Eliza-Mihaela Spătărelu
Adventus University
eliza.spatarelu@adventus.ro

BEGINNER TEACHERS IN PRIMARY EDUCATION: COMPARISONS AMONG EUROPEAN COUNTRIES

Keywords

Beginner teacher, primary education, private schools, unemployment rate, student's expenditure, education labour market, retired teachers

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Abstract

Beginner teachers represent a small percentage of the total number of primary school teachers in Europe. The research tries to identify the factors that are related to this fact by comparing different age categories in different states.

Multiple regression was used to highlight the predictive power of certain educational or socio-economic variables. The percentage of young teachers and the percentage of older teachers were compared to estimate the teaching positions that will be available in the near future.

The comparison between the states of Eastern Europe and the other states of the European Union led to the identification of some aspects that helped to the global understanding of the studied phenomena.

Careful analysis of unexpected information obtained during research has helped to compile a list of research directions for future studies.

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1. Review of literature

Concern for studying the challenges that beginning teachers have to face is very important for maintaining an efficient and balanced education system.

Research in this field follows several directions of study focusing on the Tenure Exam (Dragomirescu, 2007; Brătianu, & Popescu, 2009; Sas, 2010; Wood, & Stanulis, 2011; Andone, 2014; Spătărelu, 2015b; Nicu, 2016; Szekely, 2018, Spătărelu, 2019a; Kiru, 2020), on the challenges of the first year of teaching (Moir, Barlin, Gless, & Miles, 2009; Bozu, 2010; Richter, Kunter, Lüdtke, Klusmann, Anders, & Baumert, 2013; Avalos, 2016; Spătărelu 2019a), on the distance between theory and practice (Windschitl, Thompson, & Braaten, 2011; Ibarrola-García, 2014; Spătărelu, 2019b), on dropout in the first year of teaching (Darling-Hammond, 2010; Wood, & Stanulis, 2011; Richter et al., 2013; Krasnoff, 2014; Spătărelu, 2019c).

Another important topic was mentoring, many researchers have recently chosen to focus on this area (Bressman, Winter, & Efron, 2018; Nolan, & Mola, 2018; Bjuland, & Helgevold, 2018; Becher, & Orland-Barak, 2018; Hudson, & Hudson, 2018).

Studies in the area of the education labour market are limited. Lately, they focus on immigration, wages and education (Llull, 2018), on educational decisions (Heijke, & Borghans; 2018; Mahomed, 2019), and on links between age, gender, inequalities and education (Spătărelu, 2015a; Sahoo, & Klasen, 2018; Gimpelson, & Kapeliushnikov, 2018; Iannelli, & Duta, 2018).

The field of jobs in education deserves more attention. Beginner teachers need to be informed about their employment prospects before completing their studies. They need to be advised, guided and supported in order to make the best decisions.

2. Methodology

Objectives

The following objectives were formulated for this research:

- Comparing the percentages of beginner teachers in primary education in different countries in Europe;
- Identification of the main socio-economic factors that interact with the percentage of beginner teachers;
- Making predictions with the help of multiple regression, for the subsequent evolution of the percentages of young teachers in primary education;
- Comparison of the percentages of very young teachers with the percentages of teachers near retirement, for estimating the future vacancies in primary education, in Europe.

Variables

The variables chosen and examined in this research were defined as follows:

- The percentage of teachers under 25;
- The percentage of teachers between 60 and 64;
- The percentage of active pensioners;
- Students percentage enrolled in private institutions;
- The number of students per teacher in primary education;
- The unemployment rate among young people under 25;
- Percentage of GDP for pre-secondary education;
- Expenditure per student in primary education.

The first four will be considered educational factors, and the last four will be considered socio-economic factors.

Hypotheses

H1 - There are statistically significant differences in educational and socio-economic factors.

H2 - There are correlations between educational and socio-economic factors.

H3 - It is possible to formulate a prediction for the percentage of beginning teachers according to other educational or socio-economic variables.

Data collection and analyses

For this research, the data series provided by Eurostat at https://ec.europa.eu/eurostat/web/education-and-training/data/database were used. Information provided for 2016-2018 was analysed. The numerical data analysis was performed with the PSPP Statistics Program.

Population

Data were collected from all member countries and all partner countries of the European Union. For the current analysis, the series of teachers under the age of 25 and over 60 was selected. Figure 1 shows the total number of teachers for primary education in the European Union countries. In decreasing order, most teachers are in: United Kingdom, Turkey, Italy, France, Germany, Spain and Poland.

As can be seen in Figure 2, the countries with the highest number of students enrolled in primary education, in descending order are: Turkey, United Kingdom, France, Spain, Germany, Italy and Poland. All have between two and five million students.

Because the hierarchy of countries according to the number of students is not identical to the hierarchy of countries according to

the number of teachers, the ratio of students per teacher was calculated (Figure 3). In this case, countries with fewer students per teacher are considered advantageous. Switzerland, Norway, Luxembourg, Greece have very few pupils per teacher. At the other extreme are Turkey, Romania, France, and the Czech Republic.

3. Results and Discussions

Differences between Eastern European countries and other European countries

The first concern of the study was to determine if there are differences statistically significant between the group of former Eastern bloc and the group of other EU countries. When applying the Student t-test, significant differences were found for the following variables: the percentage of students enrolled in private schools, the number of students per teacher and the expenses for students in primary education.

The percentage of students in the private sector is significantly lower ($t = -2.31$; $p = 0.11$) in Eastern European countries ($M = 12.88$; $SD = 14.43$) than in other European countries ($M = 3.67$; $SD = 4.42$). This result is an expected one, in Eastern European countries private education does not have a long tradition. Apparently, this information has no visible connection with beginning teachers. The next section will show that there is still connection between the percentage of novice teachers and the percentage of students in private education. This is why this result has been reported.

The number of students per teacher is significantly bigger ($t = 2.45$; $p = 0.20$) in Eastern European countries ($M = 14.29$; $SD = 2.86$) than in other European countries ($M = 12.01$; $SD = 2.48$). The quality of education is considered to be higher as the number of students per teacher is lower. Thus, the teacher will have enough time and energy for each student. As can be seen, countries with a developed private education system also benefit from a smaller

number of students per teacher. All these results consider only primary education.

State expenditures per pupil in primary education are significantly lower ($t = -4.72$; $p < 0.01$) in Eastern European countries ($M = 2490.68$, $SD = 1093.23$) than in other European countries ($M = 8365.28$, $SD = 4013.76$).

Correlations between educational and socio-economic factors

Regarding the identification of correlations, the most important variable analysed was the percentage of teachers under 25 in primary education. The strongest correlation identified was between beginning teachers and the percentage of students enrolled in private education (Figure 4). There is a significant positive relationship between the percentage of teachers under 25 and the percentage of students in private education, in primary education ($r = 0.60$, $DF = 30$, $p < 0.001$).

It seems that European countries where there is a strong tradition of primary education there is also a higher percentage of young people among the general population of primary school teachers. This phenomenon can have several explanations:

- It is possible that a significant part of young teachers may be attracted to jobs in private primary education;
- Wages may be more attractive in countries where the private education system is well represented;
- There are jobs available because of the massive retirement of teaching staff.

Future research will have to determine which of them are the most important factors that can explain the phenomenon mentioned above.

A weak association was reported between the percentage of teachers under 25 and the unemployment rate. There is a negative relationship between the two variables ($r = -0.35$, $DF = 25$, $p = 0.07$). There is a slight tendency for the percentage of newcomer teachers

to be lower as the unemployment rate among young people up to 25 years is higher. Because the relationship is weak, it will not be commented on here. Subsequent research will follow this trend to see if it will increase or decrease. Another possibility would be to start a longitudinal research to find out how each country's evolution is influenced by specific internal factors.

There were no correlations between the percentages of beginning teachers and the percentages of retired or near-retirement teachers ($p>0,05$). This could mean that the number of teachers entering the system is influenced by other factors, not just the number of teachers leaving the system.

It seems that neither the size of the student classes nor the amount of money that the state invests in education has anything to do with the decision of young people to become teachers ($p>0,05$).

The number of students per teacher in primary education is strongly negatively correlated ($r = -0.54$, $DF = 28$, $p = 0.02$) with the expenditure per student (Figure 5). Small classes bring big expenses because they require a larger number of teachers.

There is a negative relationship between the number of students per teacher in primary education and the percentage of GDP allocated to primary education ($r = -0.37$, $DF = 28$, $p = 0.042$). This is to be expected because funding per pupil and the percentage of GDP allocated to primary education are slightly positively correlated ($r = 0.36$, $DF = 27$, $p = 0.5$). Given that the two variables are financially related, this association makes sense.

The percentage of teachers who are close to retirement is positively correlated ($r = 0.54$, $DF = 30$, $p = 0.01$) with the percentage of active retired teachers (Figure 6). European countries with high percentages of teachers close to retirement tend to have high percentages of retired teachers working in primary education. Probably, the number of teachers who want to

work in education is small, and the system needs to keep teachers after retirement.

The percentage of GDP for primary education is positive correlated with both near-retirement teachers ($r = 0.37$, $DF = 28$, $p = 0.042$) and with active retired teachers ($r = 0.50$, $DF = 28$, $p = 0.005$). The last correlation being more statistically significant is shown in Figure 7. It is interesting to know why the percentage of older teachers increases with the increase in the percentage of GDP given to primary education. Probably, as it was shown earlier, in rich states the youth is not attracted to the area of education and the retired teachers must remain active.

Making predictions by linear regression

Multiple regression was applied and it was observed that the unemployment rate and the percentage of students in private education together explain 56% of the total variation of the ratio of teachers under 25 in primary education ($F_{2.26} = 15.52$, $p < 0.001$). High percentages of teachers under the age of 25 were associated with a low unemployment rate and a high percentage of students in private education.

It is possible to predict the percentage of teachers under 25 years of primary education knowing the unemployment rate and the percentage of students from primary private education.

The constant is 3.19. The B value is -0.39 for the unemployment rate and 0.67 for the percentage of students in private education (Table 1). Based on the equation $Y = a + B_1x_1 + B_2x_2$, where x_1, x_2 are the values of the independent variables (unemployment rate and percentage of students in private education), the prediction can be made for the dependent variable (Y = percentage of teachers under 25 years of primary education).

Estimation of vacancies in primary education in the near future

The best way to estimate vacancies in education in the near future is to analyse the percentages of teachers close to retirement and the percentages of active retirees. Figure 8 shows this situation in percentages, and Figure 9 shows this situation in numbers.

There are five countries that have more than 10% teachers over 60: Germany, Italy, Sweden, Iceland and Norway. More than 5,000 teachers in the same category have the following countries: Germany, Spain, Italy, the Netherlands, Sweden, England. The differences between the two data sets are given by the ratio to the total number of the first series. Spain, the Netherlands and England do not appear in the first series because the total number of teachers is very high and the percentage of teachers over 60 decreases.

It is observed that in Romania (Figure 10) the most strongly represented class is that of teachers between 35 and 50 years old. In the next 2-3 years, about 4,000 teachers will retire, and in another 5 years about 6,000 teachers will be in the same situation. Given that entries into the system have been reduced in recent years (there are about 5,000 teachers in the system under the age of 30), there will be enough jobs in primary education in the near future. This information is extremely important for higher education which has to adapt its offer to the requirements of the labour market.

4. Conclusions

The issue of beginning teachers is very important for the future of primary education in Europe. Many European countries have lower and lower percentages of young teachers and retired teachers who are kept in work due to the shortage of teachers.

Countries with a tradition of private education maintain an acceptable percentage of young teachers. Most likely, the general

context in these countries is favourable both for the development of private education and for attracting young teachers to the education system. The identification and analysis of these factors may be the subject of future research.

There seems to be no direct connection between the percentage of young teachers and the percentage of teachers over 60 in the system, but this issue should be re-investigated in a longitudinal survey of groups of countries where internal conditions are similar. Major differences between the educational and social policies practiced in European countries can alter the information in this area.

Socio-economic variables seem to correlate much better with the percentages of older teachers than with the percentages of young teachers. The advantageous conditions keep them active and encourage them to continue their work. This is an unexpected result of research that deserves further investigation in future research.

There is a need for educational and social policies that encourage young people to choose the teaching profession. Focusing on such analyses and studies can identify important factors that can later be included in the new work strategies.

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Tables, Figures and Appendices

Figure 1. Number of teacher in primary education

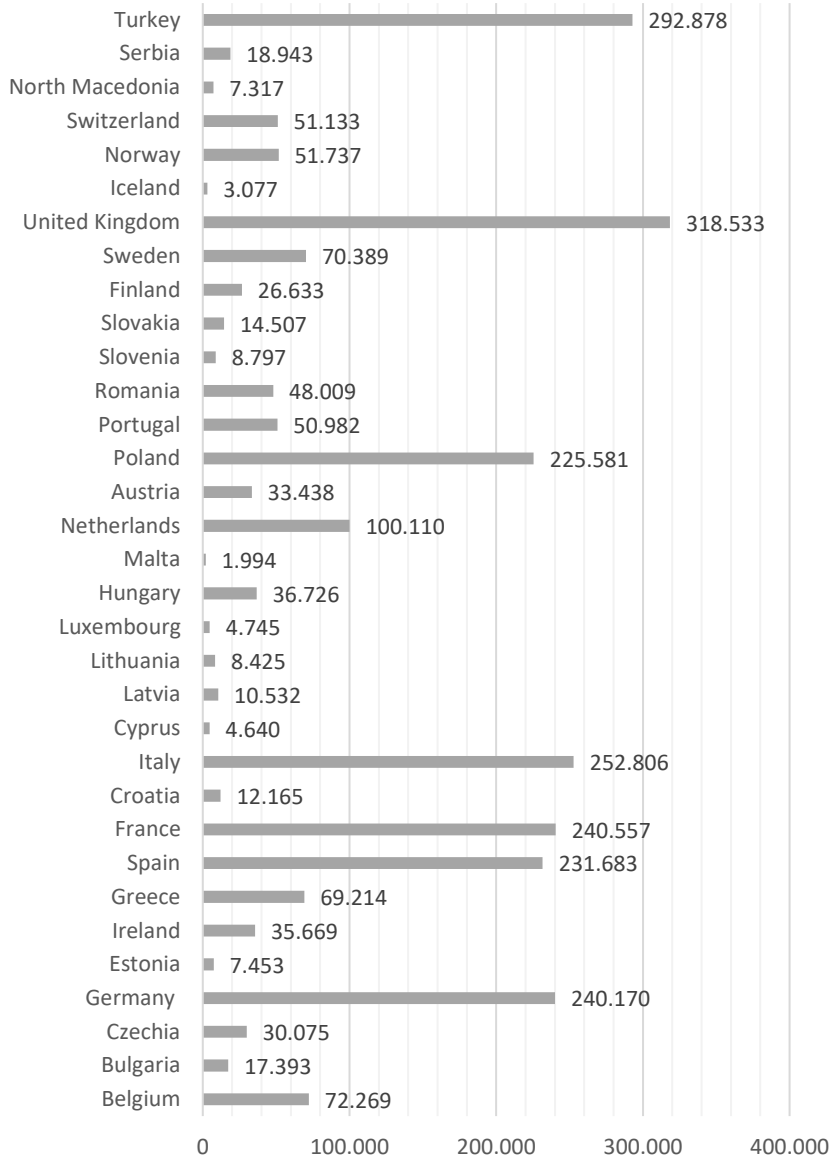

Figure 2. Number of students in primary education

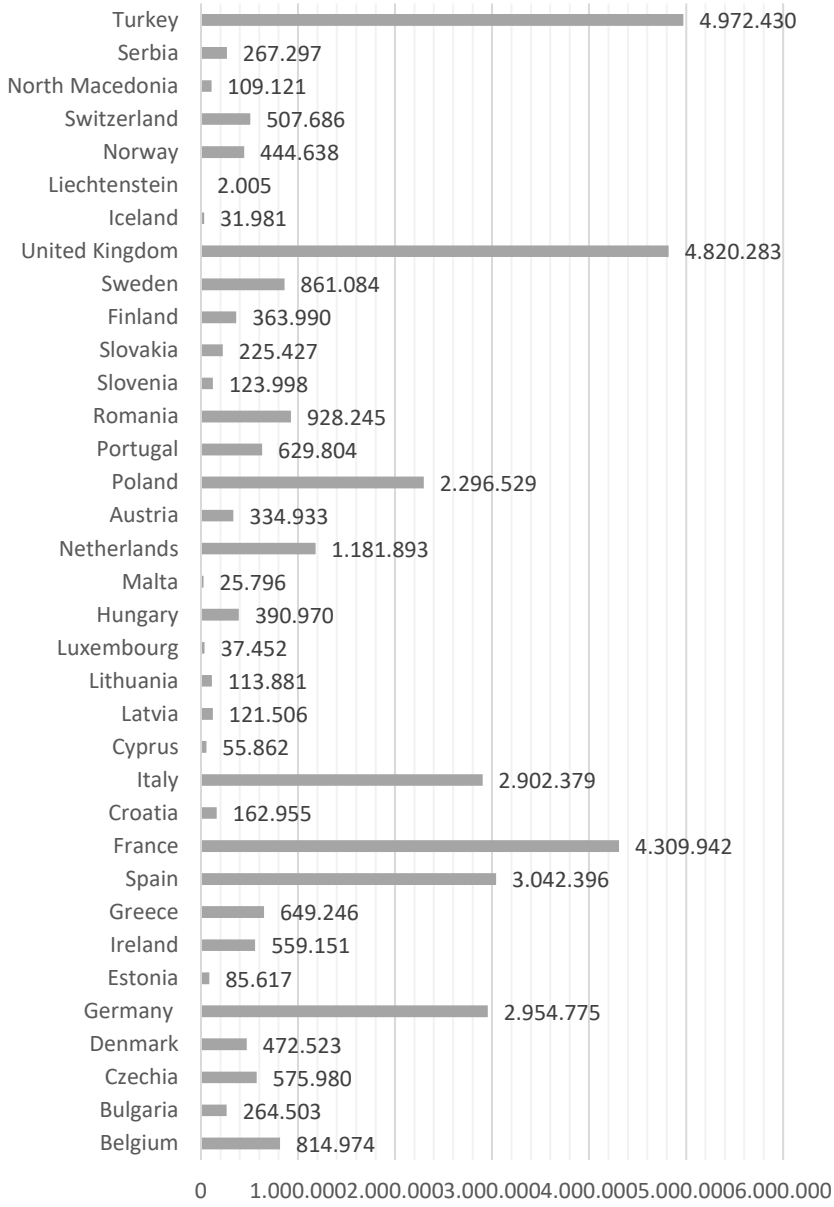

Figure 3. Students per teacher

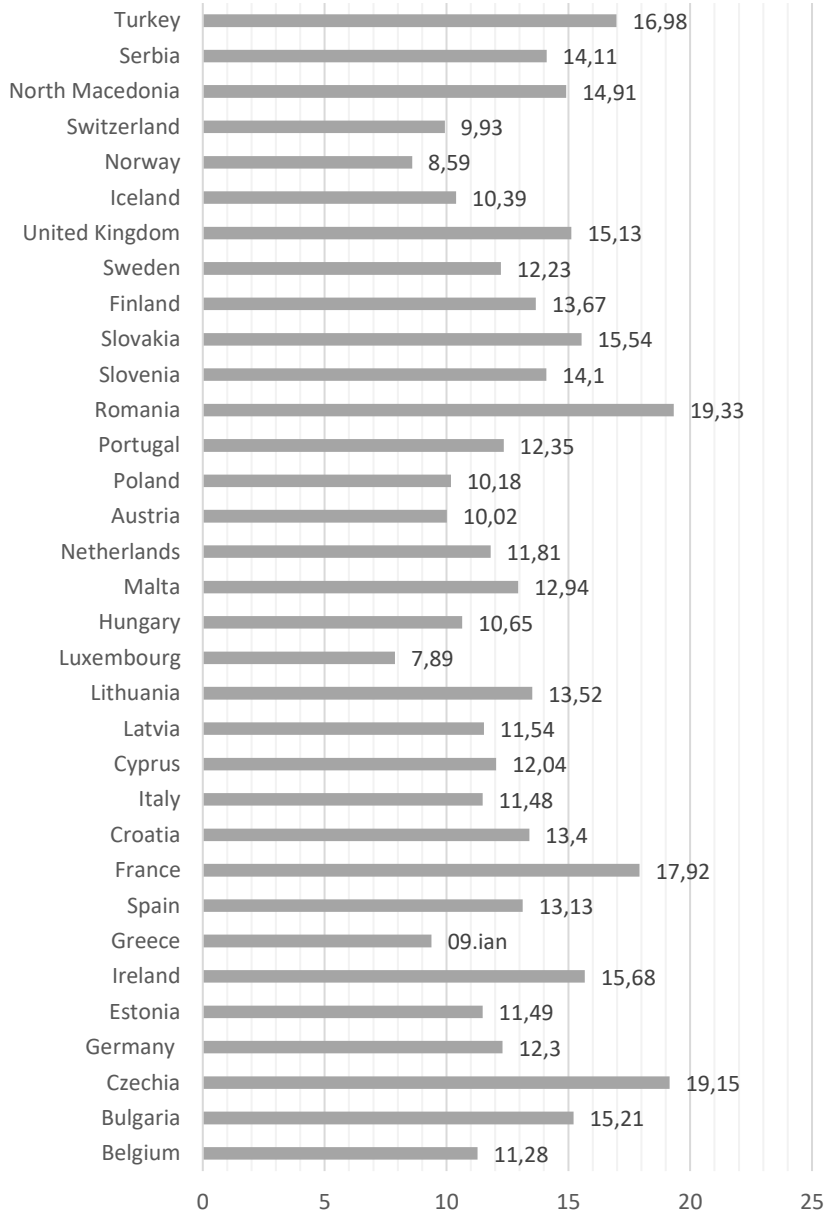

Figure 4. Correlation between the percentage of students in private education (X axis) and the percentage of teachers under 25 (Y axis)

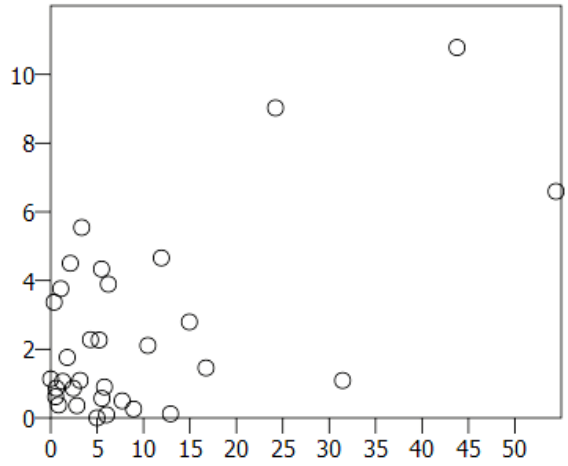

Figure 5. The correlation between the expenditure per student (X axis) and the number of students per teacher in primary education (Y axis)

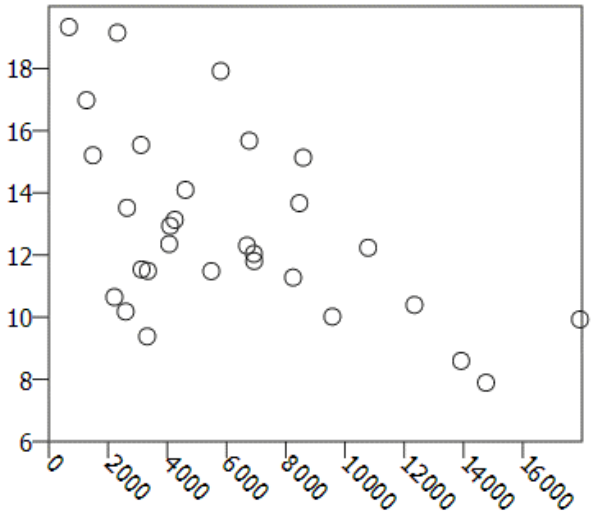

Figure 6. Correlation between teachers close to retirement (x-axis) and active retired teachers (Y-axis)

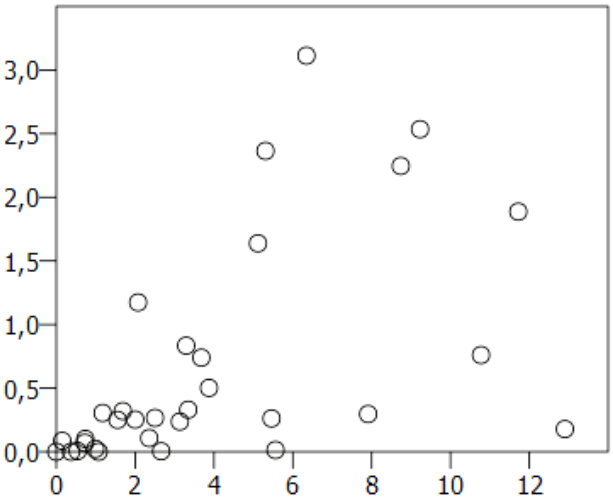

Figure 7. Correlation between the percentage of GDP for primary education (X axis) and active retired teachers (Y axis)

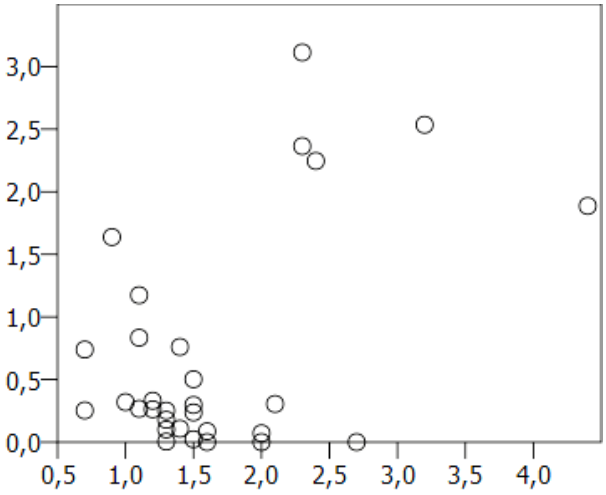

Figure 8. Percentage of teachers over 60 years

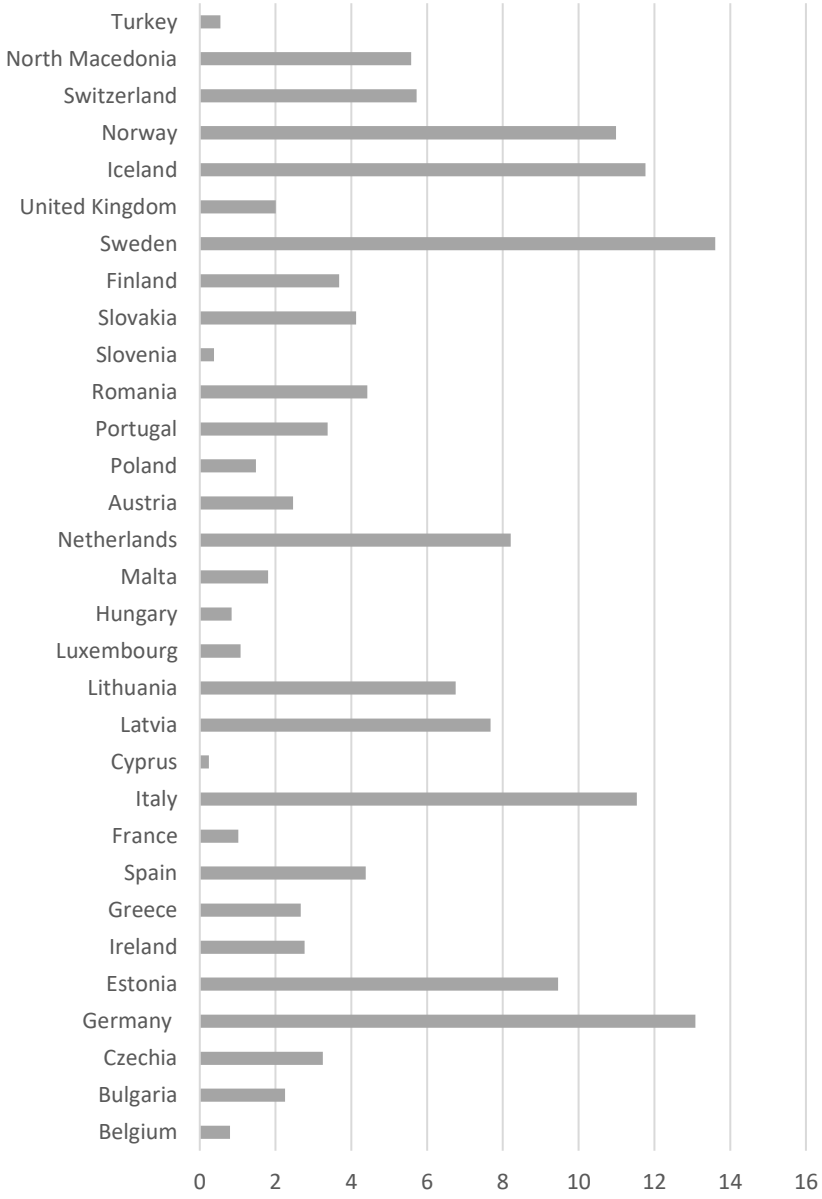

Figure 9. The number of teacher over 60years old

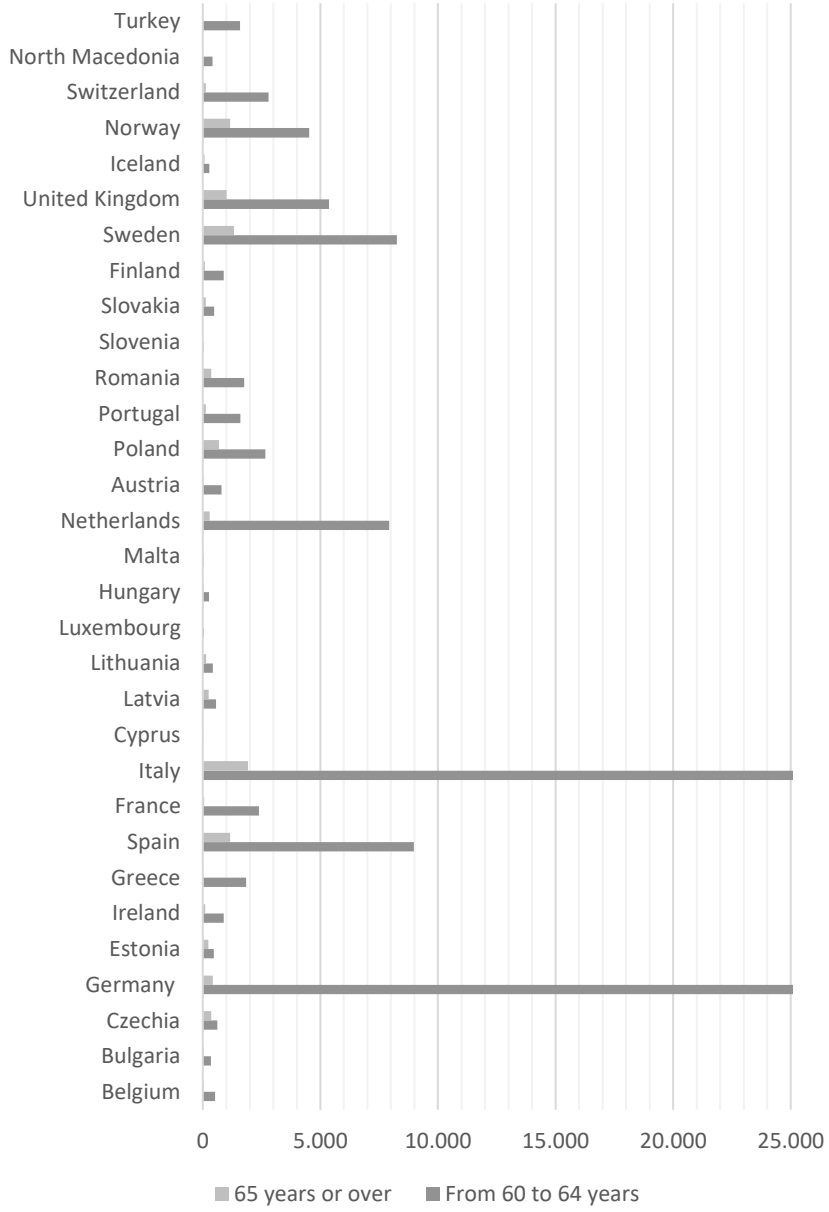

Figure 10. Primary school teachers in Romania

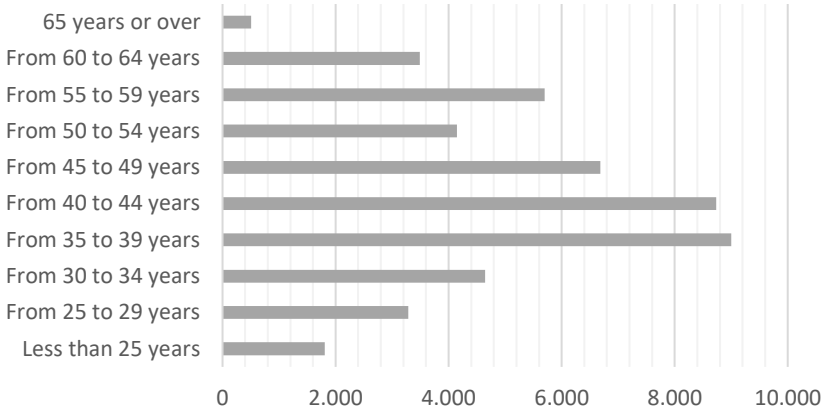

Table 1. Multiple regression (predictors for percentage of teachers under 25 in primary education)

Variable	Multiple R	B	Standard error b	Beta	t	Significance of t
Unemployment rate	-0,39	-0,11	0,04	-0.39	-2,90	0,008
Percentage of students in private education	0,67	O,14	0,03	0,67	4,95	0,001