# THE UNIVERSITY GRADUATION RATE: TRENDS AND LEVELS

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**Abstract**

The aim of the paper is to compare number of university graduates and a size of cohort. After long time have the ministry started reduction of number of new university enrolments. The question is, if this reduction is adequate to decline of cohort size born before 20 years. Also goals from new strategy Europe 2020 are discussed; one is that at least 40 % of population between 30 and 34 should have tertiary education level (for Czech Republic the goal is 32 %). Base of the analysis are new information from database about graduates which are analysed on graduate cohort rates and total cohort graduate rate. Also some predictions are made which could help to answer the question if the strategy is accessible or if the reduction policy is useful or not. Aim of this paper is to analyze how the reform of tertiary education in Czech Republic in last 10 years corresponds with the European Commissions' goals.

**Key words:**  graduation rate, tertiary education, education structure, Europe 2020

**JEL Code:**  I-21, I-28

## Introduction

To improve education level of population is indisputable one of the most important goal of any government in any developed country. There are many studies which proved the positive effect of higher education and economic growth as Barro, 2001 or Fischer & Mazouch, 2010b. Some studies are devoted to more detailed analysis of the impact of specific types of education on the level of productivity as in Fischer & Finardi, 2010 or Fischer & Vltavská, 2011 and there are also possibilities to measure individual or personal impact of education level to level of individual wage, see Finardi & Fischer, 2011, or risk of unemployment, see Fischer & Mazouch, 2010a or Loester & Langhamrova, 2011.

One of goals of Europe 2020 Strategy - A strategy for smart, sustainable and inclusive growth is "The share of early school leavers to be under 10% and at least 40 % of those aged 30-34 to have completed tertiary or equivalent education." (see Savova, 2012) We would like

to focus on the second part of the goal. In the same source we can find that for Czech Republic the goal is 32 % of the 30-34 age group.

Is that target realistic, overestimated or underestimated? Aim of this paper is to analyze how the reform of tertiary education in Czech Republic in last 10 years corresponds with the European Commissions' goals.

# 1    Data and methodology

From 2001 Ministry of Education, Youth and Sport has started to survey detailed structure of tertiary education. One type of the data includes information about number of first time graduates by year and age and type of studied program. Data from 2001 to 2012 are available in (Klenhova, 2013). Only data of ISCED[1] 5 without ISCED 5a_d2 were used. Information about education structure before 2001 is from Census 2001 (Skrabal, 2003) and data of age structure is from Czech Statistical Office (Havel, 2001-2013).

For each age (21-49) and year (2001-2013) graduate rates were computed:

$$gr_{x,t} = \frac{G_{x,t}}{P_{x,t}} \tag{1}$$

where $x$ is age, $t$ is calendar year, $G_{x,t}$ is number of graduates at age $x$ and at year $t$, $P_{x,t}$ is number of persons at age $x$ and at year $t$.

Total cohort graduate rate for any cohort is computed by equation:

$$tcgr_c = \sum_{t=c}^{d} \frac{G_{c,t}}{P_{c,t}} \tag{2}$$

where $c$ is birth year of the cohort, $t$ is calendar year, $d$ is *min(2012;year when cohort obtains age 49)*, $G_{c,t}$ is number of graduates from cohort $c$ and at year $t$, $P_{c,t}$ is number of persons at cohort $c$ and at year $t$.

Total graduate rate (between age 21 and $e$) for each year is computed by equation:

$$tgr_t = \sum_{x=21}^{e} \frac{G_{x,t}}{P_{x,t}} = \sum_{x=21}^{e} gr_{x,t} \tag{3}$$

where $x$ is age of persons (or graduates), $t$ is calendar year, $e$ is highest age we would like to cover (usually 49), $G_{x,t}$ is number of graduates at age $x$ and at year $t$, $P_{x,t}$ is number of persons at age $x$ and at year $t$.

Because of the lag of data before 2001, in equation (1) and (3) data from Census 2001 were used.

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[1] ISCED - International Standard Classification of Education

## 2    Results

From Fig. 1 we can see that data limited sources give us incomplete information about graduate rates across all cohorts and ages. Older cohorts have data in the last part of analyzed period and the youngest cohort just short data at the beginning. There is evidence shift in the intensity to younger ages, when the graduate rate grows from about 5 % to almost 10 %. Also shift in the timing of graduation is visible. But this effect is caused by change in study structure when study system has transformed from 5year master program to 3year bachelor and 2year continuing master program – due to this fact, graduates have tertiary level (bachelor level) earlier than before.

**Fig. 1: Graduate rates for cohorts 1963-1990 between 2001 and 2012**
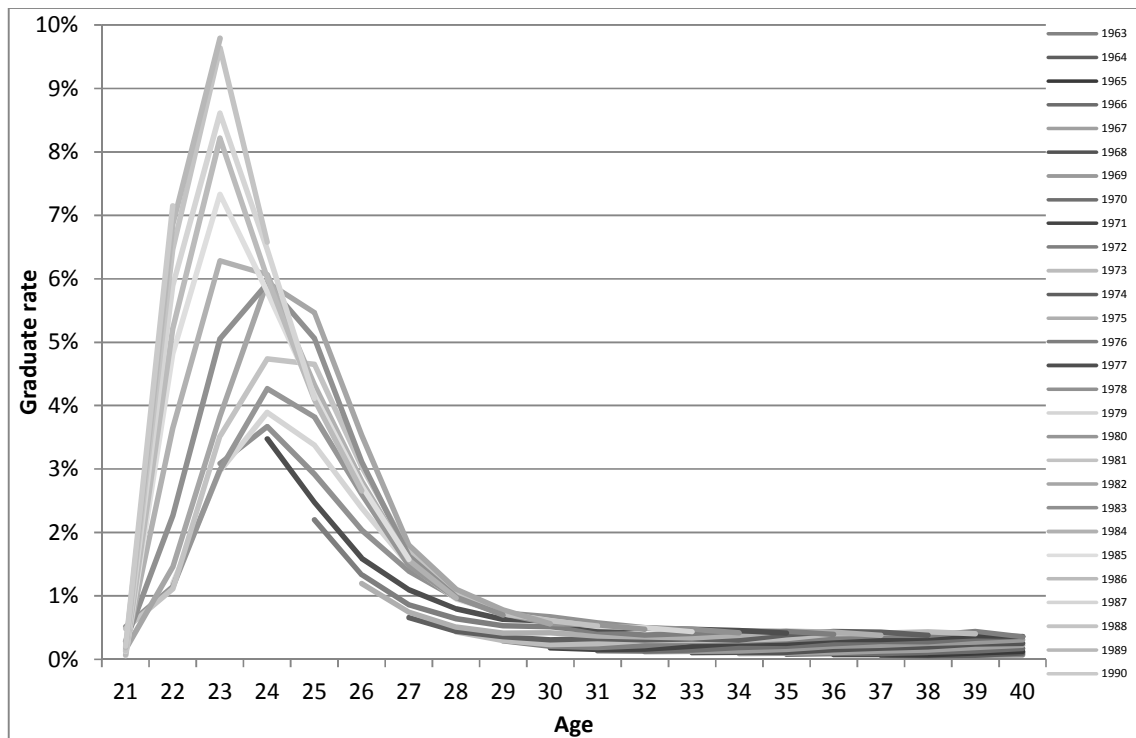


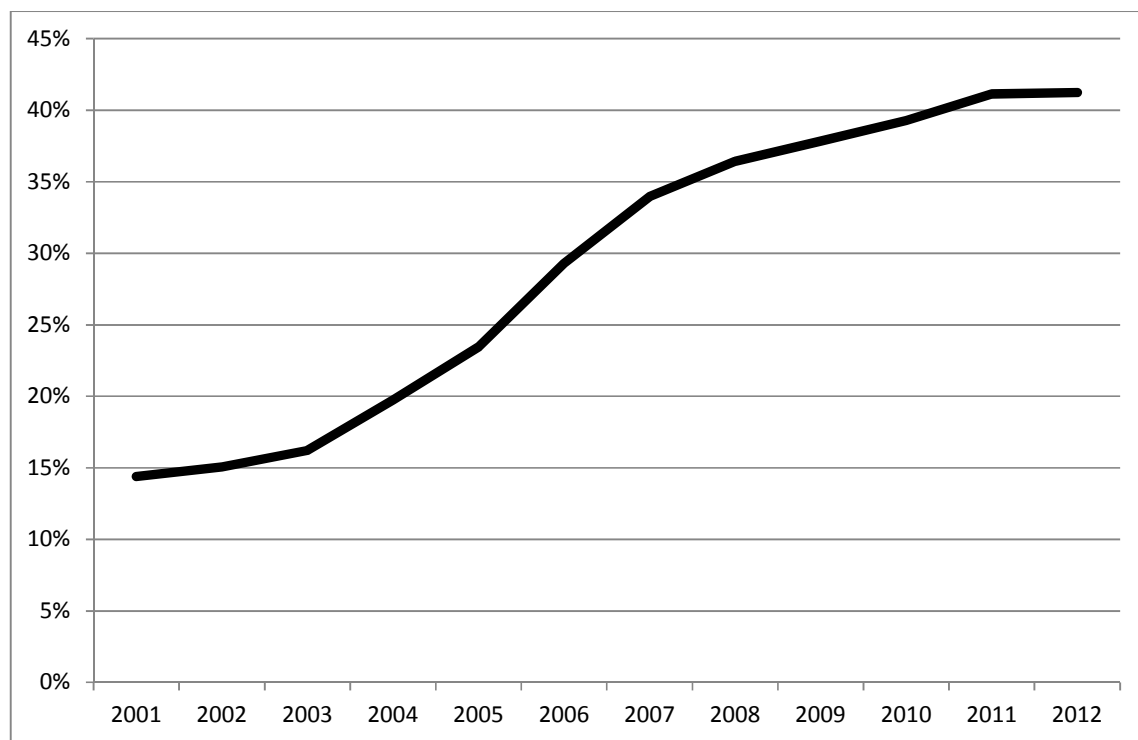Source: Skrabal, 2003, Havel, 2001-2013, Klenhova, 2013, author's computations

In Fig. 2 we can see constant total cohort graduate rate for cohorts up to 1972 where level of total cohort graduate rate is around 16 or 17 %. These cohorts finished their studies mainly in nineties and in next decade only a part of persons from these cohorts complete their studies on tertiary level. Cohorts born after 1975 achieve higher level than previous (some of them 26 %) and the youngest ones are still unfinished.

**Fig. 2: Total cohort graduate rates for cohorts 1962-1990 between 2001 and 2012**
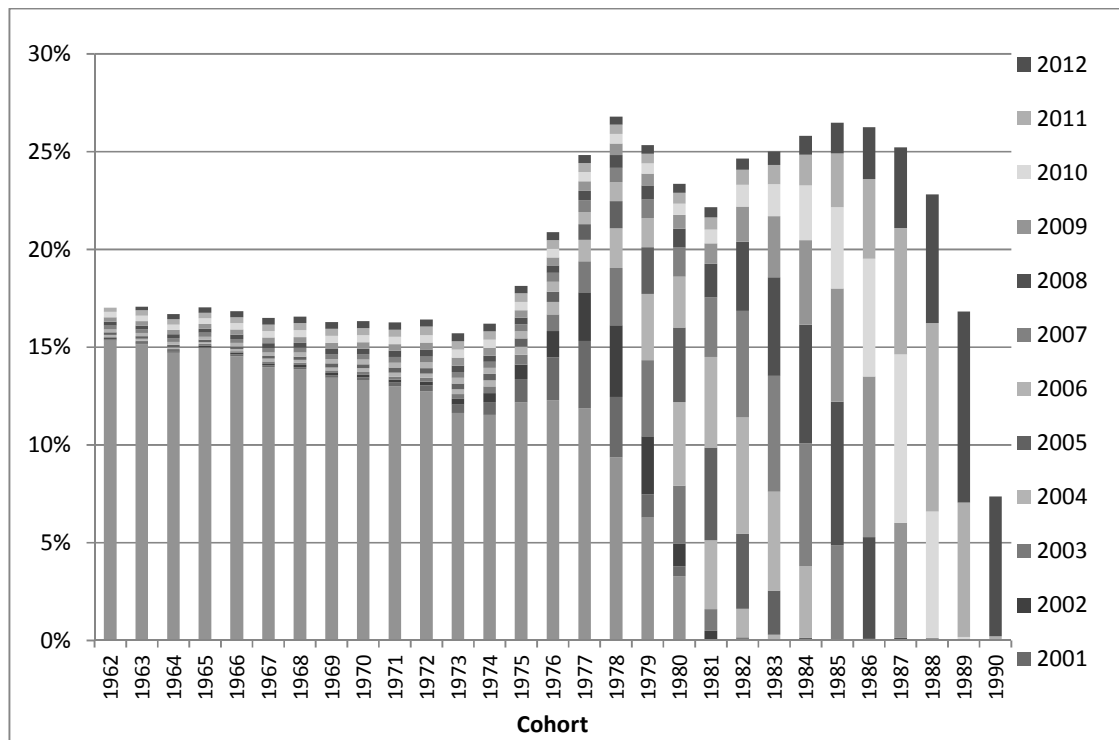


Source: Skrabal, 2003, Havel, 2001-2013, Klenhova, 2013, author's computations

**Fig. 3: Total graduate rate, 2001-2012**



Source: Skrabal, 2003, Havel, 2001-2013, Klenhova, 2013, author's computations

Total graduate rate in Fig. 3 shows theoretical level of the graduate rate. It says that if the graduate ratios would stay at the level of some year for next about 30 years, the cohort which is at beginning would theoretically obtain graduate rate about 41 % (for 2012 year). From 2001 (when the rate could be computed first time) the rate grows three times, from 14 % to 41 % in 2012 but the growth is not linear and after rapidly increase the trend of the rate decelerates.

## Conclusion

Results described in previous section have shown that intensive supporting policy of the ministry is has not the impact described in previous studies as (Fischer, Finardi & Mazouch, 2008). The target of Europe 2020 seems to be very strict and the estimate that Czech Republic would have the ratio about 32 % is very realistic.

The ratio for age group 30-34 is about 24 % in 2012. That seems to be very low (compare with the goal 32 %), but we know that graduate ratio grows and generations 30-34 in 2020 (in 2012 are 22-26) have the graduate ratio about 20 % and it looks much better than previous results.

If the policy of ministry would be stable and will reflect demography development we can obtain higher graduate ratio than 32 %. But on the other hand the limits are not much higher than 40 % what is visible from results of total graduate rate and the total graduate rate is computed across all ages (up to 50) and not only up to 35 (as the goal from strategy is).

This results show that even if he the new enrolment ratio seems to be very high and previous results show that graduation rate will grow very fast, real graduation rate seems to grow slower. One reason could be that rules in Czech university system are strict and there is still high number of failed students. On the other hand the total graduation rate grows three times in last 11 years and it shows significantly that the participation rate is increasing.

In last years the Ministry of education, youth and sport has applied reducing policy of the number of new enrolments which reflected the declining demography situation in ninetieth. This can be seen in the Fig. 2 where total graduate rate is decelerating in last years, which means that restricted ministry policy is very close and corresponds to the demography restriction in ninetieth.

Aim of this paper was to analyze how the reform of tertiary education in Czech Republic in last 10 years corresponds with the European Commissions' goals. Results show that ministry policy is very close to EC goals, but future development over the goal is possible only with very high costs of devaluation of tertiary education back to massive type of

education when now the system is very close to universal type (after development from elite to massive and to universal then) and the ministry policy can be judge as successful at this moment.

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