An analysis of educational attainment in Malta

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Abstract

This study looks at the trends in educational attainment of the Maltese population over the last 15 years. Data obtained from the Labour Force Survey (LFS) show that the educational attainment of the Maltese workforce has ameliorated significantly during this period, though it still falls short of the European Union (EU) benchmarks in some respects. The first part of this study looks at the long-term trends in education attainment in Malta and how it compared with other EU countries. In terms of EU targets, Malta had reached its national target with respect to the percentage of persons aged between 30 and 34 years having a tertiary level of education already in 2017. On the contrary, despite the country managed to half the rate of early school leavers from its 2005 levels, the rate of early school leavers in 2020 is still short of the EU’s benchmark. The second part compares the earnings, employment and unemployment of high skilled workers compared to those with lower levels of education. The third section looks at the main factors behind the increase in education attainment. The share of the population having a tertiary level of education increased to 28.0% in 2020, up from 10.3% in 2005. In addition, this section attempts to measure the efficiency of public spending in Malta, with indicators for primary, secondary and tertiary indicators, as well as the role of migration.

JEL classification: I21, I26, J24

Keywords: educational attainment, skills, public spending, Malta
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Executive summary

This study looks at the trends in the educational attainment of the Maltese population over the last 15 years. Data obtained from the Labour Force Survey (LFS) show that the educational attainment of the Maltese workforce has ameliorated significantly during this period, though it still falls short of the European Union (EU) benchmarks in some respects. In this light, this policy note attempts to answer three questions:

i) What are the trends in educational attainment?

Since EU membership, Malta has registered a significant improvement in educational attainment. The share of population having a tertiary level of education almost trebled between 2005 and 2020, from 10.3% to 28.0%. Persons aged between 25 and 34 years are the most highly educated while older generations have a lower level of education with the vast majority of those between 55 and 64 having a basic level of education. Amongst the younger generation, one in five persons have achieved a basic level of education at best. The EU regards upper secondary education as the minimum desirable educational attainment level for its citizens and has set targets in this respect (Eurostat, 2020a). In 2017, Malta reached its national target with respect to the percentage of persons aged between 30 and 34 years having a tertiary level of education, having more than 33% of the population with a high level of education. Malta has managed to half the rate of early school leavers from 33.0% in 2005 to 16.7% in 2020, though still short of the EU’s benchmark, which stands at 10%, with men tending to leave education and training earlier than women. Early school leaving is believed to lead to several problems in the labour market. While early school leavers may still find a job, lacking basic qualifications compromises employability later in life due to lacking skills and has economic and social costs. The rising role of women in society and in the labour market, together with the increasing share of foreigners, have proved decisive in ameliorating Malta’s overall education level. The improvement in education is also reflected in the HDI index following an increase in the mean and expected years of schooling. Participation in life-long learning is also on the increase with Malta exceeding the EU 27 average in recent years.

ii) What are the economic consequences of educational attainment on individuals?

Through education, individuals gain skills that will make them more productive in performing their work tasks. In general, people with higher levels of education earn more than others with lower levels of education, have better job prospects and a smaller chance of being unemployed. Moreover, education may increase individuals’ ability to deal with changing conditions, thereby enhancing employability in times of rapid technological changes. Data for 2018 shows that the median gross hourly earnings for those with a tertiary level of education were 40% higher than the median earnings of those with a secondary level of education and 65% more than those with only a basic level of education. Employment rates of those with a tertiary level of education have consistently been higher than for those with a low
and medium level of education while the opposite holds true in case of unemployment rates. By reducing unemployment and increasing earnings, improvements in human capital can also help to avoid poverty, reduce social exclusion and inequality. The Covid-19 pandemic highlighted further the importance of education given that the pandemic hit the less-educated workers the hardest. While the employment rates of those with a medium and high level of education increased in 2020, the employment rate of those with a low level of education declined. At the same time, the increase in the unemployment rate for those with a basic level of education was larger than that for other workers.

iii) What lies behind the increase in educational attainment?

The improvement in educational attainment in recent years follows the increased focus on education and significant investment that was directed towards this sector. Malta invests heavily in education with general government expenditure exceeding the EU average, demonstrating the strong commitment towards education and training. Between 2012 and 2019, Malta recorded the second highest growth rate amongst EU 27 Member States with respect to government expenditure on education with spending increasing by 70%. Analysing the input-output relationship for different levels of schooling shows that public expenditure in Malta appears relatively efficient at the primary level of schooling but less so at the secondary level. In case of tertiary level, Malta has a high graduation ratio although this is achieved at a high level of expenditure, partly because of the relatively generous students’ maintenance grants offered.

The strong investment in the education sector was met with major changes in the Maltese labour market following the country’s accession to the EU. As of 2004, Malta had the lowest female participation rate amongst EU countries. Following several initiatives aimed at attracting more females to join the labour market, coupled with other structural factors, the female employment rate rose consistently. As more women joined the labour market, potential earnings from education increased, incentivising more women to invest in their education which led to a higher share of the population having a tertiary level of education. Migration has also played a role in the educational attainment of the Maltese workforce with the inflow of foreign workers contributing to rising attainment levels. Most foreigners employed in Malta, the majority of whom are below 40 years of age, have a medium or high level of education. Looking at the occupational structure, we find that today, there is a smaller share of foreigners employed in top occupations, despite increasing in absolute terms, and a bigger concentration employed in the lower end of the occupation spectrum. Foreigners face several obstacles in putting their skills to use in the host country. This seems to hold especially for third-country nationals (TCNs) residing in Malta, whereby over a half of TCNs are employed in elementary occupations and as services & sales workers, jobs that are not usually associated with a tertiary level of education. On the other hand, Maltese nationals are increasingly occupying higher-end jobs and as of 2019 over 40% of nationals were employed as managers, professionals or technicians.
What are the trends in educational attainment?

The OECD defines human capital as “the knowledge, skills, competencies and other attributes embodied in individuals that are employed in the creation of individual, social and economic well-being” (OECD, 2001, p. 18). The most common approach used for measuring skills is the indirect approach, where qualifications are used to measure skills supply. Official qualifications only certify skills developed in formal education programmes and, thus, do not cover soft skills acquired by individuals outside of the formal education system. While such skills are increasingly becoming more important, they are very difficult to measure. It is therefore important to complement information on formal educational attainment and training with information on participation in non-formal educational activities and in lifelong learning.

The analysis in this study will be based on the International Standard Classification of Education (ISCED) 2011 classification which is the standard framework used to categorise and report comparable education statistics internationally. This framework enables comparisons across countries and allows authorities to monitor progress towards national and international goals. Table 1 shows the ISCED 2011 classification which consists of nine separate levels from level 0 to level 8. The levels of ISCED are often combined into three categories as follows: levels 0 to 2 refer to a basic level of education, levels 3 and 4 refer to an intermediate level of education and levels 5 to 8 refer to a high level of education. Educational attainment is measured with respect to the highest education programme successfully completed with the data source being the LFS, which provides information on both the educational attainment and the labour market status of individuals.

<table>
<thead>
<tr>
<th>Table 1: ISCED 2011 Coding of Levels</th>
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<tbody>
<tr>
<td>Levels</td>
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<td>0</td>
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<td>1</td>
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Figures on the educational attainment of the Maltese population show that Malta’s educational attainment has improved substantially over the years though some challenges remain. As of 2020, Malta had the second highest share of low-skilled workers in the EU with 40.3% of Malta’s population having

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2 The ISCED classification was developed by UNESCO in the mid-1970s and was first revised in 1997. A further review of ISCED was undertaken between 2009 and 2011 with ISCED 2011 adopted by the UNESCO General Conference in November 2011.
at best a basic level of education equivalent to lower secondary education (see Chart 1). Meanwhile, 28.0% of the population had a tertiary level of education (ISCED 5-8) while 31.7% of the population had an upper secondary or post-secondary non-tertiary level of education (ISCED 3-4).

Between 2005 and 2020, the share of population having a tertiary level of education has almost tripled with the gap between the EU 27 average and Malta amounting to 0.7 percentage points in 2020, down from 8.3 percentage points in 2005 (see Chart 2). The importance of education has increasingly come to the forefront following major reforms, and an increase in investment, intended to generate a positive mentality towards education, that were implemented over the past decades. This improvement is also

3 In the national context, this means less than five passes (grades 1 to 7) in Secondary Education Certificate (SEC) examinations or equivalent qualifications. If a person obtained at least five O’Levels, s/he is classified at ISCED 3.
attributed to the rising role of women in the labour market, reflecting several policy initiatives (see Micallef, 2018) and a cultural change that led a greater number of females to further their studies. In fact, since 2009 the percentage of females with a tertiary level of education has consistently exceeded the male counterpart with the share of women tertiary graduates increasing to 30.0% in 2020, from 9.6% in 2005. For men, increases in tertiary educational attainment have progressed at a slightly slower pace – from 11.1% to 26.3% over the same period. An increasing share of foreign population, which has a relatively higher share of people with tertiary qualifications and a smaller share of people with lower secondary education, has also contributed to the improvement in Malta’s overall education level (European Commission, 2016).

Table 2 shows that persons aged between 25 and 34 years are the most highly educated mirroring also the situation in the EU27. In fact, 40% of those aged between 25 and 34 had a tertiary level of education. On the other hand, the older generations have a lower level of educational attainment with 65% of those between 55 and 64 having a basic level of education. Amongst the younger generation, those between 20 and 24 years, almost one in five persons have achieved a basic level of education at best. Knoppe (2018) finds that the level of education differs substantially between different generations, but each generation has reached higher education levels than the previous one leading to an upward trend in education of the Maltese labour force. Nonetheless, Eurostat (2013) observes that low levels of education are persistent in Malta. While in the EU there is a movement, mainly to an intermediate level of education, for those with parents with a low level of education, this was not the case for Malta. In fact, almost 75% of the respondents whose parents had a low level of education had a low level of education themselves. This was the highest persistence across the EU countries indicating that children belonging to parents with low education face bigger obstacles to transition to a higher level of education.
Table 2: 
Educational attainment in Malta by age cohorts as of 2020 
(Percentage)

<table>
<thead>
<tr>
<th>ISCED Level</th>
<th>20-24</th>
<th>25-34</th>
<th>35-44</th>
<th>45-54</th>
<th>55-64</th>
</tr>
</thead>
<tbody>
<tr>
<td>Levels 0-2</td>
<td>18.9</td>
<td>29.2</td>
<td>38.1</td>
<td>45.0</td>
<td>65.0</td>
</tr>
<tr>
<td>Levels 3-4</td>
<td>57.4</td>
<td>30.6</td>
<td>26.7</td>
<td>30.9</td>
<td>18.8</td>
</tr>
<tr>
<td>Levels 5-8</td>
<td>23.7</td>
<td>40.2</td>
<td>35.2</td>
<td>24.0</td>
<td>16.1</td>
</tr>
</tbody>
</table>

Source: Eurostat

The EU regards upper secondary education as the minimum desirable educational attainment level for its citizens with the EU’s educational targets being interlinked with other Europe 2020 goals (Eurostat, 2020a). Early school leaving can lead to several problems in the labour market – the most important of which are related to unemployment and the risk of poverty or social exclusion. Eurostat defines early school leaving as the percentage of the population aged between 18 and 24 years having achieved secondary education or less (ISCED 0-2) and who were not pursuing further education or training in the previous four weeks. In this respect, the EU set-out two education-related targets in 2010, as part of eight headline indicators, to be reached by 2020 as part of Europe 2020 strategy – i) for the share of early school leavers to be reduced to 10% and ii) for at least 40% people aged 30 to 34 to have completed tertiary or equivalent education. These targets were then translated into national targets, reflecting different situations and circumstances. Malta adopted the same target in respect of early school leavers but set out the target in respect of tertiary educational attainment for 30- to 34-year-olds to 33%.

The share of early school leavers has fallen continuously in Malta, from 33.0% in 2005 to 16.7% in 2020 (see Chart 3). Reducing early school leaving is a priority for the country and, in recent years, there has been increased emphasis on tackling early-school leavers (Ministry for Education and Employment, 2014). The decline in early school leaving follows the reduction in secondary school absenteeism which has declined from around 30% in 2013 to 22% in 2017 (Directorate-General for Education, Youth, Sport and Culture, 2019). Also, in a bid to respond to different educational needs, as of 2019, secondary school students have the option to choose between general, vocational or applied subjects. While reductions in early school leaving can be observed for both men and women, men tend to leave education and training earlier than women, a trend that is also observed in other Member States. Despite the improvement in the rate of early school leavers, Malta is the furthest adrift from its target (by 6.7 percentage points) among the EU27 and has the highest rate of early school leavers (see Chart 4). 15 countries had reached their national target in 2020.

In 2013, after discussions with Eurostat, the NSO carried out a re-mapping exercise, whereby persons who obtained at least five O'Levels were classified in ISCED 3. Prior to the re-mapping exercise these persons were categorised in ISCED 2. Using this new criterion, the rate of early school leavers was revised downwards. For more information see NSO (2013). Also, in 2017, there is a break-in-series due to a modification in the national LFS question relating to life-long learning. The change was intended to better capture any lifelong learning being undertaken by LFS respondents which also affects the rate of early school leavers.
Research has shown that labour market trends, apart from other factors such as social-economic status, affect early school leaving decisions. In particular, studies have found that the unemployment rate has a positive impact on enrolment in post-secondary education (Pissarides, 1981; Clark, 2011). This is in line with the opportunity cost argument whereby high rates of unemployment reduce the cost of remaining in education and so increase post-compulsory enrolment (Tumino and Taylor, 2013). Given the strong growth experienced by the Maltese economy in recent years, unemployment rates fell to record lows. In such circumstances, the incentive to invest in one’s education may have declined, in part explaining why the rate of early school leavers has remained high in Malta. Even though leaving
school with a basic level of education, data shows that most early school leavers in Malta were still employed. In fact, almost seven out of ten early school leavers in Malta were employed in 2020, the highest employment rate of early school leavers across the EU. On the other hand, less than half of early school leavers in the EU were employed. This suggests that despite the lack of official qualifications, early school leavers in Malta may still possess skills that are relevant for the labour market. Nonetheless, lacking basic qualifications compromises employability later in life and has economic and social costs (Cedefop, 2017).

On the other hand, Malta was successful in reaching its national Europe2020 target of having 33.0% of its population aged between 30 and 34 with a tertiary level of education in 2017. While initially there was a larger share of men with a tertiary level of education than women, the situation changed in 2006 with the gender gap between the two widening even further over the years. While 46.5% of women aged between 30 and 34 years have a tertiary level of education, the percentage of men stands at 34.1% (see Chart 5). As of 2020, the share of the population aged 30 to 34 years and with a tertiary level of education stood at 39.7%, close to the EU 27 average of 40.9% (see Chart 6).

![Chart 5: Population aged 30-34 years with tertiary education](image)

Source: Eurostat
The United Nations (UN) has also set out a number of targets with respect to education, forming part of the 17 Sustainable Development Goals (SDGs) to be reached by 2030. In particular, the UN seeks to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all. Education is also one of the pillars on which the Human Development Index (HDI) is based. The advantage of the latter is that it provides a single-number measure, capturing progress in three basic dimensions of human development – health, education and living standards. The index enables cross-country comparisons similar to those provided by GDP, but on a broader level, while it also offers an indication of whether a nation is progressing against many of the SDGs. Knowledge level is measured by two criteria: i) the mean years of schooling among the adult population, which is the average number of years of schooling received in a lifetime by people aged 25 years and older and ii) access to learning which is the total number of years of schooling a child of school-entry age can expect to receive if prevailing patterns of age-specific enrolment rates stay the same throughout the child's life. The 2020 Human Development Report, which marks the 30th anniversary of the first Human Development Report, gives an overview of the progress in HDI values over the period between 1990 and 2019. During this period, Malta’s HDI value has increased from 0.752 to 0.895, placing Malta in the very high human development category and positioning it at 28 out of 189 countries and territories. Focusing on the period between 2005 and 2019, the HDI index went up by 7.3% with education registering the strongest growth (see Chart 7). During this period, mean years of schooling increased by 1.5 years and expected years of schooling went up by 1.3 years (see Table 3).
Several studies have shown that higher educational attainment is bound to translate into better working conditions including the flexibility to telework (Drucker and Khattak, 2000; Bureau of Labour Statistics, 2019). The latter has proved itself to be an important aspect of ensuring business continuity during the Covid-19 pandemic. Though the number of people teleworking part-time or on a full-time basis has increased gradually over the years, the pandemic has fast-tracked the adoption of teleworking modalities by employers. Figures for Malta from the National Statistics Office (NSO) show that, prior to mid-March 2020, only 12% of all employed persons were working from home. By end-March, this rose to 33% with the share being sustained in April (NSO, 2020). A similar scenario was witnessed in several
countries (Eurofound, 2020). Interestingly, the study by Eurofound finds that the strongest single correlate of working from home during the crisis was the educational level of the employee. In fact, three-quarters of employees with tertiary qualifications (74%) worked from home, compared to 34% of those with secondary qualifications and 14% of those with primary education only. The occupation structure of the population also plays a role as countries with a large proportion of jobs in sectors such as ICT, professional services, finance, and insurance can mobilise a greater proportion of the workforce from home, whereas countries with a heavy reliance on sectors such as manufacturing, agriculture, construction and tourism are less able to do so (ILO, 2020). Debono (2021) estimates Malta’s telework potential under three different scenarios and finds that Malta’s potential to work from home exceeds that of the EU under all three scenarios given the structure of its industry, with a large share of service-oriented sectors whose occupations are more conducive to remote working arrangements.

In the context of globalisation and technological change, together with demographic and industry developments, the structure of the labour markets and the skill requirements in advanced economies, including Malta, are rapidly changing. Due to the rising demand for highly skilled employees, it is increasingly important to boost the skills of low skilled workers. Predictions of future skills need in Europe suggest that in the coming years only one in ten jobs will be within reach for those with a basic level of education as the demand for those with low qualifications is projected to fall as more employers seek highly skilled employees (Cedefop, 2018). In this regard, upskilling and on-the-job training as part of lifelong-learning schemes could prove to be an alternative to formal education and help individuals to progress further up in their careers, or find alternative employment, even at stages where they are unlikely to return to formal education.

Lifelong learning refers to the process that learning in not limited to a single, specific phase, in life but also happens in different contexts, over the course of a lifetime, including those taken outside the formal educational sector (European Parliamentary Research Service, 2021). In this regard, the EU has set out the ET2020 framework, a strategic framework for European cooperation in education and training, with one of the four main objectives being to make lifelong learning a reality. The framework sets out a target of having at least 15% of adults participating in lifelong learning by 2020. Participation in lifelong learning in Malta, as measured by the LFS, has improved over the years starting from a low of 5.2% in 2005 and reaching 11.0% in 2020, exceeding the EU 27 average. Nonetheless, Malta’s participation still remains low compared, for example, to Scandinavian countries which top the list at an average of 25% (see Chart 8). Borg et al. (2016) note that that the culture that enhances such participation has a

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5 In line with the Europe 2020 growth strategy, ET2020 pursues the following four common EU objectives: making lifelong learning and mobility a reality; improving the quality and efficiency of education and training; promoting equity, social cohesion and active citizenship and enhancing creativity and innovation, including entrepreneurship, at all levels of education and training.

6 Lifelong learning encompasses all learning activities undertaken throughout life with the aim of improving knowledge, skills and competences, within personal, civic, social or employment-related perspectives.

7 In 2017, there is a break-in series due to a modification in the national LFS question related to life-long learning to capture better any lifelong learning being undertaken by respondents as mentioned earlier.
short history in Malta, with the country not having similar traditions to those of Scandinavian countries, for example.

Turning to the linguistic capabilities, Malta has registered a decline in the linguistic capabilities of its citizens. In 2007, 28.1% of employed persons could speak three languages or more, placing Malta with the highest-ranking European countries in terms of linguistic capabilities. Data for 2016, the latest available, shows that only 18.6% of those employed reported to know three languages or more. One reason may be related to more diversified entertainment and media sources following the introduction of pluralism in television in 1993, which offered viewers a larger variety of programmes in Maltese and in English. This has led to a considerable reduction in exposure to the Italian language and, consequently, decreased competence in Italian (Caruana, 2003).

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8 The knowledge of foreign languages is self-reported by the respondents and there were no actual tests of proficiency.
What are the economic consequences of educational attainment on individuals?

Through education, individuals can gain skills that will make them more productive in performing their work tasks. This usually translates into higher earnings and enhanced job opportunities. Moreover, education may increase individuals' ability to deal with changing conditions, thereby enhancing employability in times of rapid technological changes (Schultz, 1975). Policymakers have tried to boost the educational attainment of citizens as education is also bound to alleviate poverty, reduce social exclusion and cut inequality in society (Woessman, 2014). These implications will have an effect at the national level as, ultimately, growth in a nation's productivity is closely tied to that of its workforce. There are also other costs associated with a lower level of education, including lower levels of health, higher levels of anxiety and social costs such as increased criminal activities (Barnardos, 2009; Wolfe and Haveman, 2002). Empirical evidence strongly supports these theoretical considerations, both at the individual and macro level (OECD and Statistics Canada, 2000; Vinod and Kauchik, 2007; Holland et al., 2013).

a) Educational attainment and earnings

Productivity is affected by many factors including the education level attained and the skills that the workers possess. If an individual with a higher human capital contributes a larger marginal product to the production process of a firm, it is expected that the firm will pay the person a higher wage, although the financial return to education may vary considerably across individuals and the degree obtained (Walker and Zhu, 2003).

A simplified approach, using data from the EU Structure of Earnings Survey, shows that earnings are positively associated with educational attainment (see Chart 9). The median gross hourly earnings of those with a tertiary level of education were equal to Eur 13.39 in 2018, which was 40% greater than the median earnings of those with an intermediate level of education and 65% more than those with only a basic level of education.⁹

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⁹ These figures do not consider important attributes such as the job position of the employee and the job tenure, which are also determinants of earnings. A forthcoming study will provide an in-depth assessment of the returns to education in Malta by utilizing granular data from the LFS.
b) Educational attainment and employment rates

Education levels and employment rates are correlated with the employment rate of those with a high education being generally the highest, followed by those with a medium level of education and finally those with a low level of education (OECD, 1989; Psacharopoulos and Tzannatos, 1991; Kennedy and Hedley, 2003). Data obtained from the LFS shows that the employment rate for persons aged between 15 and 64 with a higher education qualification was 89.4% as at 2020, 14.2 percentage points higher than that of people with a medium level of education and 27.6 percentage points higher than that of people with a basic level of education (see Chart 10). While the employment rates of those with a medium and high-level of education rose in 2020, the employment rate for those with a low level of education declined suggesting that the Covid-19 pandemic hit the less-educated workers the hardest. Amongst the hardest hit sectors were the wholesale, retail, accommodation, food and beverage service activities, sectors which typically do not require workers to have a tertiary level of education, and which require workers to be physically present at the workplace most of the time. Darvas (2020) shows that the inequality between low-educated and tertiary-educated workers was experienced in all EU countries, highlighting the fact that the pandemic increased income inequality.
Moreover, higher educational attainment is bound to have positive effects on employability of older workers. While employment rates are higher for those with a tertiary level of education than for those with a low level of education across all age groups, the gap widens further for people over 40 years. For example, whereas in 2020, 88% of persons within the age bracket of 55 to 59 years and with a tertiary level of education were employed, less than 60% of persons within the same age bracket but with a basic level of education were employed – a difference of 28 percentage points (see Chart 11). As Gruen and Garbutt (2003) point out, a higher proportion of individuals with higher qualifications in younger age groups augurs well for the future as it is bound to have a positive effect on aggregate participation rates in years to come.
Overall employment rates and trends mask important gender differences. OECD (2016) notes that gender employment gaps exist across all levels of education but tend to be widest among men and women with low levels of education. The gender gap in employment rates narrows as educational attainment increases. This is also the case for Malta whereby low educated females are much more likely to be out of employment than males (see Chart 1). As of 2020, the employment rate of men with a basic education exceeded 76% while that of women was much lower at around 44%, implying a gender gap of 32 percentage points. Gender gaps at medium and higher educational attainment levels are narrower at 10.7 percentage points and 6.4 percentage points, respectively. Following the increase in the Maltese female labour force participation, the gender gaps in employment rates have narrowed progressively.

Undeclared work is a feature of the Maltese labour market. The employment rate of women with a low level of education may be higher than officially recorded if these women engage in work which goes unrecorded.
Data obtained from the LFS shows that the unemployment rate is higher for persons with lower levels of education when compared with persons having a tertiary level of education (see Chart 13), a phenomenon that can also be observed for all other EU Member States. The unemployment rate for those with a basic level of education has, on average, been around four times higher in the last 16 years than the corresponding rate for the highly skilled. The unemployment rate for those with a medium level qualification, although higher than the rate for high skilled people, has, on average, been around half of the unemployment rate of those with a basic level of education. Women tend to record a higher unemployment rate than men, a situation which is also observed in most other EU countries (Eurostat, 2020b).
In recent years, following the robust economic growth registered by the Maltese economy coupled with the initiatives taken by the authorities to reduce unemployment, the unemployment rate has fallen to a historical low. Through targeted initiatives, individuals with a basic level of education have been identified and received individual attention and traineeships to help them enter the labour market. Consequently, the unemployment rate of low skilled people has halved between 2013 and 2019. Nonetheless, a discrepancy in the unemployment rate of highly skilled and low skilled people still persisted. This is in line with ILO’s (2016) analysis on educational attainment and unemployment whereby the authors conclude that higher levels of education tend to protect workers from unemployment in high income economies. Following the Covid-19 pandemic, unemployment rates edged up. However, the increase was much bigger for those persons with a basic level of education than for the rest. The unemployment rate for the former increased by 1.5 percentage points between 2019 and 2020 while the unemployment rate for those with a medium and high-level of education went up by 0.3 percentage points.

Data from OECD also shows that there is also a correlation between the educational attainment and the duration of unemployment. In general, those with a low level of education take longer to find a job than those with a higher level of education. This difference is persistent across all age groups and worsens the older a person is.
What lies behind the increase in educational attainment?

The improvement in educational attainment in recent years follows the increased focus on education and significant investment that was directed towards this sector. As in other EU Member States, the funding of education in Malta mainly comes from government, with a smaller role for private sources (Eurostat, 2020c). Malta invests heavily in education as shown by general government expenditure on education. Data covering formal education, administered jointly by the UNESCO Institute for Statistics, OECD and Eurostat, referred to as “UOE” data, shows that among the EU Member States, Malta has registered amongst the highest rate of increase for government expenditure on education. Between 2012 and 2018, the latest date for which data are available, Malta increased its expenditure on education by over 50% or by around 7.5% each year.

COFOG data presents another source of information on public expenditure on education. Government expenditure on education in Malta was among the highest in the EU, in relative terms, as of 2019 and exceeded the EU 27 average both as a proportion of GDP (MT 5.3% vs EU 27 4.7%) and as a proportion of total general government expenditure (MT 14.2% vs EU 27 10.0%), demonstrating the strong commitment to education and training. Over the period 2012-2019, Malta recorded the second highest growth rate amongst EU 27 Member States with respect to government expenditure on education with spending increasing by 70%. Wages and salaries of education personnel represent the largest share of expenditure. In fact, as of 2019, compensation of employees meaning wages, salaries and employers’ social contributions for personnel accounted for around 60% of expenditure. Intermediate consumption, meaning purchases of goods and services, accounted for around 9% of government expenditure while 14.5% was in the form of other current transfers. The latter incorporates payments to private schools. Capital investments accounted for around 10% of education expenditure which was higher than the EU 27 average of 7%.

The number of educational personnel has grown consistently between 2013 and 2019, with teachers and academic staff amounting to 8,459 in 2019 (see Chart 14). Education personnel includes also non-teaching staff with the latter amounting to over 8,000 in 2019, with almost half being teacher aides, up from around 5,000 in 2013. The latter refers to personnel who support teachers in providing instruction to students and includes Learning Support Educators (LSEs) and technical officers amongst others. Malta has amongst the lowest student-teacher ratios when compared to other EU countries. The student-teacher ratio is an indirect measure of educational quality. It refers to the average number of

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11 Data for 2018 were not available for a number of countries.
12 There are strong links between COFOG and UOE data collection. Both are based on ISCED although COFOG relies on ISCED 1997 whilst UOE has adopted ISCED 2011. The main difference concerns expenditure on pre-primary education. Furthermore, COFOG covers non-formal education whereas UOE focuses only on formal education. In this regard, educational programmes designated as “adult education” (e.g. literacy programmes for adults) are excluded from UOE but not COFOG. Also, there are differences in the treatment of R&D expenditure. For more information, see Eurostat (2019).
13 This figure refers to teachers and academic staff within State and Church institutions whose wage bill is footed by the government.
14 This figure refers non-academic staff within State, Church and Private institutions.
students per teacher with smaller classes usually perceived as allowing teachers to focus more on the needs of individual students thus affecting their learning and academic success (Croll and Hastings, 1996). In 2019, the student-teacher ratio at the lower-secondary level stood at 6.5 while at the upper-secondary level it stood at 7.5 in Malta, the lowest across the EU27. This was also the case at the tertiary level. At the primary level, the ratio stood at 12.8, comparable to that of Sweden and Belgium. If one were to include teacher-aides in the equation, the ratio falls to 4.5 in case of lower-secondary education, 6.1 in case of upper-secondary and 6.9 in case of primary education, the lowest across the EU27 in all cases.

Analysing the resources dedicated towards education, referred to as the inputs, in relation to the output produced gives a sense of the efficiency of the educational system. Charts 15, 16 and 17 depict the inputs-outputs relation for primary education, secondary education and tertiary education, respectively. The public expenditure per student as a percent of per capita GDP, for each level of education, is taken as the input measure. Output is measured by the net enrolment rate at the primary level of education, OECD-PISA performance scores for secondary education and gross graduation ratio for tertiary level of education. Data are obtained from the UNESCO database with the reference year being 2017, the latest data point available in case of public expenditure per student. The analysis follows that carried out by Ebejer and Mandl (2009) whereby the authors concluded that public expenditure in Malta appeared relatively efficient at the primary and secondary levels of schooling but less so at the tertiary level.

15 OECD-PISA performance scores refer to the scores achieved in the 2018 PISA assessment.
Chart 15 shows the position with respect to primary education. In this case, output is measured by the net enrolment rate.\(^{16}\) According to this analysis, Malta has the highest net enrolment rate at the primary level with almost all children of official school age enrolled in primary school. Education in Malta is compulsory for students between the ages of five and 16 years. At the same time, spending is contained such that the input-output relationship is a favourable one. On the other hand, Romania, Slovakia and Bulgaria are characterised by a primary school enrolment ratio significantly below the EU average. The educational systems in these countries are generally underfunded with students coming from disadvantaged backgrounds facing greater challenges (Directorate-General for Education, Youth, Sport and Culture, 2019).

Secondary education in Malta appears to produce less efficient outcomes. Despite having the third highest expenditure, Malta scores poorly in the OECD-PISA assessment (see Chart 16).\(^{17}\) The best performing countries in terms of PISA assessment scores are the Scandinavian countries together with Estonia, Poland, Slovenia and Ireland. As mentioned above, Malta has among the smallest class-sizes

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\(^{16}\) The net enrolment rate is the ratio of children of official school age who are enrolled in school to the population of the corresponding official school age. The net enrolment rate excludes overage and underage students and captures the system’s coverage more than the gross enrolment ratio. A more useful approach is to focus on outcomes such as literacy rates at particular ages but there are data limitations which does not allow for this assessment.

\(^{17}\) PISA is the OECD’s Programme for International Student Assessment. It measures 15-year-olds’ ability to use their reading, mathematics and science knowledge and skills to meet real-life challenges. It aims to evaluate education systems worldwide every three years. The survey was first carried out in 2000 across 43 countries. So far, Malta has participated for three times in the PISA assessment: in the 2009 cycle, in 2015 and again in 2018.
and lowest student-teacher ratios, amongst 15-year-olds, which may contribute to the high level of expenditure (Directorate-General for Education, Youth, Sport and Culture, 2020). However, while there is some evidence that smaller classes may benefit specific groups of students (such as those from disadvantaged groups) there is no clear evidence of the effect of class size on student performance (OECD, 2016). In this respect, investing in teachers’ professional development could help enhance students’ performance more efficiently and effectively (OECD, 2019). This suggests that a more efficient transformation of spending into secondary educational output could lead to higher educational attainment levels in Malta. This contrasts with the results found in Ebejer and Mandl (2009), whereby the authors had found that public spending on secondary education exhibited a high level of efficiency mainly because of the comparatively low spending per secondary student as a ratio of GDP. However, the authors were unable to use indicators such as the OECD-PISA performance scores, as these were not yet available for Malta, and used a proxy to measure output which might not have been sufficiently reflective of educational outcomes.

**Chart 16: Secondary education expenditure and PISA scores**

*No data available for Belgium and Croatia.*

*Source: UNESCO database*

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18 While the student-teacher ratio refers to the average number of students per teacher, average class size refers to the average number of students in a classroom.
As regards tertiary education, Malta scores quite well in respect of the number of graduates, calculated by the graduation ratio. However, this is achieved at a high cost given that Malta has the third highest expenditure amongst EU countries (see Chart 17). The most efficient countries in this case appear to be Lithuania, Greece and Latvia whose expenditure on tertiary education is the lowest but still have high graduation ratios. Ebejer and Mandl (2009) had concluded that expenditure on tertiary education in Malta was not efficient given the high level of expenditure and the low enrolment ratio in tertiary education. Back then, the number of women enrolled in tertiary education was still very low. The situation has improved since then and Malta has exceeded its targets with respect to tertiary educational attainment, indicating progress in the area. The high expenditure stems, in part, from the relatively generous grants given to tertiary education students. If we were to exclude spending on students’ maintenance grants, based on the argument that such expenditure is more of a social nature, expenditure per student as a percentage of per capita GDP falls by around 8 percentage points. Consequently, Malta appears to be more efficient (point shown by MT2 in Chart 17) and comparable to countries such as France and Netherlands.

In summary, public expenditure in Malta appears relatively efficient at the primary level but less so at the secondary level. In the case of tertiary level education, Malta has a high graduation ratio although this is achieved at a high level of expenditure, in part because of the relative generous students’ maintenance grants. However, measuring the efficiency of public spending remains a conceptual

19 The gross graduation ratio from tertiary education refers to the number of graduates from first degree of programmes (at ISCED 6 and 7) expressed as a percentage of the population of the theoretical graduation age of the most common first-degree programme.

20 Expenditure on students’ maintenance grants amounted to around Eur26 million in 2017, or around 18% of public expenditure on tertiary education.
challenge and there is no simple relationship between overall spending on education and student performance. Public spending has multiple objectives while output cannot be quantified in monetary terms thus complicating the analysis. For instance, the share of expenditure may be inflated by measures designed to mitigate inequities which at face value may seem inefficient but may be necessary to reach other objectives. Analysing the input-output relationships is the simplest form of examining efficiency and a more in-depth analysis, covering all aspects of the educational sector, would be required to truly determine the efficiency of the system.²¹

As mentioned earlier, the educational attainment of the Maltese population ameliorated significantly in the last 15 years. The improvement occurred in line with major changes in the workforce, the most important of which include the strong increase in the female labour force participation rate and the strong influx of foreign workers. The working age population went up by 70,000 persons between 2005 and 2020. Chart 18 shows how the educational attainment of the working-age population has evolved over the period under consideration. As mentioned above, the share of the population having a tertiary level of education increased to 28.0% in 2020, up from 10.3% in 2005. In absolute amounts, the number of persons with a tertiary level of education increased by around 69,000. At the same time, the share of persons with a basic level of education went down from 68.9% to 40.3% implying a drop of almost 51,000 individuals with solely a basic level of education. Meanwhile, the number of persons with a medium level of education increased by around 53,000 with the share rising from 20.8% to 31.7%. Chart 19 shows the improvement in educational attainment by age cohorts. While the number of persons with a low level of education has declined across all age groups, the increase in tertiary educational attainment stands out for those between 25 and 49 years.

²¹ Other statistical techniques, the most common of which are the non-parametric techniques of Full Disposal Hull (FDH) and the Data Envelopment Analysis (DEA), are usually used in the literature to measure efficiency.
Since joining the EU, Malta has experienced a noticeable increase in the number of economic migrants, which rose from 4,118 in 2004 to 67,596 in 2019. Foreigners tend to be quite young, with the majority being under 40 years of age, boosting Malta’s working age population. As noted by Grech (2016), in the absence of foreigners, Malta’s working age population would have fallen as a result of the challenges that an ageing population presents. Moreover, foreign workers have also contributed to rising education attainment levels. Looking at the educational attainment of the population by citizenship, obtained from the LFS, we find that most foreigners living in Malta have a medium or high-level of education. Indeed, around 40% of foreigners in Malta have a tertiary level of education, exceeding the Maltese counterpart in both cases (see Chart 20). It is important to note that the LFS may not fully capture the foreign-born population and, consequently, may lead to a somewhat distorted picture in respect of foreigners. In this light, these results should be treated with caution. However, the LFS, as yet, is the only source which provides data on educational attainment by citizenship.
As discussed above, the number of persons aged 15 to 64 with a high level of education increased by around 69,000 between 2005 and 2020. This increase was driven by both higher education attainment by Maltese students and the importation of skilled labour from abroad although data limitations do not allow for a clear distinction between these two categories. For instance, the number of tertiary graduates from Maltese institutions went up by around 58,000 between 2005 and 2020. However, this is likely to overstate the share of the local increase in tertiary education as it includes foreign students that graduate in Malta but subsequently return to their native country, individuals that graduated more than once (e.g. obtaining a bachelors and Masters’ degree), and Maltese graduates that emigrated to pursue a career abroad after their graduation. At the same time, disaggregated data by citizenship from LFS show that most of the increase in the population during this period – irrespective of whether one looks at the total population aged 15 to 64, the active population or the employed population – was driven primarily by foreign labour, which as shown in Chart 20, tend to have a higher level of education attainment.

The improved attainment in case of Maltese nationals reflects, in part, the rising role of women following a transformation in the role of women in society. On joining the EU, Malta had the lowest female employment rate amongst EU countries. Raising the female participation rate was high on the agenda and several reforms were implemented aimed at attracting more women to the labour market. As more women joined the labour market, the potential earnings from higher education increased thus creating an incentive for females to invest in their education. Indeed, women accounted for around 56% of the increase in tertiary educational attainment of Maltese nationals between 2005 and 2020.

A common finding in the literature refers to the challenges faced by some categories of migrant workers to access jobs consistent with their skills. Hence, one should look not only at the education level of foreign workers but, perhaps more importantly, to their occupations in the destination country. Looking

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This figure refers to graduates from institutions such as MCAST, ITS, University of Malta and public and private institutions offering courses at ISCED levels 5 to 8. This figure does not capture those who pursued their studies with, and consequently graduated from, foreign institutions. Data for 2020 is an estimate given that official data is not yet available.
at the occupational classification structures, known as the International Standard Classification of Occupations 2008 (ISCO 08) gives a representation of the types of jobs pursued by Maltese and foreigners. This allows us to analyse how nationals and foreigners are putting their skills to use in Malta. For this purpose, data on the occupation structure from Jobsplus, which is based on administrative data, is used. While the LFS would have been the preferred data source, this was not possible because of issues of under-representation of foreigners. In this regard, Jobsplus data is better suited to capture the foreign workforce.

The data from Jobsplus show that 45.6% of EU nationals working in Malta were managers, professionals or technical staff in 2019, categories usually requiring a tertiary level of education (see Chart 21). On the other hand, the majority of TCNs were employed in elementary occupations, followed by service and sales workers, and craft and trade workers – categories that are not usually associated with having a tertiary level of education. This implies that some categories of TCNs are facing challenges in putting their skills to use in Malta. Studies have shown that some economic migrants end up employed in low-skilled and low-paying jobs even if they possess high levels of education (Eade et al., 2006; Doumet, 2018). Eurostat (2020d) confirms that having a tertiary education does not necessarily provide migrants with the same opportunities or returns that it does for nationals. In fact, foreign citizens were more likely than nationals to be over-qualified for their jobs, with TCNs being at a higher risk of being over-qualified than other EU nationals. This was also the situation in Malta. The reasons may be various including qualification recognition, the fact that the skills developed in their home country may not match those that are in demand in their new communities, and language barriers.

![Chart 21: Occupational Status by Nationality in 2019](image)

*Source: Jobsplus*
The composition of the workforce in Malta has changed significantly over the years. Whereas in 2005, 46.2% of foreign workers were employed at the higher end of the labour market, where skills were scarce, the share of foreign workers working as managers, professional and technical staff dropped to 33.7% in 2019 (see Chart 22). This occurred despite the increase in the absolute number of foreign managers, professional and technical staff, which grew by nine times. Conversely, there was a strong increase in the proportion of the foreign workforce engaged in clerical work and in elementary occupations. There is also a large concentration of foreigners working as services and sales workers. Employment of foreign nationals is visible in most sectors including health, professional and administrative support as well as in the arts, entertainment and recreation sector (Rapa, 2019).

These two trends for foreign workers - a declining share of higher-end and a rising proportion of lower-end occupations - differ from those observed amongst Maltese workers. Nationals are increasingly occupying professional and technical positions, which is in line with a more-educated workforce as highlighted above. Almost 41% of the Maltese in the workforce were employed as managers, professionals, or technical staff in 2019 up from 31.6% in 2005. At the same time, there was a decline in the percentage of workers working in elementary occupations, as well as a drop in plant and machine operators and assemblers and craft and related trades workers. As a result, the share of those engaged in elementary occupations and as machine operators has fallen from 29.9% to 18.6% over the same period.
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