(the ones that collect more revenue, send more dunning letters, have smaller number of unregistered buildings, apply tax rate closer to the maximum rate etc.). Moral hazard, that is to say, local self-governments not putting enough effort to collect property tax (for political reasons) knowing that the central government will make up for the lacking revenue through revenue transfers, would thus be somewhat reduced. All this leads to conclusion that the reform is justified both from the aspect of allocative neutrality and equity, because most of the tax assessment criteria for property are defined in the law and are more objective than the assessment criteria for the fee (each local self-government established its subjective assessment criteria so the amount of the fee varied).

There are many other examples of parallel existence of two *de facto* very similar taxes (property tax and fee for environmental protection and improvement, corporate income tax and signboard fee), or two identical taxes levied by both central government and local self-governments (tax on use of motor vehicles). The announced reform in the system of financing local self-governments, and systemic approach to the issue of fees for public goods usage are the opportunity to simplify the tax system (through abolition and/or integration of similar taxes) and make it more predictable (by clearly defining the amounts and the assessment criteria), and thus improve business environment.

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Highlights 3. Demographic trends and the number of employees in primary and secondary schools[1]

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Abstract: This Highlight focuses on demographic changes which significantly affected the number of pupils in primary and secondary schools in Serbia. During the last 15 years the number of pupils in primary and secondary schools has been significantly reduced, while at the same time, the number of teachers significantly increased. With one of the lowest pupil-teacher ratio Serbia has an oversized system of primary and secondary education, and so the rationalization of the schools network and the reduction of teaching (and non-teaching) staff is one of the necessary steps to reduce public expenditure.

1. Trend in the number of Pupils in primary and secondary schools

Low birth rates and external migrations had impact on the reduction in the number of pupils in primary and secondary schools. The number of children born on the territory of Central Serbia and Vojvodina fell from over 100.000 in the seventies to about 70.000 per year in the period after 2000. In addition to the low birth rates, the decline in the number of births is influenced also by the emigration from Serbia. Stankovic (2014) suggests that the 2011 Census of population registered 313.411 citizens of Serbia living abroad while the number of returnees from work abroad was 234 932. However, official statistics does not include the permanent migration as well as anonymous stays abroad, and Table 1 clearly shows that it is a far greater number of Serbian citizens.

Internal migrations influenced the making of the discord between the territorial distribution of primary and secondary schools created a few decades ago, and the current territorial distribution of pupils. As a result of large-scale internal migrations there are schools with large classes and on the other side schools with few pupils.

Table 1. Total number of pupils in primary schools.

Total	2000/2001	2010/2011	2014/2015
The Republic of Serbia	711,954	578,978	558,869
Belgrade region	136,891	119,550	124,041
Vojvodina region	-	156,111	150,519
Sumadija and Western Serbia	-	168,824	161,732
Southern and Eastern Serbia	-	134,493	122,577
Source: SORS.			

The number of enrolled pupils in the current 2014/15 school year is lower by 22.2% from the number of pupils enrolled in, not so distant, 2000/01 school year. In less than 15 years demographic changes have affected the number of pupils enrolled in schools in such way that this number has been reduced from over 85.000 to slightly more than 65.000 pupils. Tables 1 and 2 show the change in the number of pupils in primary schools during this period, both in the total (Table 1) and in the number of first graders (Table 2).

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Table 2. Number of pupils in the first grade of primary school.

The number of pupils - 1st grade	2000/2001	2010/2011	2014/2015
The Republic of Serbia	85,226	74,759	66,276
Belgrade region	16,155	15,654	15,662
Vojvodina region	-	20,536	17,851
Sumadija and Western Serbia	-	22,015	18,743
Southern and Eastern Serbia	-	16,554	14,020

Source: SORS.

Of course, that this trend is not only related to the elementary schools we see from Table 3, which shows the total number of pupils attending secondary schools, today as well as during the 2000/2001 and 2010/2011school year. Perhaps unexpectedly the greatest reduction in the number of pupils in secondary schools in the last fourteen years happened in the Belgrade region (22.7%), which is for 3.5 percentage points more than in Serbia as a whole (19.3%). However, when we look at the situation from 2010 most significant drop in the number of pupils is present in the region of Southern and Eastern Serbia (9.1% pupils less) and the lowest in the Belgrade region (7.6%).

Table 3. Total number of pupils in secondary schools.

Total	2000/2001	2010/2011	2014/2015
The Republic of Serbia	323,490	285,596	261,156
Belgrade region	79,613	66,665	61,578
Vojvodina region	84,205	73,570	66,372
Sumadija and Western Serbia	91,007	81,754	75,417
Southern and Eastern Serbia	68,665	63,607	57,789

Source: SORS.

The question arises how this important demographic change of population affected the school network, if that is the case. If we look at the number of primary schools in Serbia (Table 4), we might get the impression that the state, in line with the decrease in the number of pupils, also rationalized the network of primary schools. Thus,from 2010/11 school year we have 11% fewer pupils and for about 1.5% fewer schools, while for a period of ten years from starting the 2004/2005, the number of pupils decreased from 656.103 to 558.869, or for14.8%, while at the same time the number of elementary schools decreased by 4.6%. Of course, these percentages cannot be compared in absolute terms, but from the standpoint of rational management of public

policy it is to be expected that the trend is identical. On the other hand, the number of secondary schools has slightly increased, so we have an increase in the number of secondary schools of 1% in the last ten years, despite the reduction in the number of pupils of 12.9%.

2. The number of teachers and average class size

Of course, the number of schools and the decision on closure of some school should not be made solely on the basis of negative demographic trends. However, what can be most surprising and even worrying when reviewing Table 5, taken from the Statistical Yearbook for 2006 and 2014, is that the number of teachers, against all rational arguments, increased by 20% in the period of ten years up to 2011 despite the reduction in the number of pupils of 12.3%.

Table 5. Comparison of the total number pupils and teaching staff.

	Pupils	Classes	Teaching staff
2000/2001	1,262,934	43,573	81,419
2010/2011	1,107,215	40,849	97,857
2012/2013	1,101,172	37,636	99,777

Source: SORS.

We can conclude from Table 6, which shows the number of teachers in secondary schools and the total number of teachers, as well as the number of full time teachers that this trend of considerable increase in the number of teaching staff continues, contrary to all demographic trends.

Table 6. Number of teachers in secondary schools.

	Total			Full-time	
Total	2004/2005	2010/2011	2014/2015	2010/2011	2014/2015
The Republic of Serbia	27,298	29,750	29,862	18,876	16,655
Belgrade region	-	6,774	6,821	4,845	4,409
Vojvodina region	-	8,163	8,053	5,188	3,627
Sumadija and Western Serbia	-	8,070	8,226	4,922	5,000
Southern and Eastern Serbia	-	6,743	6,762	3,921	3,619

Source: SORS.

We see that at the secondary school level the number of teachers in the past ten years increased by 9.4% despite the aforementioned decrease in the number pupils of 12.9% in the same period. Of course, a direct consequ-

Table 4. Number of primary and secondary schools in Serbia.

	Primary Schools			Secondary schools		
Total	2004/2005	2010/2011	2014/2015	2004/2005	2010/2011	2014/2015
The Republic of Serbia	3,578	3,468	3,414	485	498	506
Belgrade region	-	286	290	-	99	104
Vojvodina region	-	537	535	-	140	139
Sumadija and Western Serbia	-	1,410	1,384	-	136	141
Southern and Eastern Serbia	-	1,235	1,205	-	123	122

Source: SORS.

ence of this is a significantly smaller number of teachers working full-time due to the reduced number of pupils. So in the last four years we have 11.1% fewer full-time teachers, where this change is most pronounced in Vojvodina and amounts to a whopping 30%. The opposite situation compared to all other regions is in Šumadija and western Serbia, where we have an increase in the number of full-time employees by 1.5%. In Vojvodina, the total number of teachers decreased in this period by 1.35%, which is the only change in the number of the teaching staff in the direction of reduction, while the largest increase, 1.9% was recorded in the Šumadija and western Serbia. Similarly, the increase of the teaching staff in primary schools of about 15% indicates that the trend of irrational increase of the educational sector is equally represented in primary and secondary education.

It is interesting to notice that demographic changes and changes in the number of teachers that we have mentioned did not affect, almost at all, the average number of pupils in the classes, which can be seen from Table 7, which is likely to be described by increasing secondary school coverage from 77% according to the Statistical Yearbook for 2006 to 88.5% according to the Statistical Yearbook for 2014.

Table 7. The average class size in Serbia.

	2010/11	2014/15
Primary schools	22.4	22.3
Secondary schools	25.7	24.6

Source: SORS.

The situation with the size of classes in comparison with other countries can be seen from Table 8, where we can note that, on average, there is a larger number of pupils in a class than all other countries in the region, but the difference is not such that we can talk about significantly larger classes in Serbia. This is evident if we compare the data with the average of OECD countries. For comparison, the average number of pupils in Japan is 28.

Due to the harmonization of standards to Eurostat, the average number of classes is shown in accordance with ISCED methodology. ISCED 1 represents the basic education lasting for a period of 6 years and ISCED 2 represents lower secondary education lasting for a period of 3 years. Data for Serbia are adjusted to match these standards. ISCED 3 is an upper secondary education, from tenth to twelfth year of education, and the average class size in Serbia in this category is 24.3. What would be interesting to determine and compare are the variation of class sizes in schools, municipalities and regions in Serbia.

Table 8. The average number of pupils in the class.

	ISCED 1	ISCED 2
Serbia	22.7	22.3
Bulgaria	20.7	22.1
Greece	17.3	21.9
Croatia	16.9	20.8
Hungary	20.9	21.2
Romania	19.4	20.9
Macedonia	17.9	19.4
Finland	19.4	20.3
OECD average	21	24

Source: SORS.

A direct consequence of the identical class sizes and changes in the number of pupils and teachers is a noticeable drop in the number of pupils per teacher. Table 9 shows the pupil-teacher ratio for all levels of education in Serbia, as well as for other countries. Data for Serbia in columns ISCED 1 and ISCED 2 represent the pupil-teacher ratio for primary and secondary education and are not fully comparable with other countries, but show very clearly the existence of surplus labour in the education sector.

Table 9. Pupil-Teacher ratio for all levels of education.

	ISCED 1	ISCED 2	ISCED 3
Serbia	10.8	8.7	
Bulgaria	17.5	12.8	12.3
Croatia	14.2	9.6	9.7
Slovenia	15.9	7.9	14.1
Hungary	10.7	10.6	12.5
Romania	18.1	13	15.9
Macedonia	15.3	9.9	13.8
Sweden	11.8	11.3	13.2
OECD average	15	14	14

Source: SORS.

This ratio, of course, can favourably influence the quality of education although different results on the significance of the impact of class size and pupil-teacher ratio can be found in the literature (see Hanushek et al. (2011) for a detailed review of the literature). It is clear that such a large number of teachers, especially when it comes to basic education, is in no way cost effective because the results of our pupils (which we covered in the previous issue of QM) and their lack of progress in the PISA tests in the last ten years show that positive effects due to the better work with pupils (assuming correlation) are not the equal to economic effects and price of unnecessarily large number of teachers, especially in primary schools. The World Bank came to the same conclusion, and the rationalization of the network of primary schools is considered one of the best ways for significant savings in the public sector (World Bank, 2009). Average class sizes suggest that this may have been too harsh assessment, but the significance of the report is reflected in the fact that for the first time in an argumentative

way the existence of a problem is indicated. The average class size that is larger than in other countries shows that it is possible to reduce the excess part of the existing number of teaching staff by creating a larger number of smaller departments. This would increase the number of classes, but still the pupil-teacher ratio at such low level, especially in primary schools, will be an indicator that it is necessary to reduce the number of the teaching staff.

3. Conclusion

Significant demographic changes and the reduction in the number of pupils for over 22% percent between 2000/01 and the current 2014/15 school year has in no way changed the structure of the teaching staff within primary and secondary schools. Moreover, the number of teachers in primary and secondary schools, for example, in the period from 2000 to 2010 has increased by 20%. We showed that this trend wasn't changed even in the past five years, and so in secondary schools the number of teachers increased slightly in this period. This policy in education has led to, for example, increase of 11.8% in the number of teachers who do not have the full number of working hours in secondary schools in the last five years.

We have seen the size of the problem of too large a number of teaching staff, which is certainly not in line with the demographic trends, in the analysis of the average size of classes and pupil-teacher ratios. A significant reduction in the number of pupils did not affect the average class size, because the number of classes was reduced, while the pupil- teacher ratio is significantly lower than in the countries of the region. This low pupil-teacher ratio is a clear indication of excessive teaching staff especially when it comes to basic education and, although painful, reform of school network, the closure of schools with insufficient number of pupils, and the reduction of teaching staff are the steps that at some point we will have to be taken. All this has to be done systematically and carefully because it is important that with the reduction of teaching and non-teaching staff

the quality of education is continually improved. This can be achieved by partial increase in the number of classes, which would consequently lead to a larger number of classes for teachers and moderate necessary reductions in the number of the teaching staff. The second measure, which is justified from the point of adequate preparation of citizens for the labour market, is the introduction of compulsory secondary education. The introduction of compulsory secondary education would increase the number of pupils and classes in secondary schools, which would allow the full engagement of the teaching staff that is now working with incomplete teaching hours. Here we have not made the estimates of non-teaching staff, but its reduction should be equal to or greater than the reduction of the teaching staff.

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