Illustrating the Economic Impact of Attaining the Europe 2020 Target for ESL

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The European Union's (EU) definition of early school leavers includes those "young people leaving education and training with no more than lower secondary education." Along these lines, Malta's National Statistics Office (NSO) measures the Early School Leaving (ESL) rate through the Labour Force Survey and includes those persons between 18 and 24 years of age who have left compulsory schooling, who do not have at least the equivalent of Secondary Education Certificate (SEC) passes (grades 1 to 7) in five different subjects, and who are not in education or training. Empirically it has been shown that early school leavers are at a greater risk of poverty. Consequently, the EU set the target of reducing the rate of ESL to less than 10.0 per cent across all its Member States by 2020.

As shown in Figure 1, Malta has come a long way in reducing the rate of early school leavers, partially by opening up pathways into further and higher education for students leaving compulsory education. Nonetheless, at 20.9 per cent, Malta's rate of ESL in 2013 was still the second highest in the EU and well above the EU average of 11.9 per cent. This implies that Malta requires greater efforts in order to reach the target of reducing the ESL rate to 10.0 per cent by 2020. In an attempt to reach this target, the Maltese Government has set a strategic plan for the prevention of early school leavers which seeks to intensify efforts and propose measures to combat early school dropouts.

Within this context, this note aims to quantify the impact on the Maltese economy if the targeted ESL rate were to be reached by



Figure1: Early School Leavers Rate in Malta and EU28

2020. This estimate is based on the QUEST III model of the European Commission - a Dynamic Stochastic General Equilibrium (DSGE) model with the purpose of evaluating the effects of structural reforms and assessing their macroeconomic impact in the mediumand the long-term.¹

1. Modelling the Reduction of Early School Leavers in QUEST

The QUEST model distinguishes between low, medium and highly-skilled workers. Using this terminology, early school leavers are classified as low-skilled workers, while people who further their studies after their Secondary education (but don't have a degree in engineering or natural sciences), are classified as medium-skilled workers. Thus, we model the reduction in early school leavers as a shift of a section of the population from the low-skilled category to the mediumskilled category. It is assumed that Malta will reach the 10.0 per cent ESL target by 2020, reflecting a reduction of 1.5 percentage points per annum.² This means that over the entire period, approximately 4,100 persons categorized as low-skilled workers will shift to a category of workers who are considered to be medium-skilled.

Our estimates show that the reduction of early school leavers to 10.0 per cent would be expected to result in an overall increase in total employment of 0.65 per cent (or 1,159 workers) by 2020. This expected increase in employment would reflect a higher employment rate for medium-skilled persons relative to that of lower-skilled persons. This is in line with observations of labour market outcomes in Malta, as persons with a higher level of education attainment are more likely to be active in the labour market. During the same period, GDP would be expected to increase by 0.62 per cent, reflecting not only an increase in employment but also workers' increased productivity (or equivalently a shift in employment towards higher value added activities). This is due to the fact that workers with better skills are likely to be more productive and fetch higher wages in the labour market compared to low skilled workers.

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	2014	2016	2018	2020	2022	2030	
Employment (% change)	0.12	0.31	0.51	0.65	0.69	0.77	
-low	-0.27	-0.87	-1.47	-1.97	-2.09	-1.95	
-medium	0.55	1.64	2.73	3.60	3.81	3.84	
Employment (absolute change)	207	554	898	1159	1223	1369	
-low	-238	-765	-1,298	-1,738	-1,843	-1,723	
-medium	445	1,320	2,198	2,901	3,069	3,093	
GDP	0.10	0.29	0.48	0.62	0.67	0.75	
Productivity	0.000	0.001	0.003	0.005	0.009	0.020	

Table 1: Estimated effects of a transfer of 1.4 per cent of low-skilled workers to themedium-skilled segment by 2020

*Note: all figures above show percentage deviations from baseline scenario (2013)

2. Conclusion

The relatively high rate of ESL in Malta calls for the implementation of reform packages aimed at preventing early school dropouts. In this regard, a national strategic plan for the prevention of early school leavers is already in place and Malta is expected to continue reaping the benefits of old and new measures aimed at decreasing early school dropouts. Within this context, this note illustrates the economic effects of reaching the agreed 10.0 per cent ESL target by 2020.

On the basis of the QUEST III model of the European Commission, we estimate that reaching the desired target would be expected to result in sizable long-run gains in output and employment.³ Indeed, reducing the early school leavers' rate to 10.0 per cent by 2020 is expected to increase the economy's output by around 0.6 per cent, reflecting (i) an increase in employment of around 1,150 workers, and (ii) a production shift towards higher value added activities.

Endnotes:

^{*} The views expressed in this research article are those of the authors and do not necessarily reflect those of the Economic Policy Department, Ministry for Finance. The authors are grateful to Kevin Vella, Godwin Mifsud and staff of the Economic Policy Department for helpful comments and suggestions.

¹ A brief summary of the model can be found in Appendix A. Simulations using this model have been carried out by EPD who have been given guidance by the European Commission on the use of the model.

² The workings taking into account changes in the composition of the population as reported by National Statistics Office (NSO).

³ It is pertinent to note that the QUEST III model only provides a stylized representation of the Maltese economy. Thus the results presented in this note should be interpreted with caution and in light of the theoretical assumptions of the QUEST model which can be found in the European Commission's Economic Paper 351: "Structural Reforms in the EU: A simulation-based analysis using the QUEST model with endogenous growth", Roeger, Varga and Veld (2008).

Appendix A: A brief introduction of the QUEST III model

The QUEST model is a dynamic, stochastic general equilibrium (DSGE) model developed by the European Commission. The QUEST model incorporates 5 key players, namely households, firms, a research industry as well as a monetary and fiscal authority.

Households

On the demand side, there exist an infinite number of homogenous households, who are utility maximising forward-looking agents that decide how much to consume and to work. The model distinguishes between two types of households. Liquidity constrained households consume all their disposable income at each period and members of these households offer only low-skilled labour services. On the other hand, nonliquidity constrained households, who offer medium and high-skilled labour services, own all firms in the economy and so share the total profits of the final and intermediate goods firms. They are also the owners of the patents of designs produced by the R&D sector which they license to the intermediate goods producing firms, and are the owners of physical capital which they rent out to the intermediate sector too. Moreover, they have full access to financial markets where they can buy and sell domestic and foreign assets (government bonds).

Firms

On the supply side, we have firms which are profit-maximizing and cost-minimizing agents. The model distinguishes between two types of firms. The intermediate goods sector is composed of monopolistically competitive firms which produce intermediate products from rented capital input using the designs licensed from the household sector, and sell their products to domestic final good producers. On the other hand, in the final goods sector, firms produce differentiated goods which are imperfect substitutes for goods produced abroad.

Research Industry

The R&D sector creates new patents/ideas which are new variety of producer durables that provides an alternative way of producing the final good. The production of new designs takes place in research labs, employing high skilled labour and making use of the existing stock of domestic and foreign ideas.

Government

Government revenue is made up of taxes on consumption, taxes on capital and taxes on labour. On the expenditure side, the model assumes that government consumption, government transfers and government investment are proportional to GDP and unemployment benefits are indexed to wages.

Monetary Authority

The Central bank has a constant inflation target and it adjusts interest rates whenever actual consumer price inflation deviates from the target. In the QUEST model, monetary policy is modelled via a Taylor rule, which allows for some smoothness of the interest rate response to the inflation and output gap.