies in this sample it tends to do the opposite.

4.3. Remaining gaps in education

The study of the educational patterns of the labour force in these 12 selected countries reveals that there are still some gaps that remain to be addressed, particularly in developing economies. Here we will present the main areas for improvement.

4.3.1. Persistent low levels of educational attainment

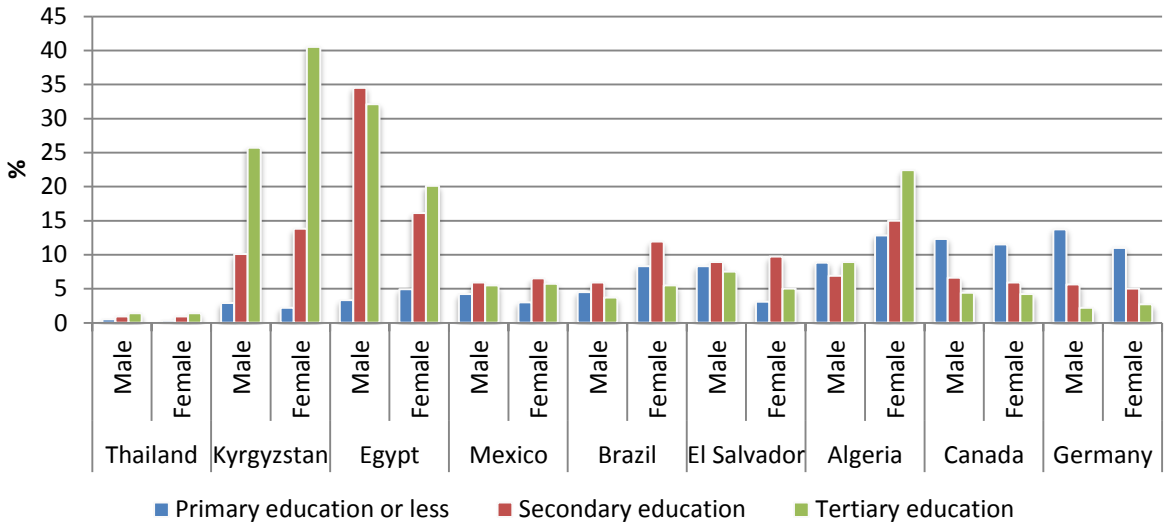
There are still a considerable number of countries where a significant share of the labour force is educated to no higher than primary level. The six countries in our sample with the highest share of the labour force having only primary education or less (El Salvador, Ethiopia, Cambodia, Thailand, Algeria and Brazil) are all low or middle income economies. More specifically, in El Salvador, Ethiopia, Cambodia, Thailand and Algeria, the percentage of the labour force educated to primary level or below is well over 60 per cent. This shows that there is still much to be done to increase general levels of educational attainment in low and middle income economies, including to improve access to higher quality employment.

4.3.2. Disparities between population groups

Research shows (UNESCO, 2015a, b) that there are still strong disparities in educational attainment and in returns to education not only between countries with different levels of income and development, but also between different population groups within countries. Of particular concern is the persistence of vulnerable groups for whom access to quality education is very difficult.

Great progress does appear to have been made in reducing inequalities in access to education and in educational attainment between women and men. Indeed, the KILM data for our selected countries show that in the great majority of cases the share of the female labour force having attained tertiary education is higher than that of the male labour force (see KILM table 14a). Also, as shown in figure 4.10, while female unemployment rates remain higher than male unemployment rates for all levels of education in some countries, this disparity is not widespread.

Figure 4.10. Male and female unemployment rates by educational attainment



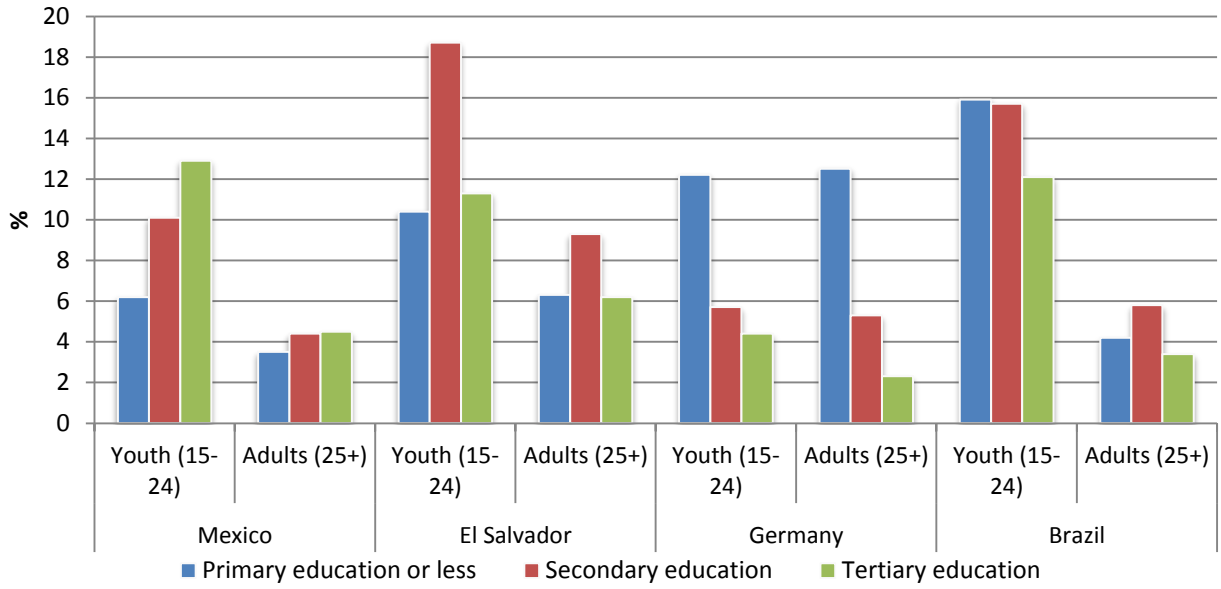
Note: Owing to lack of data, Cambodia, Ethiopia and the Philippines are not included in this figure.

Source: KILM, 9th edn, table 14a, ages 15+, latest year available for each country.

However, even though progress has been made in reducing gender disparities in educational attainment, girls still face major obstacles in accessing school in some parts of the world. It is important to address these barriers, to ensure that girls around the world have the opportunity to complete secondary and, where appropriate, tertiary education (UNESCO, 2012).

When we turn to examine the differences by age group, it becomes evident that young people are particularly vulnerable in the labour market. In general, unemployment rates for youth tend to be higher than corresponding rates for adults, for all levels of educational attainment. Figure 4.11 below provides some examples of this comparison.[6]

Figure 4.11. Youth and adult unemployment rates by educational attainment



Source: KILM, 9th edn, table 14b, latest year available for each country.

Research shows that, for the younger generation, completion of secondary level education is no longer enough to secure a satisfactory situation[7] within the labour market (Sparreboom and Staneva, 2014).

It is also important to highlight that, as shown in figure 4.4, the share of youth not in education, employment or training is considerably higher among women than among men in seven of the selected countries. Thus it seems that the combination of gender and age disparities in access to and achievement in education is significantly hindering the entry of young women into the labour market.

There are still, too, marked inequalities in educational attainment by household. Notable differences in youth literacy persist between people in the richest households and those in the poorest. Bridging the wealth gap in opportunity for education is fundamental to promoting inclusive and sustained growth and development for all countries (UNESCO, 2015a, b).

[6] The four countries were chosen for reasons concerning the availability and reliability of data.

[7] Based on ILO School-to-Work Transition Survey definition, youth are considered "transited" if they have a stable job, if they are in a satisfactory temporary job or in satisfactory self-employment.

Finally, we need to consider the situation of migrants in respect of their access to education and the labour market in host countries. Extraordinary efforts are needed to ensure that migrant youth have equitable access to the acquisition of the skills they need to enter the labour market (UNESCO, 2015a, b). The increasing flows of labour migration are also creating an urgent need to consider the "internationality" of educational qualifications and other educational arrangements.

4.3.3. Attention to qualitative factors and field of study

This chapter is based primarily on quantitative indicators. Nevertheless, it is crucial to bear in mind the qualitative factors that also influence the role of education in labour market outcomes. For example, a study of 11 African countries found that in all these countries "learning deficits", that is, lack of ability to provide all students with the necessary knowledge, skills, cultural and social understandings etc., are considerably greater than simple "access deficits", that is, the lack of universal enrolment in the schooling system (Spaull and Taylor, 2015). Another study revealed that the cognitive skills of the population are much more closely linked to individual earnings, income distribution and economic growth than they are to level of educational attainment alone. The authors found that international comparisons incorporating cognitive skills show much larger skills deficits in developing countries than those generally derived solely from educational enrolment and attainment measures (Hanushek and Woessmann, 2008). The key point arising from both these examples is that an exclusive focus on enrolment and educational attainment may generate misleading inferences.

The quality and relevance of the national schooling system (in terms of compulsory education, for instance) will also strongly influence the impact of educational attainment on the individual's labour market status, and on returns to education in general.

With respect to tertiary education, the choice of the field of study and its relevance in the labour market will greatly influence returns to education. Ideally, all individual choices of field of study should be made in a way that their sum would align skills and educational supply closely with skills and educational demand, thus minimizing mismatch. However, given the difficulty in predicting future demand for skills, aiming at this ideal is likely to remain a challenge.

5. Conclusion

This overview of educational patterns among the labour force has revealed the importance of educational attainment in achieving satisfactory labour market outcomes. Education has a positive effect not only in facilitating access to employment, but also in improving the chances of gaining quality employment. Thus, it is clear that promoting higher levels of educational attainment should remain a priority for countries where a large share of the labour force has received only primary education or less.

In some countries there seems to be a mismatch between supply of and demand for skilled labour. Where the demand is lower than the supply, high levels of education are unlikely to protect against unemployment. However, in some national contexts highly educated individuals may have higher expectations in terms of potential jobs, and be less willing to compromise. In other contexts, a high level of educational attainment can provide individuals with easier access to jobs of better quality, offering higher salaries, improved working conditions, permanent contracts, full-time employment and other benefits.

In addition to its positive effects at the individual level, increased educational attainment, coupled with sufficient productive employment opportunities, can also have a positive impact at the national level, promoting inclusive economic growth and helping to reduce income inequalities.

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Annex

International Organization for Standardization country codes

ISO 3166 – alpha 3

Code	Country
ABW	Aruba
AFG	Afghanistan
AGO	Angola
AIA	Anguilla
ALB	Albania
AND	Andorra
ANT	Netherlands Antilles
ARE	United Arab Emirates
ARG	Argentina
ARM	Armenia
ASM	American Samoa
ATG	Antigua and Barbuda
AUS	Australia
AUT	Austria
AZE	Azerbaijan
BDI	Burundi
BEL	Belgium
BEN	Benin
BFA	Burkina Faso
BGD	Bangladesh
BGR	Bulgaria
BHR	Bahrain
BHS	Bahamas
BIH	Bosnia and Herzegovina
BLR	Belarus
BLZ	Belize
BMU	Bermuda
BOL	Bolivia, Plurinational State of
BRA	Brazil
BRB	Barbados
BRN	Brunei Darussalam
BTN	Bhutan
BWA	Botswana
CAF	Central African Republic
CAN	Canada
CHA	Channel Islands
CHE	Switzerland
CHL	Chile
CHN	China
CIV	Côte d'Ivoire
CMR	Cameroon
COD	Congo, Democratic Republic of the
COG	Congo
COK	Cook Islands
COL	Colombia
COM	Comoros
CPV	Cape Verde
CRI	Costa Rica
CUB	Cuba

Code	Country
CUW	Curaçao
CYM	Cayman Islands
CYP	Cyprus
CZE	Czech Republic
DEU	Germany
DJI	Djibouti
DMA	Dominica
DNK	Denmark
DOM	Dominican Republic
DZA	Algeria
ECU	Ecuador
EGY	Egypt
ERI	Eritrea
ESH	Western Sahara
ESP	Spain
EST	Estonia
ETH	Ethiopia
FIN	Finland
FJI	Fiji
FLK	Falkland Islands (Malvinas
FRA	France
FRO	Faeroe Islands
FSM	Micronesia, Federated States of
GAB	Gabon
GBR	United Kingdom
GEO	Georgia
GGY	Guernsey
GHA	Ghana
GIB	Gibraltar
GIN	Guinea
GLP	Guadeloupe
GMB	Gambia
GNB	Guinea-Bissau
GNQ	Equatorial Guinea
GRC	Greece
GRD	Grenada
GRL	Greenland
GTM	Guatemala
GUF	French Guiana
GUM	Guam
GUY	Guyana
HKG	Hong Kong, China
HND	Honduras
HRV	Croatia
HTI	Haiti
HUN	Hungary
IDN	Indonesia
IMN	Isle of Man
IND	India

Code	Country
IRL	Ireland
IRN	Iran, Islamic Republic of
IRQ	Iraq
ISL	Iceland
ISR	Israel
ITA	Italy
JAM	Jamaica
JEY	Jersey
JOR	Jordan
JPN	Japan
KAZ	Kazakhstan
KEN	Kenya
KGZ	Kyrgyzstan
KHM	Cambodia
KIR	Kiribati
KNA	Saint Kitts and Nevis
KOR	Korea, Republic of
KOS	Kosovo
KWT	Kuwait
LAO	Lao People's Democratic Republic
LBN	Lebanon
LBR	Liberia
LBY	Libya
LCA	Saint Lucia
LIE	Liechtenstein
LKA	Sri Lanka
LSO	Lesotho
LTU	Lithuania
LUX	Luxembourg
LVA	Latvia
MAC	Macau, China
MAF	Saint Martin (French part)
MAR	Morocco
MCO	Monaco
MDA	Moldova, Republic of
MDG	Madagascar
MDV	Maldives
MEX	Mexico
MHL	Marshall Islands
MKD	Macedonia, the former Yugoslav Republic of
MLI	Mali
MLT	Malta
MMR	Myanmar
MNE	Montenegro
MNG	Mongolia
MNP	Northern Mariana Islands
MOZ	Mozambique
MRT	Mauritania
MSR	Montserrat
MTQ	Martinique
MUS	Mauritius
MWI	Malawi
MYS	Malaysia
MYT	Mayotte
NAM	Namibia
NCL	New Caledonia
NER	Niger
NFK	Norfolk Island
NGA	Nigeria
NIC	Nicaragua
NIU	Niue
NLD	Netherlands
NOR	Norway
NPL	Nepal
NRU	Nauru
NZL	New Zealand
OMN	Oman
PAK	Pakistan
PAN	Panama
PER	Peru
PHL	Philippines
PLW	Palau
PNG	Papua New Guinea
POL	Poland
PRI	Puerto Rico
PRK	Korea, Democratic People's Republic of
PRT	Portugal
PRY	Paraguay
PSE	Occupied Palestinian Territory
PYF	French Polynesia
QAT	Qatar
REU	Réunion
ROU	Romania
RUS	Russian Federation
RWA	Rwanda
SAU	Saudi Arabia
SDN	Sudan
SEN	Senegal
SGP	Singapore
SHN	Saint Helena
SLB	Solomon Islands
SLE	Sierra Leone
SLV	El Salvador
SMR	San Marino
SOM	Somalia
SPM	Saint Pierre and Miquelon
SRB	Serbia
SSD	South Sudan
STP	Sao Tome and Principe
SUR	Suriname
SVK	Slovakia
SVN	Slovenia
SWE	Sweden
SWZ	Swaziland
SXM	Sint Maarten (Dutch part)
SYC	Seychelles
SYR	Syrian Arab Republic

Code	Country
TCA	Turks and Caicos Island
TCD	Chad
TGO	Togo
THA	Thailand
TJK	Tajikistan
TKL	Tokelau
TKM	Turkmenistan
TLS	Timor-Leste
TON	Tonga
TTO	Trinidad and Tobago
TUN	Tunisia
TUR	Turkey
TUV	Tuvalu
TWN	Taiwan, China
TZA	Tanzania, United Republic of
UGA	Uganda
UKR	Ukraine
URY	Uruguay
USA	United States
UZB	Uzbekistan
VCT	Saint Vincent and the Grenadines
VEN	Venezuela, Bolivarian Republic of
VGB	British Virgin Islands
VIR	United States Virgin Islands
VNM	Viet Nam
VUT	Vanuatu
WLF	Wallis and Fortuna Islands
WSM	Samoa
YEM	Yemen
ZAF	South Africa
ZMB	Zambia
ZWE	Zimbabwe