
Measuring the Performance of the Maltese Education System: A Comparative Analysis

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Abstract:

Purpose: The aim of this research paper is to compare the investment/output relationship in the Maltese education system with those of four other European Union (EU) countries - France, Germany, Spain, and Sweden. The objectives towards achieving this aim were (i) to develop a standard performance metric built on a number of internationally recognised Key Performance Indicators (KPIs) as a basis for carrying out such comparison; (ii) to determine how the different education systems relatively perform in terms of Value for Money (VFM) for the level of education expenditure per capita, (iii) to evaluate the value-adding projects that have recently been implemented in the Maltese educational system and lastly (iv) to make recommendations for Malta based on any relevant experiences learned from such EU member states.

Design/Methodology?Approach: A mixed methodology was adopted to achieve such objectives. Quantitative data was gathered from international education databases primarily sourced from Eurostat statistics and related to the most recently published KPIs of the various countries. A standard performance metric was then created to evaluate different aspects of the education systems and the VFM of each system was assessed by a comparison of the overall performance of each education system against the respective real education expenditure per capita. Additionally, qualitative data was obtained from eleven interviews conducted with key stakeholders in Malta's education sector to identify recent value-adding initiatives and to explore how practices from the other four EU countries could be implemented in Malta.

Findings: The findings indicated that, in terms of overall performance and in terms of VFM, the Maltese education system ranked last. While enjoying excellent results in terms of human resources, Malta performed particularly poorly in terms of educational attainment and participation in Early Childhood Education and Care (ECEC). On a positive note, the

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standard performance metric identified areas in which the Maltese education system has made significant progress, these being adult education, transition from education to work and Early Leaving from Education and Training (ELET) rates.

Originality/Value: Although the Maltese public authorities have implemented a number of value-adding initiatives aimed at reducing Malta's ELET rates and addressing the educational spending inefficiency, there is as yet room for improvement as evidenced by the ranking established through this research. Furthermore, this paper sheds particular light on aspects that may necessitate change in the Maltese education system for it to achieve spending efficiency and effectiveness within a small-state context.

Keywords: Education, Key Performance Indicators, Value-for-Money, Expenditure Efficiency.

JEL codes: I21, I28, H52, C18, O15.

Paper Type: Research article.

1. Introduction

The development of human capital is a key driver of economic growth, prompting the European Council and Commission (EC) to encourage Member States to prioritise spending on education and training as an "investment in future growth" (Vera-Toscano 2013, p. 5).

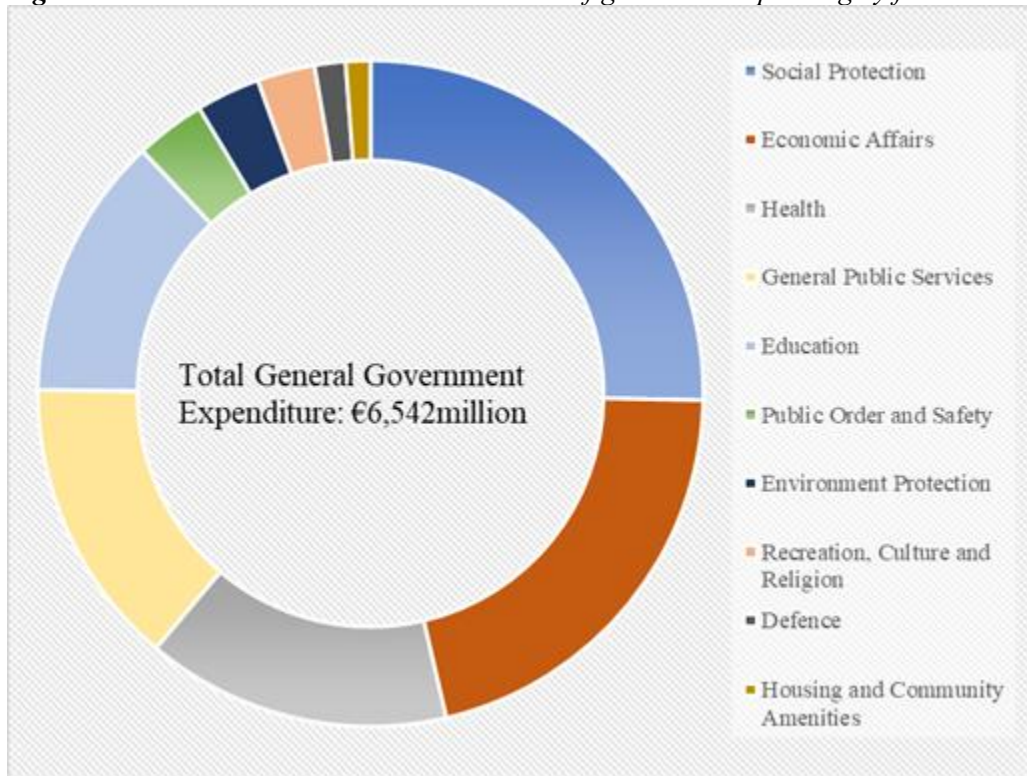
However, limited public funds necessitate maximising the effectiveness of education spending, making efficiency a central goal for governments (Freitas *et al.*, 2020). This focus aligns with the 2006 'European Expert Network on Economics of Education' report, which emphasised efficiency as a primary objective for European educational systems (Giménez *et al.*, 2007).

In Malta, the government invests heavily in the education sector. In 2021, 12.8% of total government expenditure was dedicated to education, amounting to approximately 5.6% of Malta's Gross Domestic Product (GDP). As shown in the figure below, education is among the sectors with the highest levels of government spending.

In fact, back in 2018, Malta was ranked as the ninth highest spender in the EU (European Union) in terms of education (Martin, 2018). However, even though spending was higher than the EU average, the 2018 edition of the EC's Education and Training Monitor report stated that "the performance of Maltese students in international assessments remains poor" (Martin, 2018).

This was further confirmed in a study conducted by the Central Bank of Malta (CBM), which found that despite improvements in the last 15 years, there are still some areas where educational attainment is below EU benchmarks (Gauci, 2021).

Figure 1. 2021 Fiscal allocation: A breakdown of government spending by function



Source: Author's compilation adapted from NSO 2023.

Given the misalignment between expenditure and performance, the need arises to examine the relationship between the investment in education and the results/outputs being achieved.

Within this context, this paper is aimed at comparing such investment/output relationship in the Maltese education system with those of four other European Union (EU) countries - France, Germany, Spain, and Sweden. The objectives towards achieving this aim were (i) to develop a standard performance metric built on a number of internationally recognised Key

Performance Indicators (KPIs) as a basis for carrying out such comparison; (ii) to determine how the different education systems relatively perform in terms of Value for Money (VFM) for the level of education expenditure per capita, (iii) to evaluate the value-adding projects that have recently been implemented in the Maltese

educational system and lastly (iv) to make recommendations for Malta based on any relevant experiences learned from such EU member states.

2. Literature Review

2.1 Prior Studies on Educational Efficiency

International literature extensively compared the efficiency of public education spending, defining efficiency as achieving strong educational outcomes with minimal investment (Johnes *et al.*, 2017).

Clements' (2002) study was the first that measured the efficiency of educational spending in the EU, revealing poor performance relative to investment. Subsequent studies by researchers like Afonso, Aubyn (2005), Sutherland, Price *et al.* (2007), and Agasisti (2011) used input-output analysis to assess efficiency. However, these studies highlighted the challenge of evaluating education systems due to the lack of universally applicable indicators (Kozun-Cieslak, 2022).

Agasisti's (2014) study used the Data Envelopment Analysis (DEA) model to assess educational efficiency, revealing that the relationship between expenditure and performance was not linear, with some countries investing less but outperforming others. It also identified that factors like computer literacy and teachers' salaries positively impacted efficiency.

A similar study by Cordero *et al.* (2018) found that efficiency scores varied more between countries than within schools, with economic indicators and cultural values significantly affecting efficiency.

Constantin's (2017) study compared EU education systems, disclosing key findings for Malta. In 2016, Malta had one of the lowest rates in the EU for "at least upper secondary educational attainment" among the 25-64 age group. However, it had one of the highest "employment rates for recent graduates" (96.6%) in the EU for individuals aged 20-34. Additionally, Malta had the highest early school leaving (ELET) rate in 2016.

In 2021, a study on educational spending efficiency across 28 EU countries (Dincă *et al.*, 2021) found that Malta had some of the highest inefficiency scores over the years. However, a 2023 study (Camanho *et al.*, 2023) showed that Malta, along with Spain, Greece, and Portugal, saw the largest improvements in educational performance, with each country improving by more than 10%.

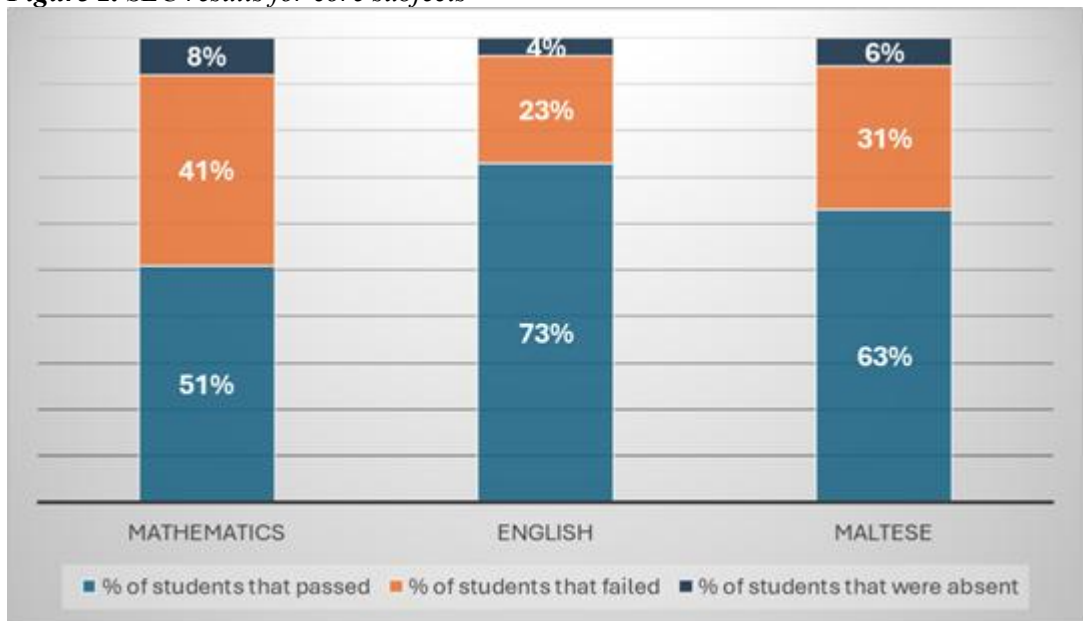
A 2022 study by Kozun-Cieslak compared the Ukrainian education system to those in the EU, concluding that Ukraine achieved above-average results with low investment, while countries like Malta, Luxembourg, Cyprus, and Italy were over-investing without yielding desired outcomes.

2.2 Performance of Maltese Students in Local and International Assessments

Local assessments:

According to the latest Secondary Education Certificate (SEC) results for 2023, 32% of students failed their O-levels in total (Arena and Borg, 2023). In terms of the core subjects, namely Mathematics, English, and Maltese, the following results, as shown in the chart below, were achieved.

Figure 2. SEC results for core subjects



Source: Author's compilation adapted from MATSEC Examinations Board 2023.

For the A-level and Intermediate exams, 12.4% and 16% of students, respectively, received failing grades (Arena, Borg 2023).

International assessments:

In addition to the local examinations mentioned above, there were also several international tests which Malta took part in. Malta participated in the OECD's PISA (Programme for International Student Assessment) 2022 study, ranking 37th out of 81 countries (OECD, 2023b). The study revealed that Malta's average performance among top achievers was below the OECD average, while the proportion of low performers exceeded the average.

Results in mathematics and reading remained consistent with 2018 levels, but science scores improved (Malta Independent, 2023). Compared to the other four selected countries, Malta recorded the highest percentage of low-achieving 15-year-olds across all three assessed areas.

Moreover, Malta participated in the OECD's TALIS (Teaching and Learning International Survey) 2018 study, which focused on teachers and school leaders rather than student performance. Key findings showed that Maltese teachers reported higher levels of work-related stress and felt their profession was less valued compared to the OECD average. Additionally, the study found that about one in nine teachers in Malta was over 50, indicating a younger teaching workforce than the OECD average (OECD, 2018).

Malta also participated in PIRLS (Progress in International Reading Literacy Study) and TIMSS (Trends in International Mathematics and Science Study) which were conducted by The International Association for the Evaluation of Educational Achievement (IEA).

In PIRLS (2021), Malta's Year 5 students scored 515 points in reading, surpassing the 500-point benchmark for the first time, a significant improvement from 452 points in 2016. In TIMSS (2019), Malta's Year 5 and Year 9 students scored 496 in science, slightly below the 500-point benchmark, and 509 in mathematics.

2.3 Public Funding of Education in the EU

Public funding of schools in the EU involves two key aspects: the source of funding and the body responsible for distributing it. Historically, central governments were the primary source of funding, with three main models: resources were transferred to local governments for schools, funds were transferred to local governments but managed by schools, and schools received direct funding from central governments (Atkinson *et al.*, 2005; OECD, 2017).

In recent years, many countries shifted towards fiscal decentralisation, transferring financing responsibilities to local or regional authorities to increase school autonomy (Ahmad, 2016; IMF, 2017). Additionally, schools generated revenue through fundraising, fees from foreign students, and donations (OECD, 2017).

2.4 Shortcomings of the Maltese Education System

2.4.1 ELET

Early Leaving from Education and Training (ELET) was a significant issue in Malta's education system, as noted in the EC's *Education and Training Monitor Report* (2022). While the EU 2030 target for ELET was 9%, Malta's rate in 2021 remained higher at 10.7%.

ELET referred to individuals aged 18-24 whose highest qualification was ISCED 2 or below. Key contributors included favourable employment conditions for low-qualified individuals, particularly those from poor socio-economic backgrounds, underachievement, low student well-being, and high absenteeism. Immigrant students faced higher risks due to difficulties catching up academically. Historically,

Malta's secondary education focused primarily on academic pathways, which alienated students uninterested in this route. However, targeted strategies have significantly reduced ELET rates from 18.8% in 2011 to 10.7% in 2021, demonstrating policy effectiveness, though challenges persisted, particularly for foreign-born students.

2.4.2 Educational Spending Inefficiency

The Maltese government invests significantly in education, exceeding the EU average of 4.8% of GDP by 0.7 percentage points in 2021 (EC 2023). Despite this, the educational outcomes of Maltese students do not reflect this spending, as noted by The Malta Chamber (TMC), which ranked Malta 8th in education expenditure but only 24th in PISA performance scores (TMC, 2023).

This suggests spending inefficiencies in the educational sector. Factors contributing to this inefficiency include a traditional funding approach that prioritises higher education, when research by Blankenau, Youderian (2015) and the OECD (2014) indicates that investing in early education yields better long-term results. Additionally, studies show that funding is often directed towards high-performing students, whereas underachievers need more resources to improve (OECD, 2017)

3. Research Methodology

3.1 The Theoretical Framework

The study was based on the Educational Production Function Theory (Hanushek, 1979) involving a structured approach to evaluating the efficiency of education systems. Education is modelled as a function where inputs (*such as financial investment and infrastructure*) contribute to output (*such as student performance*).

By applying this framework, the study assesses how effectively the Maltese education system transforms resources into measurable outcomes in comparison with those of France, Germany, Spain, and Sweden. The VFM analysis also aligns with this framework, as it examines the relationship between education expenditure per capita and system performance. The framework also supports policy recommendations by identifying best practices that optimize resource allocation and improve educational outcomes.

3.2 Research Tool

The author adopted a mixed methodology to achieve the objectives of this research.

3.2.1 Quantitative and Qualitative Data Collection

Research objective (i) on developing a standard performance metric and objective (ii) on determining how the different systems perform in terms of VFM for the level

of education expenditure per capita were fulfilled by gathering *quantitative data* from recent international education databases. The most recently published KPIs, being those of 2021, were used for the five countries.

This data was primarily sourced from Eurostat statistics. Reliance was also made on various sources of secondary data to gather information about the other EU countries, primarily on reports generated by Eurydice which falls under the EC and a number of reports which were published by the Organisation for Economic Co-Operation and Development (OECD).

Regarding research objectives (iii), which focus on evaluating the value-adding projects recently implemented in the Maltese educational system, and (iv), which involve making recommendations for Malta based on relevant experiences from other EU member states, these were addressed through *qualitative* data collection. This consisted of semi-structured interviews conducted with eleven key stakeholders within the Maltese education system.

The interviews were guided by a predetermined interview schedule comprising open-ended questions to ensure alignment with the research objectives (Byrne, 2016).

The semi-structured format allowed participants to respond freely while enabling the researcher to pose follow-up questions for a deeper understanding of their motivations. Moreover, since each respondent was asked the same questions, the data collected could be compared, striking a balance between replicability and flexibility (McIntosh and Morse, 2015).

Semi-structured interviews were particularly suitable for this study as they facilitated an in-depth exploration of complex, context-specific issues. This methodology provided the necessary flexibility to capture detailed insights while maintaining a strong focus on the key objectives, making it ideal for addressing the nuanced and multifaceted nature of the research aims.

The interviewer analyzed findings derived from the quantitative data collection, examining why Malta excels in certain areas while underperforming in others. In cases of the latter, interviewees were asked how other countries have established successful practices and whether any lessons could be applied to the Maltese context. Additionally, they were questioned about recent initiatives introduced within the Maltese education system aimed at improving overall performance

3.2.2 Addressing Variability and Bias

A key limitation of semi-structured interviews was their inherent flexibility, which could lead to variations in the depth and scope of the information gathered. To mitigate this, all interviews were conducted by the same interviewer, who also used follow-up questions as necessary.

Additionally, the open-ended nature of some questions introduced the risk of researcher bias or differences in interpretation. To address this, the first two co-authors engaged in extensive discussions to establish a shared understanding of the responses, ensuring that the analysis remained objective and firmly grounded in the data.

3.3 The Sample Population of Interviewees

The selection of research interviewees is crucial for every study (Martínez-Mesa *et al.*, 2016). Given their significant practical experience with education issues, the sample consisted of 11 key stakeholders within the Maltese educational system. By the final interview, the responses indicated that qualitative saturation had been achieved. Such qualitative saturation was determined by terminating the interview process at the point at which no new themes, insights, or information were emerging from the data, indicating that additional data collection would likely be redundant.

Criteria included the depth of understanding achieved, the relative lack of complexity of the research topic, the limited variability of responses, and the study's main objectives. The researchers also considered whether the research objectives had been fully explored. Monitoring such saturation was an onprocess throughout data collection.

3.4 Data Analysis

The data analysis process was carefully designed to ensure a thorough and precise evaluation. All interviews were transcribed and summarized to help the researchers to identify similarities and differences in the responses (Braun and Clarke, 2006). Such a transcription process was crucial for preserving data accuracy and enabling a detailed thematic analysis for the qualitative data, wherein recurring themes and patterns could be identified and categorized.

Following the collection of the quantitative and qualitative data, a standard performance metric was developed for the assessment of each education system based on the INES (Indicators of Education Systems) framework adopted by the OECD (OECD, 2023a). This framework is used to assess the performance of national education systems as a whole and compares them with each other. It is based on four different dimensions being: 'Input', 'Output', 'Outcome' and 'Impact' (OECD 2023a). Using this framework, KPIs were grouped under these four dimensions as portrayed in Figure 2 below.

3.5 Other Limitations of the Study

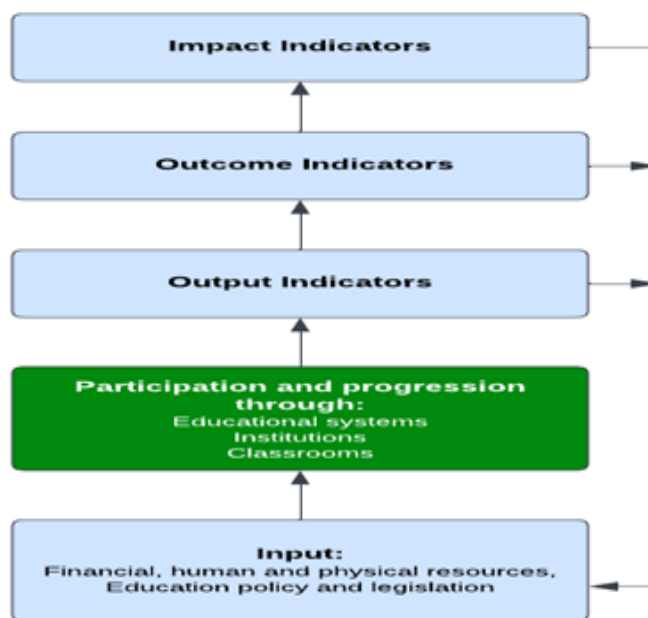
Despite considerable efforts to undertake a thorough analysis of the research topic, the study remains subject to certain limitations. Participants' responses inevitably contained some level of subjectivity. The study incorporated relevant and global

developments up to 31st March 2024. Furthermore, the primary limitations of this research, including the possibility of researcher bias and variability, as well as the intentionally small sample size, have already been acknowledged. However, regarding these two constraints, it is important to note that:

(i) Residual researcher bias and variability may still have impacted the study's design, data collection, analysis, or interpretation, despite the precautions outlined in Section 3.2.2, potentially resulting in findings influenced by researchers' expectations rather than objective reality. Although Section 3.2.2 details measures taken to minimize this bias, its complete elimination cannot be guaranteed, which may have skewed the results in a specific direction.

(ii) The limited interview sample size reduces the statistical power of the study, making it harder to identify significant effects and increasing the likelihood that the findings could be attributed to chance. This constraint also affects the generalizability of the interview results, as a smaller, potentially unrepresentative sample may not fully capture the broader population. As a result, while the findings offer valuable insights, they should be interpreted with caution and may not be universally applicable. Future research with larger, more diverse samples and measures to mitigate researcher bias would be needed to validate these results and strengthen their generalizability.

Figure 3. *Organising framework of indicators in 'Education at a Glance'*



Source: Own compilation adapted from OECD 2023a, p.11.

4. Research Findings and Discussion

4.1 Standard Performance Metrics

The performance of the education systems in France, Germany, Spain, Sweden, and Malta was evaluated, using KPIs categorised into four dimensions: *Input*, *Output*, *Outcome*, and *Impact*, as per the OECD INES framework (OECD, 2023a). A definition of each dimension and the KPIs falling under each dimension is provided in Annex 1.

A standard performance metric was developed using a scoring system, whereby the researchers ranked countries from 1 (*indicating lowest performance*) to 5 (*indicating highest performance*) based on their relative KPI results, with higher scores indicating better performance. This scoring system was used to assess which of the countries performs best in the four different dimensions mentioned above, and overall.

A summary of the results achieved by each country's education system is shown in the table below. Annex 1 contains the complete performance metric including all four dimensions of the INES Framework. The top-performing countries in each category are indicated by highlighting their scores.

Table 1. Standard performance metric (Summarised)

Area of assessment	France	Germany	Spain	Sweden	Malta
Input Dimension					
Human resources	3.3	2.2	3.2	2.2	4.5
Output Dimension					
Educational attainment	3.3	3.1	3.2	4.5	1.8
Graduates	4.0	4.0	3.0	2.0	2.0
Other output indicators	3.3	4.5	3.0	2.7	2.7
Outcome Dimension					
Adult education	2.0	1.3	3.6	5.0	3.0
ELET	4.0	2.5	1.5	4.3	2.8
Participation in EC EC	5.0	2.2	3.7	3.5	1.2
Impact Dimension					
Transition from education to work	2.3	3.7	1.8	4.3	3.1
Total points	27.2	23.5	23.0	28.5	21.1
Ranking	2nd	3rd	4th	1st	5th

Source: Own computation using data from Eurostat 2024.

As portrayed by Table 1 above, Sweden ranked as the top-performing education system overall, excelling in the areas of educational attainment, adult education, transition to work, and low ELET rates. France ranked second overall, leading in participation in Early Childhood Education and Care (ECEC). Malta performed best in human resources but ranked lowest overall among the education systems.

4.1.1 Overall Performance

The results emerging from the standard performance metric portrayed in Table 1 showed that Sweden had the strongest overall education system followed closely by France; conversely, Malta ranked the lowest. These findings aligned with the PISA 2022 results (OECD, 2023b), which also highlighted Sweden as the top performer among the sample countries, followed by Germany, France, Spain, and Malta.

The slight ranking difference between Germany and France reflected the distinct methodologies of the two assessments, as PISA 2022 relied on different datasets than those used in the compilation of the above standard performance metric. This variation highlights the challenge of comparing education systems due to the lack of universally consistent evaluation criteria (Kozun-Cieslak, 2022). Table 2 presented the PISA 2022 scores for these countries.

Table 2. PISA 2022 Worldwide ranking - average score of math, science and reading

Country	Worldwide ranking	Points scored
Sweden	19 th place	487.7
Germany	24 th place	482.3
France	26 th place	478.3
Spain	29 th place	477.3
Malta	37 th place	459.0

Source: Own compilation adapted from OECD 2023b.

4.1.2 High Risk Areas

The standard performance metric revealed that Malta scored poorly in both "Educational Attainment" and "Participation in ECEC." Regarding *Educational Attainment*, Malta's weak performance had been frequently highlighted in both local (Gauci, 2021) and international studies (Constantin, 2017; Dincă *et al.*, 2021). This was evident in local exam results, where 32% of students failed their O-levels in 2023 (Arena and Borg, 2023).

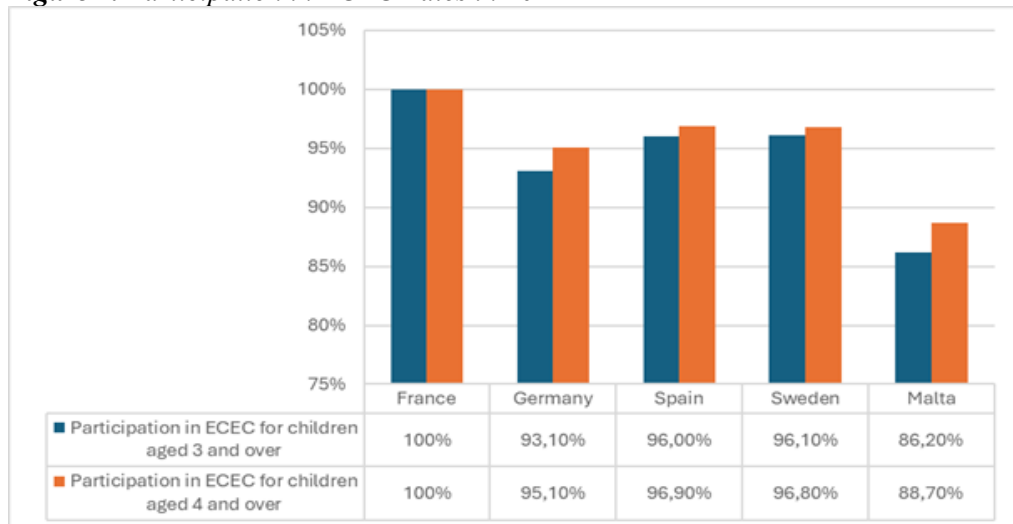
Additionally, Malta's results in international assessments, such as PISA 2022, emphasised these challenges. Malta ranked 37th out of 81 participating countries,

with an average performance below the OECD average and a higher proportion of low performers compared to other nations (OECD, 2023b).

Eurostat (2024) further confirmed that Malta had the highest percentage of 15-year-olds performing poorly in mathematics, reading, and science among the observable sample.

In terms of *Participation in ECEC*, Malta had the lowest score in the standard performance metric. Notwithstanding, Figure 4 and interviewee feedback indicate that participation rates are quite high, likely due to the recent initiative of free provision of ECEC (Eurydice, 2023e).

Figure 4. Participation in ECEC Rates in 2021



Source: Own compilation using data from Eurostat 2024.

France has achieved a 100% participation rate in ECEC, since it was made compulsory from age three in 2019 (Eurydice, 2023a). This policy was based on research linking ECEC to improved educational outcomes later in life (OECD, 2014; Blankenau and Youderian, 2015).

When the researchers suggested adopting a similar system in Malta, many interviewees opposed the idea, arguing that Malta already has very high ECEC participation rates. Instead, they emphasised concerns about the *quality* of ECEC, pointing out that educator qualifications and training are "inadequate," particularly given the critical role early education plays in a child's development.

4.1.3 Medium and Low Risk Areas

Malta has excelled in the "Human Resources" area of education, achieving the highest score in three KPIs: the percentage of teachers and academic staff aged 60-

64, the student-to-teacher ratio, and the percentage of part-time teaching staff. These results align with the findings of the TALIS 2018 report, which highlighted Malta's relatively young teaching workforce compared to other OECD countries (OECD, 2018).

Malta has made considerable progress in areas such as ELET, adult education, and the transition from education to employment, yet challenges still remain. ELET is a

significant concern in Malta's education system, with three primary contributing factors: high levels of student underachievement, as demonstrated by international assessments like PISA; the country's low unemployment rate, which can draw young people away from education; and the impact of foreign-born students, whose effect on ELET rates varies based on their nationality and cultural background.

Efforts to address ELET rates through various interventions have led to a steady decline, as shown in national metrics. However, some of the experts interviewed have expressed doubts about the sustainability of this decline, pointing out that while many students proceed to post-secondary institutions like MCAST, a significant number drop out soon after enrolling.

Interviewees argued that to fully understand the issue, both enrolment and retention rates need to be considered. Despite these concerns, Malta's reduction in ELET rates remains one of the most significant improvements among its peers, as highlighted in comparative figures.

Malta has also made notable progress in adult education. According to a former permanent secretary, the adult learning participation rate has significantly increased from around 7% in 2010 to more than double that figure today, surpassing the EU benchmark of 10.8% (Eurostat, 2024).

Malta has also achieved significant progress in the transition from education to work, particularly evident in the employment rates of recent graduates. Malta's employment rate not only exceeds the EU average but also outperforms other countries in the observed sample.

Malta's strong performance in employment rates for recent graduates was also highlighted in a study by Constantin (2017). Additionally, the former permanent secretary noted significant progress in reducing NEET (Not in Education, Employment, or Training) rates, which are now among the lowest in the EU (Eurostat, 2024).

4.2 Value for Money

The results emerging from the VFM assessment are summarised in Table 3 below. For this assessment, the Purchasing Power Standard (PPS) per pupil, sourced from

Eurostat (2024), was used. The ‘PPS per pupil’ adjusts for both the population of students in the respective country and for inflation.

To compute the VFM of each education system, the authors divided the ‘PPS per pupil’ by the total points in the standard performance metric (in Table 1 above). The lower the PPS per point, the more VFM the respective education system was generating.

Table 3. *VFM assessment*

	France	Germany	Spain	Sweden	Malta
PPS per pupil	8,413	10,058	7,067	10,443	9,706
Total points per the standard performance metric	27.2	23.5	23	28.5	21.1
<i>Total PPS per point</i>	309.3	428.0	307.3	366.4	460.0
<i>Ranking</i>	2nd	4th	1st	3rd	5th

Source: Author’s computation using data from Eurostat 2024.

The results show that Spain achieved the highest VFM in its education system, followed closely by France. Conversely, Malta ranked lowest in VFM. This is consistent with international studies highlighting that Malta’s significant investment in education is not yielding proportional results.

4.2.1 Financing the Maltese Education System

The Maltese government made substantial investments in education. In 2021, Malta's spending on education was 0.7 percentage points higher than the EU average of 4.8% of GDP (EC, 2023). According to interviewees, Malta's education budget has consistently grown over the years and has currently reached approximately €900 million, funding free education from early childhood to tertiary levels (Eurydice 2023e).

4.2.2 VFM Assessment

The VFM assessment identified Spain as having the most efficient education system, while Malta attained the lowest ranking. This aligned with Kozun-Cieslak’s (2022) findings, which highlighted that Malta had invested heavily in education without achieving the expected results. Interviewees unanimously agreed, with one emphasising that Malta had spent significantly more on education than most EU countries but had not seen sufficient returns.

An official from the Ministry for Education, Sport, Youth, Research and Innovation (MEYR) acknowledged that Malta's international assessment outcomes do not reflect the level of investment made (Gauci, 2021). Similarly, the TMC (2023) noted that Malta ranked 8th in education expenditure but 24th in PISA scores. Overall, all interviewees concurred with the European Commission's assessment that Malta is

struggling with inefficiency and ineffectiveness in its education spending (EC, 2021).

4.2.3 Moving Towards Educational Efficiency

A former Minister of Education explained that a significant part of Malta's education budget is allocated to salaries and system maintenance (recurrent expenditure). However, over the years, several costly initiatives have been introduced, such as the free transport scheme, costing €63 million annually, investments in technology like the free tablet scheme, and inclusive education measures such as Learning Support Educators (LSEs).

Despite these investments, many interviewees observed that they had not resulted in improved educational outcomes. One interviewee criticised the implementation of such measures, suggesting that they were often driven by electoral promises rather than evidence-based planning.

A ministry representative highlighted a significant issue, being the lack of monitoring and post-evaluation of education policies and investments. Agasisti (2014) noted that educational performance did not increase proportionally with expenditure, as shown by countries that spent less but achieved better results.

Since education is primarily funded through limited public resources (OECD 2020a), it is essential to allocate these funds efficiently to improve educational outcomes. This can be achieved either by improving results without increasing spending or by achieving the same results with lower expenditure (OECD 2017).

Interviewees emphasised the importance of "quality education" and a relevant syllabus to enhance outcomes. They suggested prioritising investments in skilled educators over costly initiatives, such as excessive technology use or schemes like the free transport program, which, in their opinion, had not significantly contributed to education enhancement.

Regarding the free transport scheme, some interviewees argued that this should have been funded by the Ministry for Transport, Infrastructure, and Public Works, as its primary goal was to reduce traffic rather than improve education. Reallocating this expense would contribute to greater efficiency outcomes in educational spending.

4.3 Insights Provided by Maltese Education Stakeholders

The KPI analysis carried out above was complemented by data gathered from the eleven interviews conducted with key stakeholders within the Maltese education system, as detailed in this section.

4.3.1 Early Leaving from Education and Training

The Maltese education system has faced challenges with ELET for many years. According to a former permanent secretary, significant progress began in 2014 when ELET became one of the four key goals in the National Education Strategy 2014-2024 (Ministry for Education and Employment, 2014).

A representative from MEYR highlighted several factors linked to ELET, such as “absenteeism”, “literacy difficulties”, “learning challenges”, and “social problems”. The current approach focuses on identifying students at risk of leaving school early as soon as possible, emphasising prevention over intervention.

4.3.2 Recent Value-Adding Initiatives

All interviewees agreed that the issue of ELET is not triggered in secondary school but often starts earlier, particularly during Early Childhood Education and Care (ECEC) and the first two years of primary school. A former Education Minister emphasised that missing out on these critical early years has significant consequences, both for individuals and the country, as substantial resources are then needed to address these gaps later.

To tackle ELET, government has made significant investments in early education over the years. This began with the expansion of childcare centres. However, two interviewees noted that these centres were initially seen more as facilities to enable mothers to return to work rather than as part of a child’s educational journey.

An academic highlighted that since these centres were introduced as part of economic policy rather than social policy, the quality of ECEC is not universally guaranteed in Malta.

In addition to childcare centres, the interviewees highlighted several other initiatives aimed at reducing ELET rates. One key measure was the introduction of middle schools to ease the transition between primary and secondary education, with a focus on preparing students for the SEC exams in secondary school. Another major reform was the ‘My Journey’ program, which expanded secondary education to include nine vocational and nine applied subjects, offering students alternatives to the traditional academic pathway.

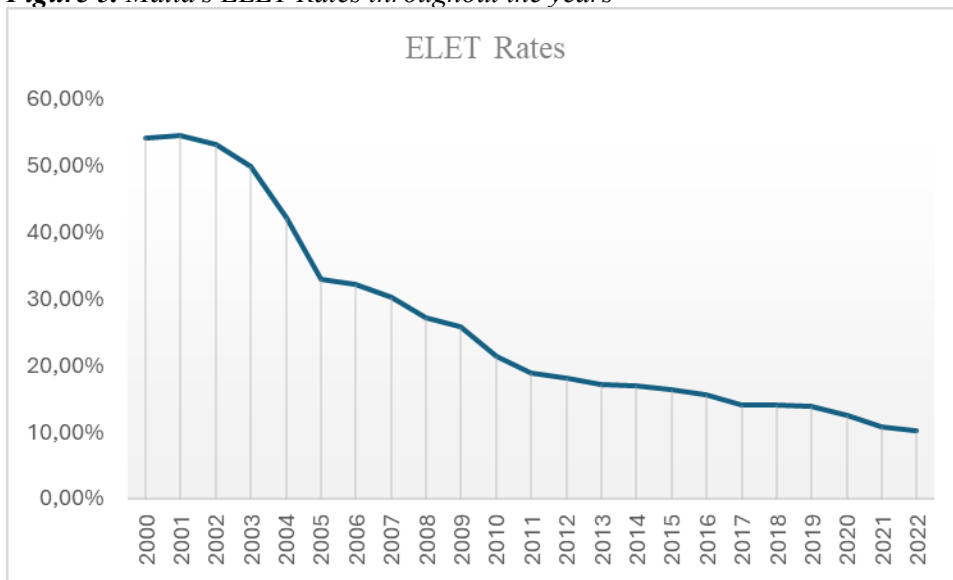
Beyond preventive measures, MEYR also invested in addressing ELET through compensatory efforts. This included establishing two institutions, GEM16+ and the Alternative Learning Programme (ALP), specifically to support students at risk of Early School Leaving (ESL).

Additionally, significant investments were made in the Malta College of Arts, Science, and Technology (MCAST) and the Institute of Tourism Studies (ITS), which now accommodate a large number of students.

These reforms in the Maltese education system significantly reduced ELET rates, dropping from 18.8% in 2011 to 10.7% in 2021 (EC 2022). The former permanent secretary highlighted that the European Commission commended Malta's efforts, acknowledging its exceptional progress in addressing ESL.

He attributed this success to a consistent year-on-year decline in ELET rates, a trend that continued even during the COVID-19 pandemic. While most EU countries experienced an increase in ELET rates during this period, Malta's rate consistently decreased, as illustrated below (Eurostat 2024).

Figure 5. *Malta's ELET Rates throughout the years*



Source: Own compilation using data from Eurostat 2024.

Despite the notable drop in ELET rates in Malta, some interviewees expressed concerns about these statistics. They pointed out that while many students continue education after compulsory schooling, dropout rates in post-secondary institutions like MCAST and ITS remain significant. The former Minister highlighted that hundreds of students leave these institutions in February and March, suggesting the need to examine both admission and retention rates for a more accurate picture.

Additionally, Malta's low unemployment rate was seen by some interviewees as counterproductive to reducing ELET, as students may choose work over further education, given the abundant supply of jobs.

The impact of foreign-born students on ELET rates was another concern. Interviewees noted that the age and nationality of these students play a significant role. Students arriving in Malta near the end of compulsory education may struggle to adapt, and cultural values around education and employment also influence

dropout rates. Families' attitudes toward education were highlighted as a key factor in shaping students' decisions about continuing education.

To address ELET among foreign-born students, MEYR implemented several initiatives. The Migrant Learners' Unit was established to support these students, and induction hubs were created to help students learn basic English before entering mainstream education. Subsidised courses were also introduced to help migrants continue their education. Furthermore, psycho-social teams are now trained to handle multiculturalism, with a focus on fostering a sense of belonging to reduce dropout rates.

4.3.3 Lessons from other EU Member States

To address ELET, the researchers suggested extending the compulsory education age to 18, similar to France and Germany. This idea sparked different reactions from interviewees. The former Education Minister noted that while extending the legal school age may impress the European Commission, the real challenge lies in practical implementation.

Many interviewees agreed that extending compulsory education would be ineffective if students already view school as irrelevant, as it would only increase the country's financial burden without achieving meaningful outcomes. A ministry representative highlighted that over 30% of students in Malta lack adequate proficiency by age 16, and extending their schooling without addressing this gap would not solve the issue.

An academic proposed a different perspective, supporting the extension if it includes a combination of institutional learning and on-the-job training, allowing students to remain in an educational setting while gaining practical experience. This idea was previously recommended by TMC but was never implemented.

Another strategy discussed was the vocational approach adopted by other EU countries. Malta has recently expanded vocational education at MCAST and ITS to include Level 6 courses, but it still lags in Vocational Education and Training (VET) compared to other countries. Vocational education has the potential to reduce ELET rates, as Malta has traditionally focused on an academic-only path.

However, challenges remain in the assessment of VET subjects, which are still highly summative and academic in nature due to their connection to SEC standards. An MEYR official explained that the Ministry is exploring alternative methods to validate students' knowledge and skills beyond traditional academic assessments.

4.3.4 Educational spending inefficiency

A significant issue in the Maltese education system, as highlighted in the literature, is inefficiency in educational spending. Despite spending a higher percentage of GDP on education than the EU average (EC, 2023), Malta's performance in international assessments is below the OECD average (OECD, 2023b). This

inefficiency is further demonstrated by the VFM assessment, where Malta ranked last among the five countries in the sample, with a notable gap between Malta (460 PPS per point) and Germany (428 PPS per point), which ranked fourth.

All interviewees acknowledged this shortfall, with a school representative noting that while Malta invests heavily in education, the outcomes do not justify the expenditure. An MEYR official emphasised that effective spending, rather than the amount spent, is critical. He compared the education budgets of Malta, Greece, and Japan, noting that despite similar per capita spending, Japan consistently

outperforms Malta, while Greece fares worse. The official attributed Japan's success to its focus on quality, such as investing in teacher training and recruitment, while Greece prioritises quantity, such as maintaining smaller class sizes (22 students) at the cost of higher staffing expenses. Malta's education spending approach more closely resembles Greece's, prioritising quantity over quality, which impacts overall educational outcomes.

Addressing inefficiency in educational spending can be approached in two ways: improving student performance or reducing annual education expenditure. Since Malta's education budget has been steadily increasing and now stands at approximately €900 million, MEYR has prioritised initiatives aimed at enhancing student performance as the primary solution.

4.3.5 Recent Value-Adding Initiatives

The National Literacy Agency (NLA) has been recognised for its impactful initiatives, particularly the "Reading Recovery Programme," a one-on-one intervention for seven-year-old students struggling with literacy.

Another significant development is the implementation of the Learning Outcomes Framework, designed to grant teachers more autonomy by focusing on outcomes rather than rigid syllabi. This approach aims to shift Malta's traditional, information-heavy education system toward fostering critical thinking.

Investment in education has sparked debate, with critiques centred on the allocation of funds. Notable schemes include the €63 million free transport initiative and the free tablets programme, which some argue have not led to measurable performance improvements. A recurring criticism is the lack of pre-implementation studies to assess the efficacy of such measures. An academic noted that comparisons with Finland's education system suggest that success hinges more on quality educators than technology investments.

Malta's inclusive education system, particularly the role of Learning Support Educators (LSEs), also significantly contributes to expenditures. Two interviewees mentioned that an external audit conducted in 2015 revealed that Malta failed all

benchmarks for inclusivity, and the absence of follow-up audits leaves the system's effectiveness in question.

Many interviewees suggested conducting a VFM audit to evaluate the returns on educational investments comprehensively. A shift in focus toward primary education aims to address learning gaps early, though concerns remain about the imbalance in resources allocated to low-achievers versus high-performers.

Lastly, a lack of robust monitoring and evaluation mechanisms for policies and investments was frequently criticised. Calls for increased data transparency, school performance reporting, and periodic evaluations highlight the need for

accountability and informed decision-making to optimise outcomes in Malta's education system.

4.3.6 Lessons from other EU Member States

Many interviewees pointed out that educational underachievement among Maltese students cannot be solely attributed to the education system itself but one must also consider the socio-economic conditions. Several emphasised the importance of ECEC to level the playing field, especially for students from disadvantaged backgrounds. While some suggested making ECEC compulsory from age three, inspired by France's system, others disagreed.

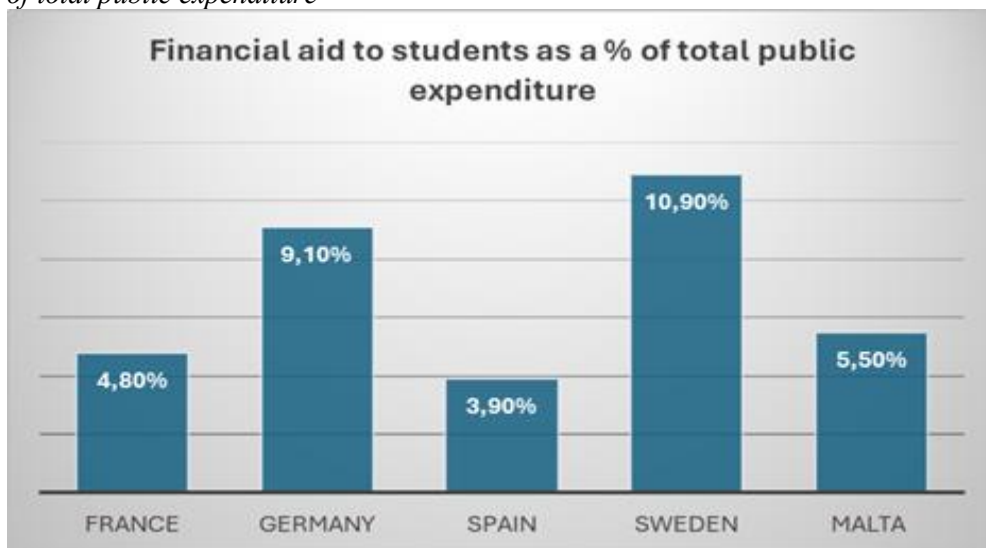
The issue in Malta is not the attendance rates of ECEC, but rather the quality of education and the inadequate qualifications and training of educators. Some interviewees noted that kindergarten education's benefits have not been fully realised, and childcare centres are often seen more as businesses than educational institutions, with some running without qualified staff.

To address inefficiencies in educational spending, the researchers proposed reducing expenditures, starting with stipends. Unlike in other EU countries, where stipends are given only to financially needy students, Malta provides stipends to all students to encourage them to pursue further education. As a result, Malta has a relatively high rate of financial aid provision for students among the countries observed, as in Figure 6 below.

Most interviewees agreed that Malta's current stipend system is unsustainable and needs to be re-evaluated. Many supported the idea of a means-tested system, where stipends are only given to financially needy students, ensuring the funds are used for educational purposes.

However, they acknowledged that changing the system would require a cultural shift, as it could lead to political backlash. Conversely, some interviewees warned that removing the stipend system could reduce the accessibility of education for students, especially those from less privileged backgrounds.

Figure 6. Financial aid to students from pre-primary to tertiary education – as a % of total public expenditure



Source: Author's compilation adapted from Eurostat 2024.

The researchers also proposed adopting a funding approach used in Sweden and Germany, known as Performance-Based Funding (PBF), which allocates funds to Higher Education Institutions (HEIs) based on student enrolment and performance. While many interviewees felt this system would not work for Malta's single university, some suggested it could be beneficial for secondary education. There was also support for linking the education budget to key performance indicators (KPIs) to better connect spending with educational outcomes.

However, some opposed PBF, arguing that it would disadvantage schools serving socially deprived students, which require more funding. An MEYR official noted that such a system could foster competition and lead to segregation between high-performing and low-performing schools.

Another funding reform discussed was the introduction of tuition fees for undergraduate students, as seen in other EU countries. Many interviewees disagreed with this approach, fearing it would make higher education inaccessible to students from disadvantaged backgrounds. One academic argued that education should be seen as a societal benefit and thus funded by the country. However, some interviewees supported the idea, believing it could make students more responsible and improve their academic performance.

4.3.7 Most Effective Initiatives which Were Implemented Locally

Amongst the initiatives implemented locally which were mentioned above, two had significant positive impact on the Maltese educational system.

My Journey programme:

To address the high ELET rates in Malta, the 'My Journey programme' was introduced, offering a vocational pathway alongside the traditional academic route. Previously, secondary education had primarily focused on preparing students for academic studies, leaving those not interested in this path without further education or training options (MEYR, 2017).

The programme included nine vocational and nine applied subjects in general secondary education. However, a ministry representative noted that these vocational subjects had remained "highly summative" as they were linked to the SEC exams, indicating the need for further improvement. At the time, MEYR was exploring ways to validate students' skills and knowledge outside of the academic route. Following the implementation of this programme and other initiatives aimed at reducing ELET, Malta had seen a significant decline in ELET rates (EC, 2022; Eurostat, 2024), suggesting that the policies in place had proven effective (MEYR, 2021).

Reading Recovery programme:

Another valuable initiative highlighted by several interviewees was the 'Reading Recovery Programme' offered by the NLA. This programme provided one-on-one support to seven-year-old students struggling with literacy. An MEYR official shared that the programme had an "88% success rate," which was backed by results from international studies.

Both a ministry official and a school representative cited the recent PIRLS international assessment, which measured literacy, noting that Malta had achieved its highest-ever results, scoring an average of 515 points. This marked the first time Malta had surpassed the EU average in this assessment (PIRLS, 2021).

4.3.8 Most Important Takeaways from other EU Countries

Extending the compulsory education age:

France and Germany were the two countries that extended the compulsory age for education to keep students in the education system longer, aiming for better long-term outcomes (Eurydice, 2023a; 2023b). The majority of interviewees were opposed to this.

The former Minister of Education noted that this proposal would require significant restructuring of the Maltese education system and could negatively impact the labour market, as students who are not interested in furthering their education, would be 'forced' to stay in school longer. An MEYR official argued that if students already found school irrelevant, extending the duration would only increase the financial burden without improving outcomes.

Although TMC (2021) had recommended this extension, it was not adopted. Instead, interviewees emphasised the importance of providing “quality education” with a syllabus that students found “relevant” in today’s world.

Malta’s stipend system:

When comparing the education systems of France, Germany, Spain, Sweden and Malta, it was found that France, Germany and Spain typically provided financial aid to students when their parents were unable to support them (Eurydice, 2023a; 2023b; 2023c). In contrast, both Sweden and Malta offered stipends to post-secondary students regardless of financial need, aiming to encourage further education (Eurydice 2023d; 2023e). Among these countries, Sweden provided the highest rate of financial aid, followed by Malta, which ranked third (Eurostat, 2024).

When discussing this with interviewees, most agreed that the current stipend system should be reassessed due to concerns about its long-term sustainability. Many suggested implementing a means-testing system, and reallocating the excess funds to attract higher-quality educators to improve student performance.

Performance-based funding:

Performance-based funding (PBF) is a funding approach used by several EU countries, including Germany and Sweden, to finance HEIs based on their performance (Jonkers and Zacharewicz, 2015; OECD, 2020b; Eurydice, 2023b). In Sweden, this approach also applied to government research grants (Söderlind and Geschwind, 2019).

When discussing PBF for Malta, interviewees agreed with the literature that it would not be suitable for Malta, given that there is only one university and no competition for funding. In Malta, HEI funding had been based on historical allocations (Jonkers and Zacharewicz, 2015).

While some interviewees saw potential for PBF in secondary education, others opposed the idea. They argued that schools in socioeconomically disadvantaged areas, which typically had lower academic performance, required more funding to support their students. Introducing PBF could worsen inequalities.

An official from MEYR explained that Malta’s small size could lead to competition between schools, potentially segregating high and low-performing students. After these discussions, it was concluded that PBF would not suit Malta’s educational system, as it could undermine the country’s commitment to inclusivity, a key pillar of its education system (Eurydice, 2023e).

Cost sharing:

The researchers explored a funding reform called Cost-Sharing (CS), which is used in several EU countries. CS involves charging undergraduate university students tuition fees to reduce public funding for HEIs. As a result, government can redirect

these savings to provide financial aid to students in need, while those who afford to pay tuition would do so, as they are expected to benefit from higher salaries and job opportunities in the future due to their education (Bruce and Johnstone, 2004; Jongbloed and Vossensteyn, 2016).

This proposal elicited mixed reactions from interviewees. Some opposed the idea, arguing that tuition fees could make higher education inaccessible to students from disadvantaged backgrounds. They felt that even with financial aid, students from lower socio-economic groups might still struggle to afford education.

An academic cited a socialist perspective on education, arguing that education benefited society as a whole, not just the individual, and therefore its costs should be shared by the nation (Psacharopoulos, 2006; Psacharopoulos and Patrinos, 2018). Moreover, given that Malta lacked natural resources, investing in human capital was seen as crucial for the country's competitiveness (Iatagan, 2015). On the other hand, some interviewees supported the CS approach, believing that it could promote greater responsibility among students and potentially improve their academic performance.

5. Conclusion

In conclusion, this study highlighted the performance of Malta's education system in comparison to other EU countries, with a particular focus on funding structures and their outcomes. The findings revealed that Malta lagged behind other EU nations, ranking at the bottom in both education expenditure per capita and overall performance. In contrast, Sweden emerged as the leader in performance, while Spain led in terms of efficiency in education spending.

Despite these challenges, Malta has undertaken several initiatives aimed at addressing critical issues such as ELET and inefficiencies in educational spending. While these efforts showed some success, there is clear potential for further improvement by adopting and adapting the funding reforms and best practices observed in other EU countries.

In light of these findings, it is evident that Malta's education system could benefit from a comprehensive evaluation of its funding mechanisms and policies. By considering the experiences of other EU nations and implementing relevant reforms, Malta could enhance both the efficiency and effectiveness of its education system, ultimately improving outcomes for students and ensuring greater long-term sustainability.

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ANNEX 1: STANDARD PERFORMANCE METRIC (FULL)

Input KPIs

The 'Input' dimension within the INES framework (OECD 2023a) refers to the resources which are invested in the education system. Primarily, there are two main types of resources being human resources (i.e. the teachers), and physical resources (i.e. the classrooms and technology). Since no data was published on physical resources, they are excluded from the standard performance metric. It should be noted that the use of 'n/a' in the table below indicates the absence of available data for the respective KPI in the corresponding country.

	France	Germany	Spain	Sweden	Malta
Human resources - teachers					
<i>% of teachers and academic staff within the 60-64 age group in:</i>					
Early childhood education	5	2	3	1	4
Primary education	4	2	3	1	5
Lower secondary, upper secondary and post secondary non-tertiary	3	1	4	2	5
Tertiary education	4	5	2	1	3
<i>Ratio of students to teachers and academic staff in:</i>					
Early childhood education	1	5	3	2	4
Primary and secondary education	1	2	4	3	5
Upper secondary education	3	2	4	1	5
Tertiary education	n/a	3	2	4	5
<i>% of teachers working part-time in:</i>					
Early childhood education	4	1	3	2	5
Primary education	3	1	4	2	5
Lower secondary education	4	1	3	2	5
Upper secondary education	4	1	3	2	5
Tertiary education	n/a	2	4	5	3
Average points - Total from input indicators	3.3	2.2	3.2	2.2	4.5
Ranking	2nd	4th	3rd	4th	1st

Source: Author's computation using data from Eurostat 2024.

Explanation of Input KPIs

Human resources - teachers

- *% of teachers and academic staff within the 60-64 age group:* These teachers and academic staff are nearing retirement age and must soon be replaced. The lower the percentage of teachers and academic staff who fall within this age group, the better; so a higher score would be attributed to that country.
- *Ratio of students to teachers and academic staff:* The lower this ratio is, the better because it means that for the number of students within the country, there are more teachers available; therefore students have more individual attention.
- *% of teachers working part-time:* The lower the percentage of teachers working part-time, the better. It implies that there are more teachers who hold full-time positions.

Output KPIs

The 'Output' dimension within the INES framework (OECD 2023a) refers to the direct results of the education system such as educational attainment. The use of 'n/a' in the table below indicates the absence of available data for the respective KPI in the corresponding country.

	France	Germany	Spain	Sweden	Malta
Educational attainment					
<i>Students by education level as a % of total age population</i>					
Early childhood education	3	4	2	5	1
Primary education	4	1	3	5	2
Lower secondary education	4	5	2	3	1
Upper secondary education	4	2	4	5	3
Post-secondary non-tertiary education	2	5	3	4	2
Short-cycle tertiary education	4	1	5	2	3
Early childhood to tertiary education	4	2	3	5	1
Bachelor's or equivalent level	3	4	5	5	3
Master's or equivalent level	5	4	2	5	3
Doctoral or equivalent level	4	5	5	5	4
<i>Students in education by age groups - as % of corresponding age population</i>					
0-29 years	3	2	4	5	1
5-29 years	3	2	4	5	1
15-19 years	2	3	4	5	1
15-24 years	2	3	4	5	1
15-29 years	2	4	3	5	1
16-18 years	4	2	3	5	1
20-24 years	2	5	3	4	1
<i>% of students that have at least upper secondary educational attainment within the age group 20-24</i>					
	5	1	2	3	4
<i>% of students that have at least upper secondary educational attainment within the age group 25-64</i>					
	3	4	2	5	1
<i>% of people that have at most lower secondary educational attainment by age 25-64</i>					
	3	4	2	5	1
<i>% of 15-64 year olds who have less than primary, primary and lower secondary education (levels 0-2)</i>					
	3	4	1	5	2
<i>% of 15-64 year olds who have upper secondary, post-secondary non-tertiary and tertiary education (levels 3-8)</i>					
	3	4	1	5	2
<i>Students in post-compulsory education - as % of the total population of post-compulsory school age</i>					
	2	3	4	5	1
<i>Students in tertiary education - as % of 20-24 years old in the population</i>					
	4	3	5	2	1
<i>% of individuals aged between 25-34 having a tertiary education</i>					
	5	1	3	4	2
Average points - Educational attainment					
	3.3	3.1	3.2	4.5	1.8
Graduates					
<i>Graduates in tertiary education by age groups - per 1000 of population aged 20-29</i>					
	5	3	4	1	2
<i>Graduates in tertiary education, in science, math., computing, engineering, manufacturing, construction, by sex - per 1000 of population aged 20-29</i>					
	5	4	3	2	1
<i>Graduates at doctoral level by sex and age groups - per 1000 of population aged 25-34</i>					
	4	5	3	2	1
<i>Graduates at doctoral level, in science, math., computing, engineering, manufacturing, construction, by sex - per 1000 of population aged 25-34</i>					
	3	5	3	4	2
Average points - Graduates					
	4	4	3	2	2
Other output indicators					
<i>Exposure of VET graduates to work-based learning</i>					
	3	5	4	2	1
<i>Population aged 20-34 with work experience while studying</i>					
	5	n/a	4	3	2
<i>Share of mobile students from Europe enrolled in tertiary education</i>					
	2	4	1	3	5
Average points - Other output indicators					
	3.3	4.5	3.0	2.7	2.7
Average points - Total from output indicators					
	10.9	11.9	9.4	9.4	5.9
Ranking					
	2nd	1st	3rd	3rd	4th

Source: Author's computation using data from Eurostat 2024.

Explanation of Output KPIs

Educational Attainment

- *Students by education level as a % of total age population:* The higher the rate, the better the score attributed to that country.
- *Students in education by age groups - as % of corresponding age population:* The higher the rate, the better the score attributed to that country.
- *% of students that have at least upper secondary educational attainment within the age group 20-24:* The higher the percentage of youths obtaining educational attainment in ISCED 2011 levels 3-8, the better the score attributed to that country.
- *% of students that have at least upper secondary educational attainment within the age group 25-64:* The higher the percentage of adults obtaining educational attainment in ISCED 2011 levels 3-8, the better the score attributed to that country.
- *% of people that have at most lower secondary educational attainment by age 25-64:* These adults have only completed at most up to basic education (ISCED 2). In this case, a lower percentage presents better performance because it implies that there is a higher percentage of individuals who have attained more than ISCED 2.
- *% of 15-64 year olds who have less than primary, primary and lower secondary education:* The lower the rate, the better the score attributed to that country.
- *% of 15-64 year olds who have upper secondary, post-secondary non-tertiary and tertiary education (ISCED levels 3-8):* The higher the rate, the better the score attributed to that country.
- *Students in post-compulsory education - as % of the total population of post-compulsory school age:* The higher the percentage of students furthering their education beyond compulsory school age, the better the score attributed to that country.
- *Students in tertiary education - as % of 20-24 years old in the population:* The higher the percentage of individuals aged between 20-24 in tertiary education, the better the score attributed to that country.
- *% of individuals aged between 25-34 having a tertiary education:* The higher the percentage of individuals aged between 25-34 having a tertiary education, the better the score attributed to that country.

Graduates

- *Graduates in tertiary education by age groups - per 1000 of population aged 20-29:* The higher the number of graduates in tertiary education (ISCED levels 5-8) per 1000 of the population, the better; so a higher score is attributed to that country.
- *Graduates in tertiary education, in science, math., computing, engineering, manufacturing, construction, by sex – per 1000 of population aged 20-29:* The higher the number of graduates in tertiary education (ISCED levels 5-8) per 1000 of the population, the better; so a higher score is attributed to that country.
- *Graduates at doctoral level by sex and age groups - per 1000 of population aged 25-34:* The higher the number of graduates at doctoral level per 1000 of the population, the better; so a higher score is attributed to that country.
- *Graduates at doctoral level, in science, math., computing, engineering, manufacturing, construction, by sex - per 1000 of population aged 25-34:* The higher the number of graduates at doctoral level per 1000 of the population, the better; so a higher score is attributed to that country.

Other output indicators

- *Exposure of VET graduates to work-based learning:* The higher the percentage of VET graduates exposed to work-based learning, the better the score attributed to that country.
- *Population aged 20-34 with work experience while studying:* The higher the percentage of students with work experience, the better the score attributed to that country.
- *Share of mobile students from Europe enrolled in tertiary education:* The higher the share of students from abroad choosing to study in the particular country, the better the score attributed to that country.

Outcome KPIs

The 'Outcome' dimension within the INES framework (OECD 2023a) analyses the results of the outputs of education system.

	France	Germany	Spain	Sweden	Malta
Adult education					
<i>Adult learning participation rate in education and training by age:</i>					
25-34 years	1	2	4	5	3
25-49 years	2	1	4	5	3
25-64 years	2	1	4	5	3
25-74 years	2	1	4	5	3
35-44 years	2	1	3	5	4
45-54 years	2	1	4	5	3
55-64 years	3	1	4	5	2
50-74 years	3	1	4	5	2
<i>Adults in education aged 30 and over - per 1000 of corresponding age population</i>					
	1	2	4	5	3
<i>Adult learning participation rate in education and training by educational attainment:</i>					
Less than primary, primary and lower secondary education (levels 0-2)	3	1	4	5	2
Upper secondary and post-secondary non-tertiary education (levels 3 and 4) - general	1	4	3	5	2
Upper secondary and post-secondary non-tertiary education (levels 3 and 4) - vocational	2	1	3	5	4
Upper secondary, post-secondary non-tertiary and tertiary education (levels 3-8)	2	1	3	5	4
Tertiary education (levels 5-8)	2	1	3	5	4
<i>Adult learning participation rate in education and training by labour status:</i>					
as a % of employed persons	2	1	3	5	4
as a % of persons in the labour force	2	1	3	5	4
as a % of persons out of the labour force	2	3	4	5	1
as a % of unemployed persons	2	1	4	5	3
<i>Adult learning participation rate in education and training by sex:</i>					
Males	2	1	3	5	4
Females	2	1	4	5	3
Total	2	1	4	5	3
Average points - Adult education	2.0	1.3	3.6	5.0	3.0
Early Leaving from Education and Training (ELET)					
<i>Early leaving from education and training by sex:</i>					
Males	5	2	1	4	3
Females	5	1	2	4	3
Total	5	2	1	4	3
<i>Out-of-school rate by age:</i>					
as a % of total population of 14 year olds	3	2	1	4	5
as a % of total population of 15 year olds	2	5	1	4	3
as a % of total population of 16 year olds	3	4	2	5	1
<i>Out-of-school rate in population of lower secondary school age</i>					
	5	3	1	4	2
<i>Out-of-school rate in population of upper secondary school age</i>					
	4	1	3	5	2
Average points - ELET	4	2.5	1.5	4.25	2.75
Participation in Early Childhood Education and Care (ECEC)					
<i>Participation in early childhood education and care by children aged 3 and over by sex:</i>					
Males	5	3	4	4	2
Females	5	2	3	4	1
Total	5	2	3	4	1
<i>Participation in early childhood education and care by children aged 4 and over by sex:</i>					
Males	5	2	4	3	1
Females	5	2	4	3	1
Total	5	2	4	3	1
Average points - Participation in ECEC	5	2.2	3.7	3.5	1.2
Average points - Total from outcome indicators					
	11.0	6.0	8.8	12.8	7.0
Ranking	2nd	5th	3rd	1st	4th

Source: Author's computation using data from Eurostat 2024.

Explanation of Outcome KPIs

Adult education

- *Adult learning participation rate in education and training by age:* The higher the percentage of adults participating in education and training, the higher the score attributed to that country.
- *Adults in education aged 30 and over - per 1000 of corresponding age population:* The higher the percentage of adults participating in formal and/or non-formal education, the higher the score attributed to that country.
- *Adult learning participation rate in education and training by educational attainment:* The higher the percentage of adults participating in formal and/or non-formal education, the higher the score attributed to that country.
- *Adult learning participation rate in education and training by labour status:* The higher the percentage of adults participating in formal and/or non-formal education, the higher the score attributed to that country.
- *Adult learning participation rate in education and training by sex:* The higher the percentage of adults participating in formal and/or non-formal education, the higher the score attributed to that country.

Early Leaving from Education and Training (ELET)

- *Early leaving from education and training by sex:* The lower the percentage of ELET ages 18-24, the better; so a higher score is attributed to that country.
- *Out-of-school rate by age:* The lower the percentage of Out-of-school rates, the better; so a higher score is attributed to that country.
- *Out-of-school rate in population of lower secondary school age:* The lower the percentage of out-of-school rates, the better; so a higher score is attributed to that country.
- *Out-of-school rate in population of upper secondary school age:* The lower the percentage of out-of-school rates, the better; so a higher score is attributed to that country.

Participation in Early Childhood Education and Care (ECEC)

- *Participation in early childhood education and care by children aged 3 and over by sex:* The higher the percentage of students attending ECEC, the better as ECEC is associated with the achievement of better educational outcomes in later years (OECD 2014, Blankenau and Youderian 2015).
- *Participation in early childhood education and care by children aged 4 and over by sex:* The higher the percentage of students attending ECEC, the better as ECEC is associated with the achievement of better educational outcomes in later years (OECD 2014, Blankenau and Youderian 2015).

Impact KPIs

The 'Impact' dimension within the INES framework (OECD 2023a) looks at the long-term effects of education systems such as the increase in economic growth.

	France	Germany	Spain	Sweden	Malta
Transition from education to work					
<i>Employment rates of recent graduates by sex:</i>					
Males	2	5	1	4	3
Females	2	4	1	3	5
Total	2	5	1	3	4
<i>Activity rates of young people not in education and training</i>					
	2	4	1	5	3
<i>Inactivity rates of young people not in education and training</i>					
	2	4	1	5	3
<i>Participation rate of 15-34 year olds in formal and non-formal education and training</i>					
	3	2	4	5	1
<i>Participation rate of 15-34 year olds in neither formal nor non-formal education or training</i>					
	3	2	4	5	1
<i>Young people neither in employment nor in education and training (15-24 years) - % of the total population in the same age group</i>					
	3	4	2	5	3
<i>Share of degree mobile graduates from Europe</i>					
	2	3	1	4	5
Average points - Total from impact indicators	2.3	3.7	1.8	4.3	3.1
Ranking	4th	2nd	5th	1st	3rd

Source: Author's computation using data from Eurostat 2024.

Explanation of Impact KPIs

Transition from education to work

- *Employment rates of recent graduates by sex:* The higher the rate, the better because it shows that graduates are progressing to the labour market which is the ultimate goal. Activity rates of young people not in education and training: The higher the rate, the better the score attributed to that country.
- *Inactivity rates of young people not in education and training:* The lower the inactivity rates, the better the score attributed to that country.
- *Participation rate of 15-34 year olds in formal and non-formal education and training:* The higher the rate, the better the score attributed to that country.
- *Participation rate of 15-34 year olds in neither formal nor non-formal education or training:* The lower the rate, the better the score attributed to that country.
- *Young people neither in employment nor in education and training (15-24 years) - % of the total population in the same age group:* The lower the percentage of young people in NEET, the better the performance so the higher the score attributed to that country.
- *Share of degree mobile graduates from Europe:* The higher the share of graduates from abroad choosing to work in the particular country, the better the score attributed to that country.