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Adult learning and the business cycle

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Foreword

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Abstract

This report looks at the impact of the business cycle on participation in adult learning in the EU-27 using aggregate quarterly country level data for the period 2005Q1 – 2019Q4. Data come from the EU Labour Force Survey. Although downturns may give individuals more incentives and more time to update their skills and knowledge, their ability to pay for such investment as well as employers' willingness to train workforce are both likely to fall during recessions. Which of these effects prevails is an empirical open question. In an attempt to investigate this issue, the analysis presented here: i) documents a large cross country variability in the levels of total adult learning (participation rate in total adult learning is greater in Nordic countries compared to the other EU countries); ii) shows that, in the EU as a whole, the share of individuals involved in non-formal adult learning tends to correlate positively with the employment rate (i.e. non-formal adult learning is procyclical); iii) points out that the procyclicality of the relationship between total adult learning and the business cycle is more pronounced in Eastern and Western countries as compared to Nordic and Southern countries.

1 Introduction

The upskilling and reskilling of existing (and new) workers is a fundamental requirement for improvements in productivity and competitiveness (Leitch Review of Skills, 2005; Mason and Bishop, 2015). Most of adult learning/training takes place in relationship to current or future jobs. Business cycles, which affect the probability of finding/changing/keeping a job, are also likely to affect the incidence of adult learning and training. On the one hand, during poor economic conditions the long-term unemployed and people who have lost their job because of the crisis may be eager to acquire additional human capital in order to re-enter the labour market. Such effect is also driven by the fall in the return to job search during recessions. Even the employed may recognise the need to engage in lifelong learning in these circumstances, in an attempt to increase their job security, improve their internal position within firms (OECD, 2004) or increase their chances of changing job. On the other hand, many individuals tend to face tighter financial constraints during downturns and hence cannot afford to pay for learning costs. At the same time, companies may also experience financial restrictions that could delay any investment in equipment and new technologies, leading to cutbacks in training (Leuven, 2005). This situation is exacerbated if recessions are accompanied by a reduction in public funding directly for adult education and training, and indirectly for R&D investment (Felgueroso, 2015). Finally, it is also possible that the uncertainty and pessimism about the future of the economy lead employers to freeze or significantly reduce recruitment. This means that firms are less likely to be engaged in providing initial training to new employees (Felstead and Green, 1994).

Which of these effects prevails is an empirical open-question.

2 Empirical analysis

The empirical analysis is based on aggregate quarterly data from the EU Labour Force Survey (LFS). It covers the period from the first quarter of 2005 to the last quarter of 2019, and looks at the EU-27 countries. Participation in adult learning is measured by the proportion of individuals aged between 25 and 64 who reported having received education or training within the last 4 weeks (total learning). However, adult learning can be divided into two main categories: formal learning and non-formal learning. While the proportion of students or apprentices in regular education are used to identify the former category, the latter one includes the proportion of people who declared having attended any courses, seminars or conferences or received private lessons or instructions outside the regular education system. The employment rate among the economically active population aged 25 to 64 is used a proxy for the state of the economy. Please note also that all the above indicators are not seasonally adjusted. The use of employment rate as a measure attempting to capture the effect that the business cycle has on the incidence of adult learning can be justified on the following two grounds. First, participation in non-formal learning is much higher than in formal learning¹ and, as noted by Boateng (2009), most non-formal learning activities are job-related. Second, by using the employment rate one can probably get a better understanding of the relationship between employer-provided training and the business cycle compared to if one were using an alternative proxy for the state of the economy such as, for instance, the unemployment rate.

Linear probability models are performed where each learning participation rate indicator (i.e. total learning, formal learning and non-formal learning) is separately regressed against the employment rate. Data across countries are pooled and the model also includes an intercept and *country, year, and quarter fixed effects*². Figure 1 plots the point estimates and 95% confidence intervals of the coefficients on employment rate across the three different regressions. Considering first the results on participation in total learning, one can note that it is procyclical³. More precisely, the estimates indicate that, on average in the EU as a whole, one percentage point increase in employment rate corresponds to an increase in participation rate in total adult learning by about 0.063 percentage points⁴. However, when considering separately the two different types of learning, the aforementioned result appears to be entirely driven by the effect of the business cycle on non-formal learning rather than on formal learning. While the employment rate point estimate for non-formal learning is slightly above the one for total learning and highly statistically significant, the corresponding figure for formal learning is very close to zero and not statistically significant at the 5% level⁵.

¹ This is also confirmed in the dataset used in this note as in the EU-27 overall participation rate in non-formal learning between 2005Q1 and 2019Q4 is, on average, around 6.5%, whereas the corresponding figure for formal learning is about 2.9%.

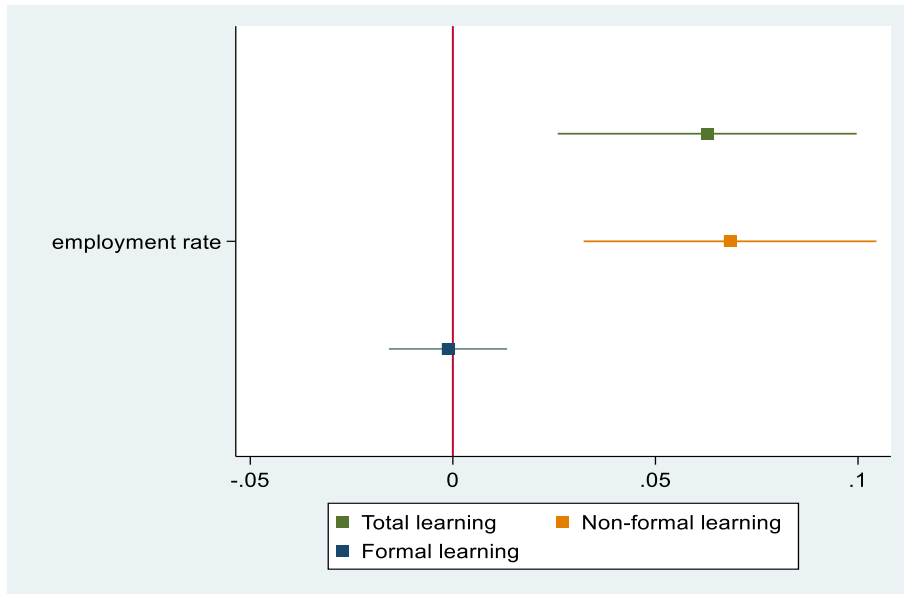
² F-test results confirm the appropriateness of including *country, year, and quarter fixed effects*.

³ Similar regressions where unemployment rate (among individuals aged 20 to 64 years) is used as a proxy for the business cycle have been estimated. The results confirm the *procyclicality* of total and non-formal learning, though the relevant coefficient turns out not to be statistically significant at conventional levels (p-value 1.4%) for total learning but is highly statistically significant for non-formal learning (the value of corresponding coefficient is -0.052).

⁴ Three sensitivity checks have been carried out to test the robustness of this finding. First, using information provided by Eurostat on the break in the series, the pooled cross-country model has been estimated keeping only the longest available continuous participation rate series for each country. The employment rate point estimate (0.076) is very similar to the previous result and is highly statistically significant. Second, a pooled cross-country model where both the employment rate and participation rate in total learning are expressed in terms of rate of change (rather than levels) has been run. The coefficient of the rate of change in employment rate is positive and statistically significant. Third, a log-log model has been considered and again the results indicate a positive and statistically significant relationship between participation rate in total learning and the employment rate.

⁵ As clearly depicted in Figure 1, the relevant 95% confidence interval comprises zero.

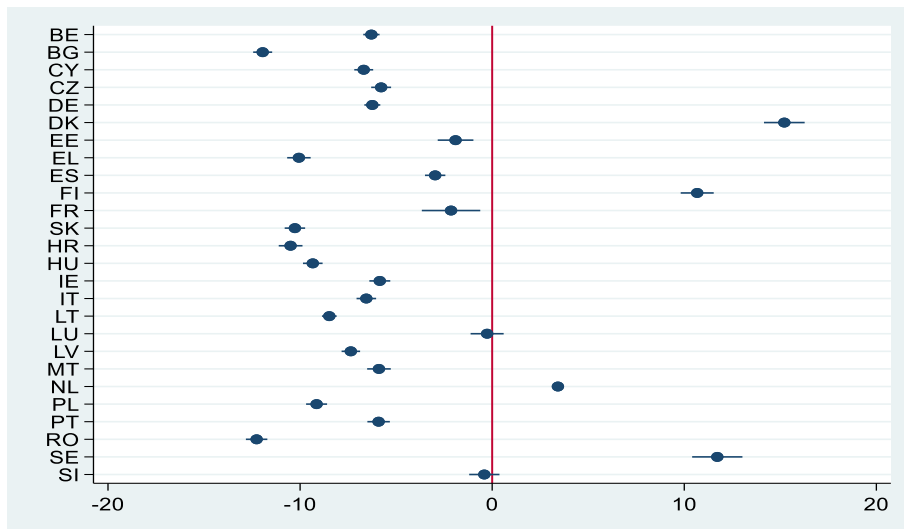
Figure 1. Business cycle effects on adult learning



Source: Authors' estimates using LFS 2005-2019 data: EU-27.

Concentrating on participation in total learning and running the same regression specification used for Figure 1, Figure 2⁶ shows that, in line with expectations, participation in total learning is greater in Nordic countries (i.e. DK, SE and FI)⁷ compared to the other EU countries. This finding is likely to reflect cross-country differences in learning cultures, learning opportunities at work, public policies, institutions, and other structures that are important for adult education and training (Desjardins and Rubenson, 2013).

Figure 2. Adult learning in EU-27 Member States



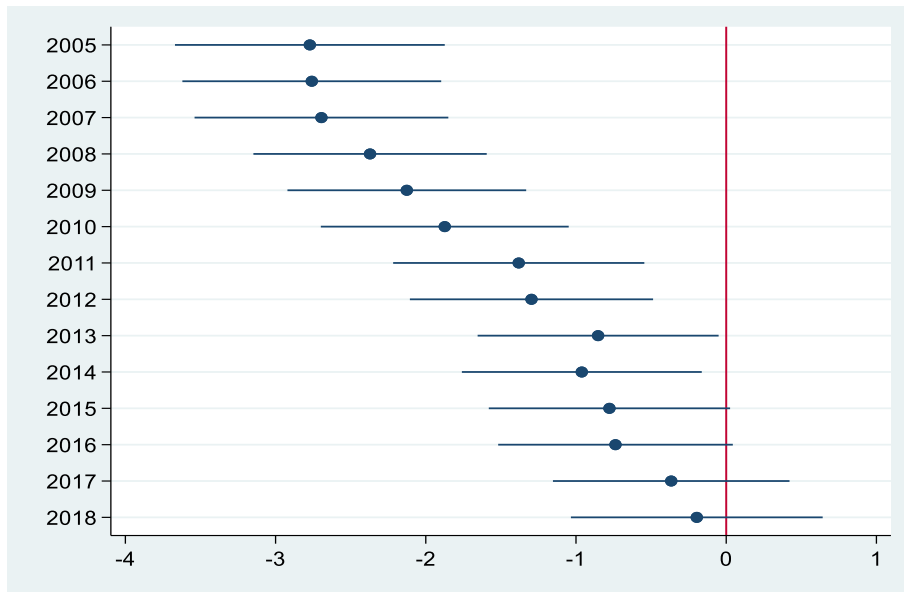
Source: Authors' estimates using LFS 2005-2019 data: EU-27.

⁶ Figure 2 plots the point estimates and 95% confidence intervals of the coefficients on EU country dummies (AT is the reference country) from the same regression model as that in Figure 1 where the dependent variable is participation rate in total learning. Those countries whose point estimates are greater than zero (and statistically significant) are found to have a greater participation rate in total learning compared to AT. The opposite interpretation holds for those countries whose point estimates are lower than zero and are statistically significant.

⁷ Although the point estimate related to NL is greater than zero, its size is significantly lower compared to DK, SE and FI.

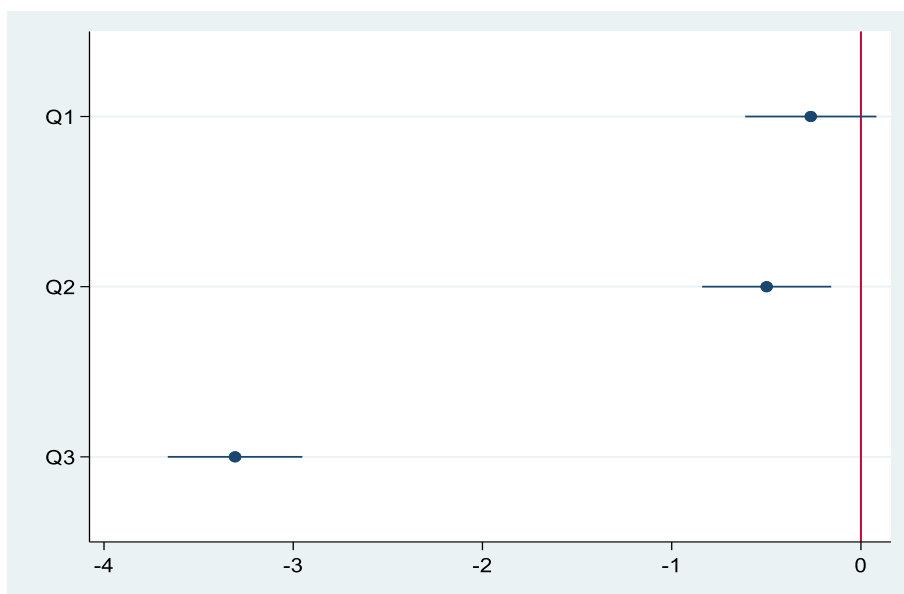
Furthermore, Figure 3⁸ suggests that, overall, there has been a rising trend in participation in total learning over the last 15 years⁹. Finally, as illustrated in Figure 4¹⁰, there appear to be differences in participation across quarters. Engagement in total learning is found to be especially low in the third quarter, probably due to the summer season.

Figure 3. Adult learning across years



Source: Authors' estimates using LFS 2005-2019 data: EU-27.

Figure 4. Adult learning across quarters

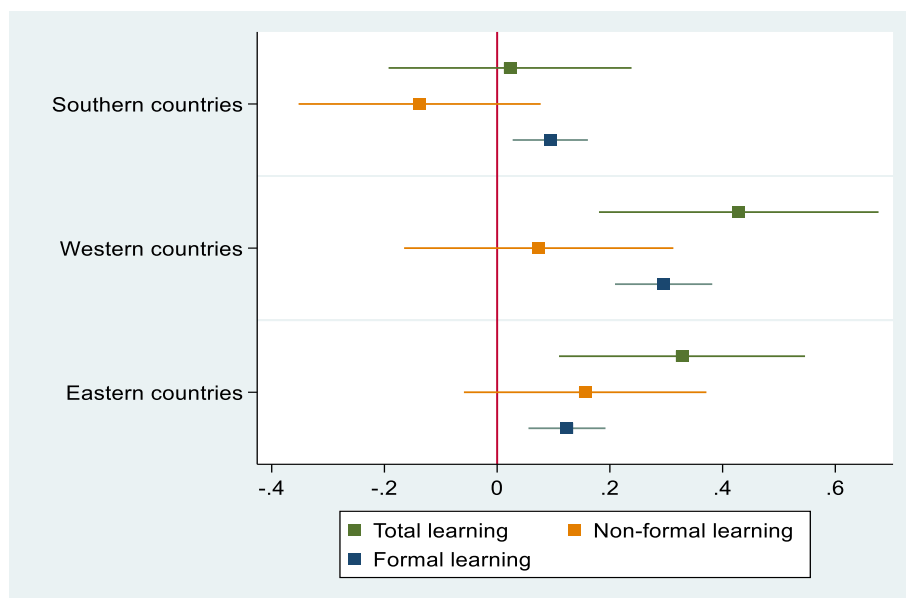


Source: Authors' estimates using LFS 2005-2019 data: EU-27.

⁸ Figure 3 plots the point estimates and 95% confidence intervals of the coefficients on year dummies (2019 is the reference year) from the same regression model as that in Figure 1 where the dependent variable is participation rate in total learning.
⁹ However, one should note that the coefficients of the year dummies for 2015 and 2016 are statistically significant at the 10% level while those of the year dummies for 2017 and 2018 are not statistically significant at conventional levels.
¹⁰ Figure 4 plots the point estimates and 95% confidence intervals of the coefficients on quarter dummies (Q4 is the reference quarter) from the same regression model as that in Figure 1 where the dependent variable is participation rate in total learning.

Next, it is interesting to examine whether changes in participation in adult learning in response to the business cycle are different across different groups of countries. EU countries are therefore divided into 4 groups: Nordic countries (i.e. DK, SE, FI), Southern countries (IT, PT, ES, EL, CY, MT), Western countries (FR, AT, BE, LU, DE, IE, NL) and Eastern countries (PL, BG, RO, HR, LT, EE, HU, SK, CZ, LV, SI). New linear probability models are estimated with the same specifications as those used for Figure 1, except that the country-specific dummies have now been replaced by country-group dummies and interactions between these variables and the employment rate have been added. Figure 5 plots the point estimates and 95% confidence intervals of the coefficients on such interactions (the interaction between Nordic countries and the employment rate is the reference category). Three main results emerge from Figure 5. First, participation in total learning is less sensitive to changes in the business cycle in the Northern and Southern countries relative to Western and Eastern countries. Second, in Nordic countries – compared to the other three groups – the employment rate is less positively correlated with participation in formal learning. Third, there seem to be no statistically significant difference across the four groups of countries as regards the relationship between the employment rate and participation in non-formal learning (the coefficient on the interaction term is positive for Eastern and Western countries, but it is not statistically significant at the 5% level in both cases). These results, combined with the finding that the relationship between total adult learning and the cycle is mainly driven by non-formal learning, leads to the conclusion that formal learning plays an important counter-cyclical role in Northern countries. Although the estimates do not shed any light on the reason for such outcome, it is quite possible that in Nordic countries generous welfare state entitlements – mainly focused on formal learning- prevent engagement in adult learning to drop significantly during downturns, with the consequence that the difference in participation to total learning between downturns and upturns is reduced.

Figure 5. Business cycle effects on adult learning by group of countries



Source: Authors' estimates using LFS 2005-2019 data: EU-27.

3 Conclusions

The findings of the analysis presented in this report may have important implications for the Covid-19 recession, as it can be expected that the drop in the employment rate will lead to a reduction of adult learning in the EU and especially of non-formal learning. In particular, given that most non-formal adult learning is job-related, two risks emerge: 1) a reduction in employment, per se, would lead to a reduction in the number of individuals involved in non-formal learning; 2) even for those who are/remain employed during the recession, there will be less financial resources that can be used to invest in re-skilling and up-skilling, with the consequence that many companies will be offering significantly less training opportunities to their employees. These negative effects could be in part compensated by the fact that workers might have some additional time to invest in their training and that unemployed individuals might have higher incentives to improve their skills as to increase their (re)employment chances. Public policies, including targeted financial incentives given to firms and individuals, might be among the key factors shaping the overall effect of the Covid-19 recession on training. Such policies may include the implementation of cost-effective incentives for employers to maintain and improve training levels during downturns (e.g. public funds to cover part of the training costs). *The public sector may also decide to set up its own training programmes to complement or compensate for the reduction of similar opportunities offered by firms. Such programs could be especially useful for those who are unemployed or out of the labour force. When designing such policies, it should be kept in mind that the recovery from the Covid-19 crisis – and the green and digital transition (which requires structural changes)-will need to be supported by a well-trained and skilled workforce.*

The results of the empirical analysis also show that the business cycle does not affect participation in total learning equally across EU countries. The decline in employment rate following the Covid-19 crisis is likely to lead to an especially severe decrease in participation in total learning in Western and Eastern countries as compared to Nordic and Southern countries. Governments of the former groups of countries may consider the adoption of especially stringent measures to prevent that the recession would be accompanied by a significant decline in participation in total adult learning.

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