

In this work we investigate the impact of selected personal, family and school characteristics on the level of mathematical ability of fifteen year old pupils from 6 countries of the Central Europe (Czech Republic, Hungary, Germany, Poland, Austria and Slovakia) and from countries with excellent results in mathematics (Finland, Hong Kong and the Netherlands). Then we compare the impact of the factors in the individual countries. Much can be concluded from this analysis. The type of school attended by the pupil has a great impact. The maximal difference between type of schools can come up to 40 percentage points in some countries (CR, Hungary, Poland and Slovakia). We do not discuss this factor in Finland and Poland, where all fifteen year olds attend one type of school. The results in these countries are therefore determined differently. As for other basic characteristics of the school, the size matters in some countries (Hong Kong and the Netherlands) and has always a positive effect. The urbanization level of the place of the school (the size of the village or city) is also positively correlated with the mathematics result. Here the Netherlands and Germany form an exception. The status of the school (public vs. private), lack of well-educated teachers, equipment of the school and enthusiasm of the teachers play just a minor role in most of the countries. When we consider the math classes the pupil attends and his or her attitude to it, we find that pupils' belief about the usefulness of mathematics in their future life improves the results significantly in all countries. We conclude that it is important to motivate pupils better and to discuss real life problems with them, whose solution involves use of mathematics. Personal and family factors are of major importance in most countries. The difference between boys and girls (controlling for all other factors) is insignificant only in Finland.