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EXPENDITURE ON EDUCATION IN THE EUROPEAN UNION MEMBER STATES IN COMPARISON WITH THE USA, NORWAY AND JAPAN

Abstract

In the era of Knowledge-based economy, education plays the most crucial role. In order to meet competitors' requirements, one should invest in the quality of human resources as well-educated society provides a possibility for sustainable and balanced economic growth. To satisfy requirements imposed by global competition, the European Union must attach considerable significance to education of its citizens.

In the EU Member States, educational level affects indexes showing the share in the market and – undoubtedly – the quality of human capital possessed by particular economies. Thus, knowledge-based economy requires increase in expenditure on education, which brings benefits not only to the entire economy but also to particular citizens as nowadays, education determines social and material status.

The article aims at presenting not only expenditure on education incurred by particular EU Member States and the share of this expenditure in GDP in comparison with the USA, Norway and Japan, but also average expenditure per pupil or student in particular EU Member States depending on his/her educational level.

Key words: expenditure on education, education, educational levels, the European Union

Introduction

EU Member States took on obligations stemming from, among others, the Lisbon Strategy and Charter of Barcelona. Certain objectives of education development have been formulated in The Lisbon Strategy, for instance providing the compatibility of educational systems in Europe, recognition of qualifications and diplomas in EU Member States. These objectives are supposed to be reached until 2010 (Bernat, Korpysa, Włodarczyk – Śpiewak, Zwiech, 2005). On the other hand, “Barcelona” programme obliges countries to make efforts to improve the quality and effectiveness of educational systems in the EU as well as consistently increase educational level of society through making secondary and higher education common (Education and training, 2002). Only effective and available (to everyone) educational and training systems will provide Europe with proper quality of education, which – in turn – will enhance economic growth and improve the state of labor market as well as social coherence. Reforms of educational and training systems implemented in Member States are supposed to increase cost effectiveness and optimization (COM, 2006).

Improvement in effectiveness and increase in expenditure on human capital are major priorities recognized by the EU in order to stimulate employment and achieve economic growth. One ought to aspire to improve the effectiveness through increasing the average level of skills gained by society as well as eliminate inequality via improving chances of the most

needy and narrowing the gap between highly qualified and poorly qualified persons. These objectives do not exclude one other. Achieving high quality does not necessarily entail sacrificing equal chances and access to education of particular Europeans.

Total public expenditure on education

Reaching the aforementioned objectives is inseparably connected with increasing high public expenditure on education. This expenditure is considerable and amounts to over 500 000 million Euro annually in the EU and in the USA, which is shown in Table 1.

Table 1. Total public expenditure on education in EU, US, Japan and Norway in 1995, 1999 and 2004 (in euro PPS million)

| Country | 1995 | 1999 | 2004 |
|---------------|-----------|-----------|-----------|
| EU - 27 | | | 532 937.2 |
| EU - 25 | | | 525 241.7 |
| Norway | 6 549.0 | 8 372.0 | 12 151.0 |
| United States | 306 552.0 | 387 985.0 | 508 790.2 |
| Japan | 83 255.0 | 97 786.0 | 112 286.8 |

Comment: empty fields – lack of data

Source: own compilation based on data derived from Eurostat.

<http://epp.eurostat.ec.europa.eu/portal> dated February 22, 2008.

On the other hand, Table 2 shows expenditure on education incurred by particular EU Member States.

Table 2. Total public expenditure on education in EU countries in 1995, 1999 and 2004 (in euro PPS million).

| Country | 1995 | 1999 | 2004 |
|----------------|----------|----------|----------|
| Belgium | | | 16 740.0 |
| Bulgaria | 1 343.0 | 1 472.0 | 2 537.3 |
| Czech Republic | 5 092.0 | 5 066.0 | 7 312.3 |
| Denmark | 7 630.0 | 10 223.0 | 12 279.4 |
| Germany | 68 603.0 | 78 962.0 | 94 774.2 |
| Estonia | 457.0 | 644.0 | 828.6 |
| Ireland | 2 763.0 | 3 882.0 | 5 878.2 |
| Greece | 3 349.0 | 5 265.0 | 8 539.4 |
| Spain | 24 382.0 | 30 320.0 | 39 433.0 |
| France | 62 243.0 | 74 895.0 | 87 629.2 |
| Italy | 48 858.0 | 57 321.0 | 61 808.1 |
| Cyprus | 398.0 | 590.0 | 977.9 |
| Latvia | 708.0 | 876.0 | 1 149.7 |
| Lithuania | 959.0 | 1 511.0 | 1 968.6 |
| Luxembourg | 475.0 | | 965.9 |
| Hungary | 4 184.0 | 4 648.0 | 7 561.0 |

| | | | |
|----------------|----------|----------|----------|
| Malta | 200.0 | 246.0 | 318.8 |
| Netherlands | 14 335.0 | 16 861.0 | 23 613.0 |
| Austria | 9 450.0 | 10 898.0 | 12 352.5 |
| Poland | 12 320.0 | 15 963.0 | 22 605.1 |
| Portugal | 5 995.0 | 8 352.0 | 8 998.9 |
| Romania | | 3 600.0 | 5 158.2 |
| Slovenia | | | 2 138.2 |
| Slovakia | 1 810.0 | 2 077.0 | 2 768.4 |
| Finland | 5 636.0 | 6 735.0 | 8 379.6 |
| Sweden | 11 489.0 | 14 513.0 | 17 159.6 |
| United Kingdom | 49 146.0 | 54 066.0 | 79 062.1 |

Source: see: Table 1

As it turned out from Table 2, taking purchasing power of Euro into account, public expenditure on education increased during last decade in all the EU Member States. The expenditure increased twofold in Greece, Cyprus, Ireland, Lithuania and Luxemburg. By contrast, this expenditure rose slightly in Italy, Germany and Austria.

Public and private expenditure on education and GDP

All the EU Member States invest considerable financial resources in educating their citizens. Nonetheless, 'total public expenditure' index does not reflect the complexity of the problem as – analyzed on a global scale, paying attention to financial resources transferred – financing differs considerably from country to country. Certain determinants, such as the number of pupils or the duration of education, may account for these differences. Hence, subsequent part of the paper presents index showing the share of expenditure on education in GDP. Table 3 shows public and private expenditure on education as a percentage of GDP for the EU, the USA, Japan and Norway, and Tables 4 and 5 present the situation in the EU Member States.

Table 3. Public and private expenditure on education as a percentage of GDP in EU, US, Japan and Norway in 1995, 1999 and 2004

| Country | PUBLIC EXPENDITURE | | | PRIVATE EXPENDITURE | | |
|---------------|--------------------|------|------|---------------------|------|------|
| | 1995 | 1999 | 2004 | 1995 | 1999 | 2004 |
| EU 27 | | | 5.07 | | | 0.63 |
| EU -25 | | 4.77 | 5.10 | | 0.60 | 0.63 |
| United States | 4.56 | 4.95 | 5.12 | | 1.65 | 2.37 |
| Japan | 3.24 | 3.73 | 3.65 | | 1.21 | 1.23 |
| Norway | 7.44 | 7.14 | 7.47 | | 0.12 | 0.05 |

Source: see: Table 1

Table 4. Public expenditure on education as a percentage of GDP in EU countries in 1995, 1999 and 2004

| Country | PUBLIC EXPENDITURE | | |
|----------------|--------------------|------|------|
| | 1995 | 1999 | 2004 |
| Denmark | 7.67 | 8.09 | 8.47 |
| Sweden | 7.22 | 7.39 | 7.18 |
| Cyprus | 4.63 | 5.45 | 6.70 |
| Finland | 6.85 | 6.24 | 6.42 |
| Belgium | | | 5.99 |
| Slovenia | | | 5.85 |
| France | 6.04 | 5.93 | 5.81 |
| Austria | 6.04 | 5.79 | 5.44 |
| Hungary | 5.39 | 4.66 | 5.43 |
| Poland | 5.10 | 4.78 | 5.41 |
| Portugal | 5.37 | 5.42 | 5.29 |
| United Kingdom | 5.02 | 4.57 | 5.25 |
| Lithuania | 5.12 | 6.13 | 5.20 |
| Netherlands | 5.06 | 4.76 | 5.16 |
| Latvia | 6.19 | 5.81 | 5.07 |
| Estonia | 5.88 | 6.11 | 4.98 |
| Malta | | 4.39 | 4.86 |
| Ireland | 5.07 | 4.51 | 4.72 |
| Germany | 4.62 | 4.50 | 4.59 |
| Italy | 4.85 | 4.70 | 4.58 |
| Bulgaria | 3.39 | 4.46 | 4.51 |
| Czech Republic | | 4.04 | 4.37 |
| Spain | 4.66 | 4.38 | 4.25 |
| Slovakia | 5.01 | 4.40 | 4.19 |
| Luxembourg | 4.26 | | 3.87 |
| Greece | 2.87 | 3.63 | 3.84 |
| Romania | | 3.36 | 3.29 |

Źródło: see Table 1

Table 5. Private expenditure on education as a percentage of GDP in EU countries in 1995, 1999 and 2004

| Country | PRIVATE EXPENDITURE | | |
|----------------|---------------------|------|------|
| | 1995 | 1999 | 2004 |
| Cyprus | 1.58 | 1.76 | 1.17 |
| United Kingdom | | 0.84 | 0.95 |
| Germany | 1.02 | 1.01 | 0.91 |
| Slovenia | | | 0.84 |
| Latvia | 0.43 | 0.58 | 0.82 |

| | | | |
|----------------|------|------|------|
| Slovakia | 0.12 | 0.09 | 0.75 |
| Bulgaria | | 0.73 | 0.64 |
| Czech Republic | | 0.54 | 0.61 |
| Spain | 0.85 | 0.63 | 0.61 |
| Poland | | 0.15 | 0.59 |
| France | 0.54 | 0.50 | 0.54 |
| Hungary | 0.61 | 0.62 | 0.52 |
| Netherlands | 0.48 | 0.46 | 0.50 |
| Lithuania | | | 0.48 |
| Italy | | 0.46 | 0.46 |
| Malta | | 0.25 | 0.45 |
| Austria | 0.40 | 0.30 | 0.39 |
| Belgium | | 0.27 | 0.34 |
| Denmark | | 0.27 | 0.32 |
| Ireland | | 0.46 | 0.32 |
| Sweden | | 0.19 | 0.20 |
| Greece | | 0.26 | 0.19 |
| Portugal | | 0.08 | 0.13 |
| Finland | | 0.13 | 0.13 |
| Romania | | 0.31 | |

Source: see: Table 1

The expenditure on education incurred in the European Union amounts to 5.7 per cent of GDP. This expenditure is higher in the USA where total public and private expenditure amounts to 7.49 per cent of GDP or in Norway where it amounts to 7.52 per cent of GDP. Besides, it should be noticed that expenditure on education in the EU increased by 0.36 percentage point during last ten years, whereas in the USA – by 0.89 percentage point.

Taken the EU Member States into consideration, the highest total public and private expenditure on education was recorded in Denmark (8.97 per cent of GDP), Cyprus (7.87 per cent of GDP) and Sweden (7.38 per cent of GDP). On the contrary, the lowest expenditure (not exceeding 5 per cent) was reported in Romania, Greece, Spain, Slovakia and the Czech Republic. In Poland, total public and private expenditure on education amounts to 6.0 per cent of GDP.

It is alarming that despite the fact that total expenditure on education as a percentage of GDP increases in the EU, in many EU Member States (like Sweden, Finland, France, Austria, Latvia or Germany) this expenditure fell in the period from 1995 to 2004.

Annual expenditure on education per pupil/student

Unit cost of education is another index measuring considerable differences in expenditure on education observed between particular countries. This index shows the relationship between expenditure on education and the number of persons in education. Chart 1 shows annual expenditure on public and private educational institutions per pupil/student in the EU, the USA, Japan and Norway, whereas Chart 2 presents the situation in particular EU Member States.

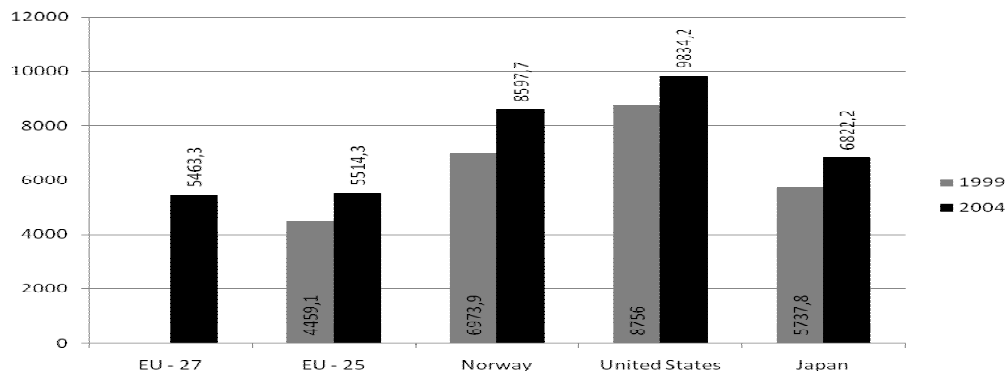


Chart 1. Annual expenditure on public and private educational institutions per pupil/student (all levels of education) in EU, US, Japan and Norway in 1999 and 2004 (in Euro – PPS)

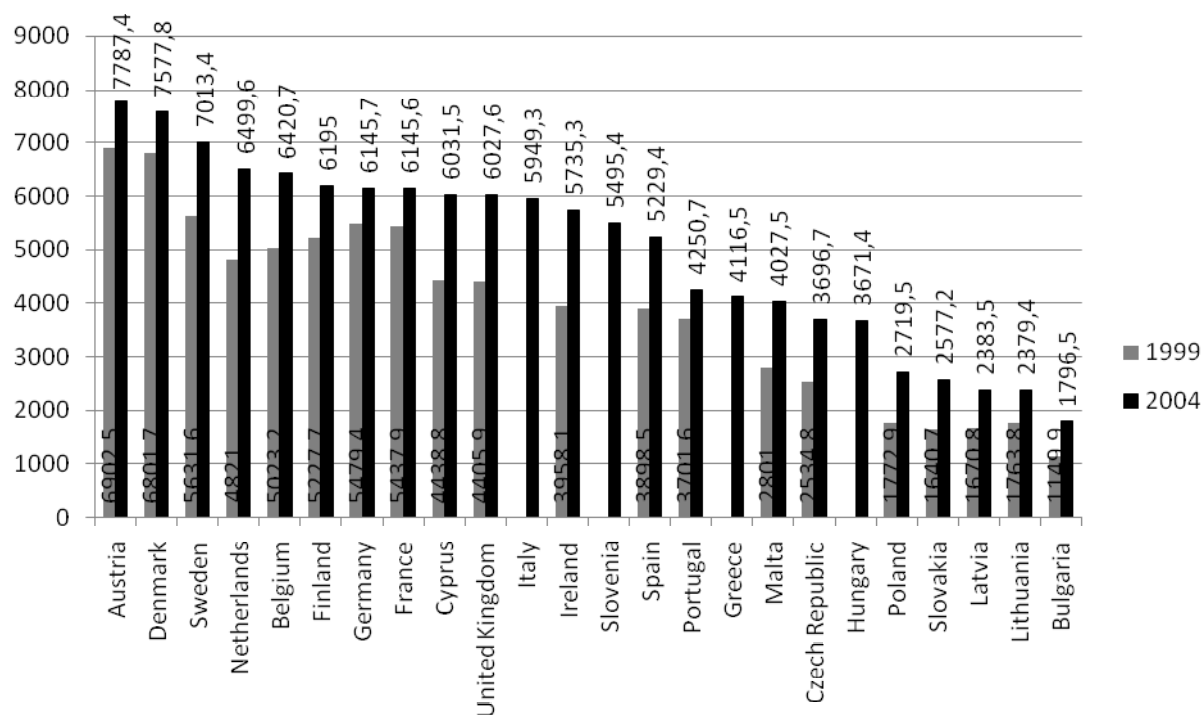


Chart 2. Annual expenditure on public and private educational institutions per pupil/student in EU countries - all levels of education (in Euro – PPS)

On average, expenditure per pupil/student in the EU amounts to 5463.30 Euro annually, while in the USA – this expenditure is nearly two times higher (9834.20 Euro), in Norway – one and a half times higher (8597.70 Euro), and in Japan – 25 per cent higher (6822.20 Euro).

As far as Member States are concerned, Austria, Denmark, Sweden, the Netherlands and Belgium incur the highest expenditure on education, whereas in Bulgaria, Lithuania, Latvia, Slovakia and Poland, expenditure per pupil/student is the lowest one. In the case of EU-15, the lowest expenditure is reported in Greece, Portugal and Spain.

Furthermore, it should be noticed that this index highlighted every difference between EU-15 countries and countries that joined the EU in 2004. If public expenditure on education

is referred to the total public expenditure or even to GDP, the latter group of states (characterized by a profile similar to the EU Member States) differ considerably from the former – taken unit cost per pupil/student into account. A relatively higher proportion of young people in the population of the last mentioned countries may account for such a state of affairs. Still, as their demographic situation is becoming similar to demographic situation of other countries, it can be expected that these differences will be transitory, at least to some extent.

Comparison between average expenditure on education per pupil/student by level of education¹ seems also interesting. Table 6 shows annual expenditure on public and private educational institutions per pupil/student by level of education in the EU, USA, Japan and Norway. Table 7 shows the analogous situation in particular EU Member States.

Table 6. Annual expenditure on public and private educational institutions per pupil/student by level of education (in Euro – PPS) in EU, US, Japan and Norway in 2004

| Country | annual expenditure per pupil/student - all levels of education (ISCED 1-6) | annual expenditure per pupil - primary level of education (ISCED 1) | annual expenditure per pupil - secondary level of education (ISCED 2-4) | annual expenditure per student - tertiary level of education (ISCED 5-6) |
|---------------|--|---|---|--|
| EU - 27 | 5463.3 | 4358.5 | 5579.7 | 7865.8 |
| EU - 25 | 5514.3 | 4391.7 | 5644.9 | 7918.8 |
| Norway | 8597.7 | 7114.7 | 7013.7 | 12504.5 |
| United States | 9834.2 | 7383.3 | 8333.2 | 18838.0 |
| Japan | 6822.2 | 5448.4 | 6158.1 | 10255.3 |

Source: see: Table 1

¹ Educational levels were specified in International Standard Classification of Education (ISCED 97) adopted during the 29th UNESCO session in 1997. This classification differentiates between the following levels:

1. ISCED 0 – pre-school educational level,
2. ISCED 1 – primary educational level,
3. ISCED 2 – lower secondary educational level,
4. ISCED 3 – upper secondary educational level (including vocational schools, technical colleges, grammar schools, and profiled secondary schools),
5. ISCED 4 – vocational educational level (including vocational colleges),
6. ISCED 5 – tertiary educational level (including studies leading to bachelor's degree, studies leading to master's degree, and graduate studies),
7. ISCED 6 – postgraduate educational level (leading to Doctor's degree).

Table 7. Annual expenditure on public and private educational institutions per pupil/student by level of education (in Euro – PPS) in EU countries in 2004

| Country | annual expenditure per pupil/student - all levels of education | annual expenditure per pupil - primary level of education | annual expenditure per pupil - secondary level of education | annual expenditure per student - tertiary level of education |
|----------------|--|---|---|--|
| Belgium | 6420.7 | 5536.5 | 6467.4 | 9880.2 |
| Bulgaria | 1796.5 | 1336.7 | 1407.3 | 3582.4 |
| Czech Republic | 3696.7 | 2314.6 | 3888.1 | 5628.4 |
| Denmark | 7577.8 | 6742.3 | 7383.2 | 12703.1 |
| Germany | 6145.7 | 4130.8 | 6047.2 | 10057.5 |
| Ireland | 5735.3 | 4527.4 | 5911.2 | 8526.0 |
| Greece | 4116.5 | 3157.7 | 4371.0 | 4669.1 |
| Spain | 5229.4 | 4143.6 | 5592.9 | 7826.8 |
| France | 6145.6 | 4237.8 | 7254.2 | 8895.9 |
| Italy | 5949.3 | 5869.2 | 6397.8 | 6449.9 |
| Cyprus | 6031.5 | 4636.8 | 7532.2 | 7409.5 |
| Latvia | 2383.5 | 2093.0 | 2275.0 | 2907.0 |
| Lithuania | 2379.4 | 1589.9 | 2164.8 | 3722.8 |
| Hungary | 3671.4 | 3160.3 | 3184.0 | 5578.7 |
| Malta | 4027.5 | 2504.0 | 3435.8 | 5730.3 |
| Netherlands | 6499.6 | 5190.6 | 6293.7 | 11597.1 |
| Austria | 7787.4 | 6291.6 | 8023.5 | 11862.8 |
| Poland | 2719.5 | 2574.1 | 2289.3 | 3698.2 |
| Portugal | 4250.7 | 3598.5 | 4784.5 | 4669.8 |
| Slovenia | 5495.4 | 6086.6 | 4140.4 | 6204.6 |
| Slovakia | 2577.2 | 1729.0 | 2288.0 | 5449.0 |
| Finland | 6195.0 | 4660.6 | 6214.4 | 10443.3 |
| Sweden | 7013.4 | 6238.5 | 6662.8 | 13545.7 |
| United Kingdom | 6027.6 | 4896.0 | 5780.5 | 9346.2 |

Comment: lack of data for Estonia, Romania and Luxemburg

Source: see: Table 1

The highest average expenditure on education is incurred on tertiary educational level (including studies leading to bachelor's degree, studies leading to master's degree and graduate studies) as well as postgraduate educational level (leading to Doctor's degree). Annual public and private expenditure per student is the highest in the USA and amounts to 18838.00 Euro annually. In the European Union, average expenditure per student amounts to 7865.80 Euro, and in Norway – 12504.50 Euro. As for particular EU Member States, the highest expenditure on tertiary education was recorded in Sweden (13545.70 Euro) and Denmark (12701.10 Euro). Austria, the Netherlands, Finland and Germany are countries in which expenditure on tertiary education is also high and exceeds 10000.00 Euro.

In addition, it should be noticed that according to "The Chronicle of Higher Education", American universities charge the highest tuition fees to students. George

Washington University is the most expensive four-year university in the USA (and probably in the world). In the academic year 2007-2008, tuition fee amounted to 39 240 USD there. The following higher education institutions occupied subsequent positions: Kenyon College in Ohio (38 140 USD), Bucknell University in Pennsylvania (38 134 USD), as well as Vassar College (38 115 USD) and Sarah Lawrence College (38 090 USD) – both located in New York state. All the aforementioned higher education institutions are private, elite and exceptionally expensive (Wingfield, Han, 2008).

At the same time, it should be noticed that over a half of American students pay less than 4 000 USD annually, and nearly three-fourths pay less than 8 000 USD. Expensive universities and colleges (with tuition fee exceeding 20 000 USD annually) are attended by over 6 per cent of American students. Private higher education institutions are much more expensive than public ones (state, county or local ones). Annual tuition fee in a four-year private college amounts to 14 508 USD (on average). In public colleges and universities, tuition fee amounts to only 3243 USD.

Furthermore, as many as 68 per cent of students (63 per cent in public and as many as 80 per cent in private higher education institutions) receive financial assistance. Over a half of American students qualify for support from federal government. Federal programmes constituted nearly three-fourths of over 60 milliard USD of financial assistance received by students. The remaining sources are mainly scholarships from institutions (including private higher education institutions, foundations and firms; these scholarships represented over 18 per cent of the total), state programmes (c.a. 5 per cent), and loans from private sources (banks, institutions – over 3 per cent). “Financial assistance” is quite a broad notion. Scholarships (i.e. non-repayable financing), loans and work (very often subsidized by federal government) are three main forms of financial support.

Private higher education institutions also provide students with support. George Washington University does not only charge the highest tuition fees but also offers the highest scholarships. In the academic year 2007-2008, newly admitted students could receive financial assistance (on average, 23 466 USD) (Wingfield, Han, 2008).

Quite a different tendency is observed in Europe where the majority of universities receive subsidy from the state budget and private expenditure on education may seem surprisingly low. British Cambridge and Oxford receive at most 3 070 of GDP from one student. Still, European higher education institutions are as expensive as American ones. American University of Paris charges tuition fee amounting to 23 784 Euro (34 725 USD). British University of Buckingham, which is the only British university not subsidized by the government, has divided tuition fee into several brackets, and studies leading to bachelor’s degree last only two years there. In practice, Buckingham charges 15 500 GBP (30 400 USD) to native students, and 27 000 GBP (52 800 USD) to foreign ones.

Conclusion

In the era of Knowledge-based economy, education plays the most crucial role. In order to meet competitors’ requirements and create economies as competitive as possible, one should invest in the quality of human resources, in accordance with the Lisbon Strategy². The main objective of this strategy is to make European economy the most competitive and dynamic as possible (i.e. knowledge-based economy that would be able to create sustainable growth and a large number of jobs as well as provide social coherence). Investing in human resources is inseparably connected with primary, secondary and tertiary education.

In the European Union, expenditure on education constitutes 5.7 per cent of GDP,

² The Lisbon Strategy was signed on March 24, 2000 during the session of European Council.

which is much less than in the USA where total public and private expenditure on education amounts to 7.49 per cent of GDP or in Norway where this expenditure amounts to 7.52 per cent of GDP. Besides, it should be noticed that this expenditure rose in the EU by 0.36 percentage point during last 10 years, whereas in the USA, by as many as 0.89 percentage point. On the other hand, taken expenditure per pupil/student into account, it amounts to 5463.30 Euro annually in the EU, 9834.20 Euro in the USA, 8597.70 Euro in Norway, and 6822.20 Euro in Japan. It is necessary to carry out reform in financing, particularly in countries where education is supported only from public funds which is not enough to cover the expenditure on education development.

In order to meet requirements imposed by global competition, the European Union must attach considerable significance to education of its citizens. However, the amount of expenditure on education and improvement in education are of profound importance as well.

The quality of education is examined at the level of secondary education as a part of PISA (Programme for International Student Assessment). The assessment of this quality indicated that despite considerable differences in expenditure on education, skills acquired by pupils enabling them to function in society did not differ a lot. For their mathematical skills, Japanese pupils got 577 points, American ones – 493 points. In fourteen EU Member States (UE-15 except for the Netherlands), pupils scored 494 points. For their writing and reading skills, Japanese children scored 522 points, American children – 504 points, and finally European pupils – 498 points (PISA, OECD 2001). As it turns out from the aforementioned results, not only the amount of expenditure on education matters, but also their effective use.

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