

12 The effects of demographic change on the public education budget

[Judit Lannert]

The Round Table for Education and Child Opportunities has proposed a number of programmes that require resources for their funding. There are ways to make some savings in the Hungarian public education system, which can be used for this purpose. Public education is burdened with serious problems of efficiency, productivity and equity. There are more teachers to each pupil than in most European countries (in Hungary the number of pupils per teacher is lower in both primary and secondary education than the European average) however, as shown by the results of the PISA surveys (2000, 2003, 2006), in terms of pupils' reading comprehension and mathematical skills Hungary ranks lower than some countries with higher pupil to teacher ratios.

Efficiency problems are therefore primarily manifest in that education continues to display moderate effectiveness while the pupil to teacher ratio declines. What this means is that the increase in expenditure is not accompanied by an improvement in education quality, i.e., the system is wasteful. It seems, then, that the public education system offers opportunities to save costs and the demographic change predicted for the next few years may free further resources. The most important efficiency problems in education identified by experts include the fragmented structure of education management, the "soft budget constraints" characterising education funding, the artificially sustained need for a large workforce in public education, the inflexibility of human resource management, the absence of achievement benchmarks and the absence of learning support programmes creating the conditions for lifelong learning.

Reform proposals aimed at enhancing the efficiency of public education should therefore focus on these areas (MEDGYESI, 2006). With current financing mechanisms (per-student formula funding) remaining unchanged, any released resources necessarily entail the withdrawal of those resources, and therefore the use of these savings for the purposes of public education requires special authorisation.

In what follows, we look at the reserves found in the public education system and estimate their amount. Savings may be made in a number of ways. First, saving opportunities are offered by the decline in pupil numbers. Second, efficiency may be improved by bringing per-pupil spending closer to the level observed in developed countries. Finally, changes to the financing mechanism – such as the introduction of the new formula in 2007 – can put an end to

wasteful funds management. Costs are increased, however, by some of the new components of the system, such as the school year dedicated to foreign language learning. These will be taken into account in considering saving opportunities.¹

■ DIAGNOSIS

In recent years Hungary has typically been characterised by unfavourable population trends. Relative to 2005 a decline of about 10 percentage points is expected among the school-age population by 2015.

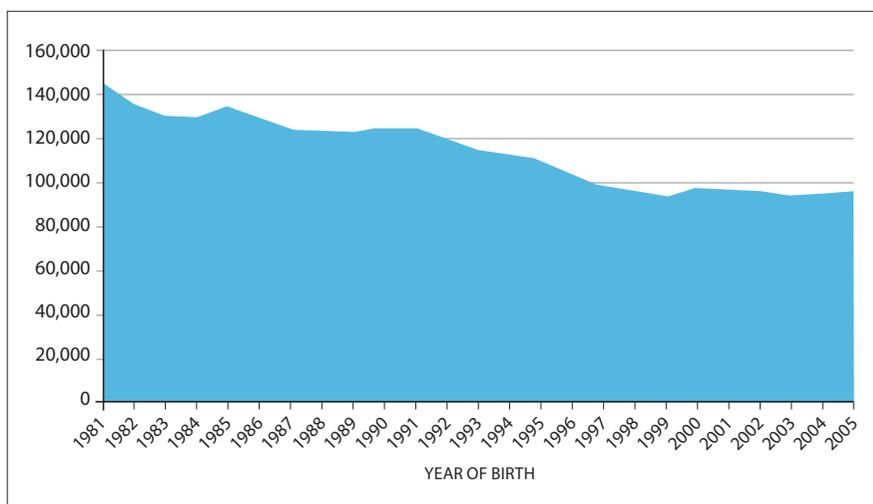
1. *Population trends.* In recent years Hungary has typically been characterised by unfavourable population trends, which had their origins in the more distant past. Relative to 2005, a decline of about 10 percentage points is expected among the school-age population by 2015. The decrease in mortality and in the number of deaths has not counterbalanced the decline in fertility and the consequent fall in the number of births. The 1990s were characterised by a low and annually declining number of live births. While during the period between 1990 and 1992 an average of 125 thousand children were born a year, the corresponding figure was 115 thousand for the period from 1993 to 1995 and less than 100 thousand for the second half of the decade (HCSO, 2002a). Demographic change took a more favourable direction commencing in 2000, when, for the first time since 1975, the number of births surpassed the previous year's figure. This has not, however, led to a spectacular reversal of previous trends: the number of births appears to remain stagnant. The earlier substantial decline in the number of births can be attributed to the fact that relatively populous cohorts gave birth to their children later than expected. At the time, an increase in the number of births was predicted for the middle of the nineties, mostly based on the expectation that the large number of people born in the seventies would reach child bearing age at that time. This event was, however, delayed since mothers now tend to give birth at a more advanced age (VUKOVICH, 2002).

The population trends observed in Hungary appear to be typical in an international context. A general population decline and population ageing are also being experienced by other European countries. It must be noted, however, that while decreasing fertility rates are observed not only in Hungary but also in current EU member countries as well as in accession states, mortality figures are substantially more encouraging in other countries than in Hungary (VUKOVICH, 2002). The observed decline in fertility also determines the size of the child population. The large cohorts born between 1974 and 1980 are now just about past higher education age and the succeeding cohorts are of steadily decreasing sizes (*Figure 12.1*). In 2005 the population of 11–16 year old cohorts fluctuated around 120 thousand persons and the youngest school-age cohorts were of an even smaller size. The cohorts younger than school age

[1] This paper greatly relies on two background studies by Zoltán Hermann where the budgetary effects of declining child numbers and legislation changes are estimated using various models (HERMANN, 2007a, 2007b).

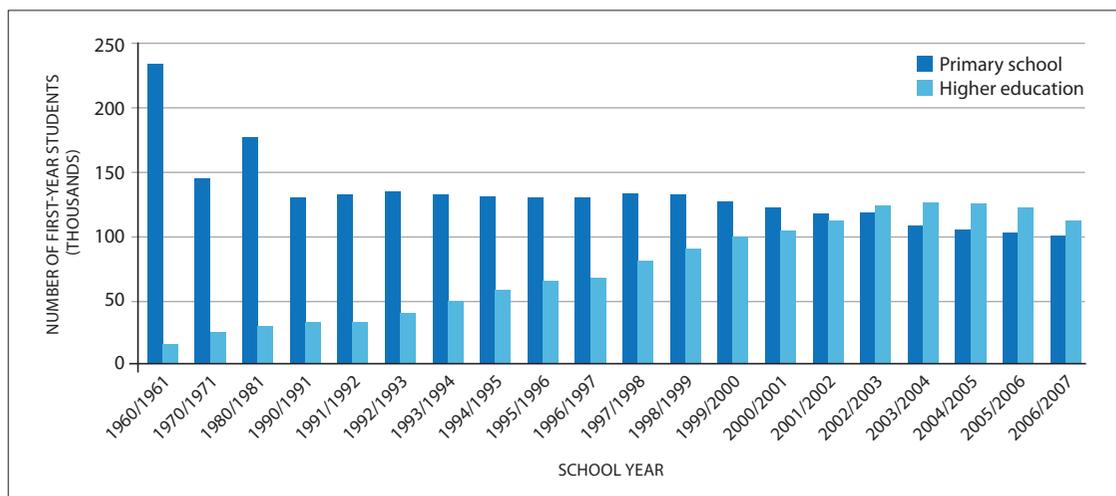
[FIGURE 12.1]
The size of the population under 25 years of age (as of January 1st, 2006, thousand persons)

[SOURCE] Hungarian Central Statistical Office (HCSO).



[FIGURE 12.2]
First year primary school pupils and first year undergraduates, 1960–2006

[SOURCE] Ministry of Education and Culture (2007).



(under the age of six) will not even reach the size of current school-age cohorts in the coming five years. There will be fewer than a hundred thousand children starting primary school, i.e., the school-age population is expected to continue to decline.

The magnitude of the decline and its impact on the education system as a whole are illustrated even more suggestively by comparing the number of first year primary school pupils and the number of students commencing higher education (*Figure 12.2*).

Projections by the Institute of Demography indicate a 15 per cent reduction in the number of people aged 18 or under between 2000 and 2016. The declining trend observed up to 2007 among the population of 3–6 year olds and children of primary school age appears to be levelling out and stability or slight growth

A 15 per cent reduction is projected in the number of people aged 18 or under between 2000 and 2016.

is expected in the future. The decline of the secondary school age population (14–18 years) is predicted to persist right until 2016, by which time a decrease of 25 per cent is expected relative to 2001 (*Figure 12.3*).

Demographic change displays very similar trends in countries neighbouring Hungary. In the Czech Republic, Slovakia and Poland, the population aged between 15 and 19 is projected by the OECD to decline by 30 per cent over the next ten years. These trends inevitably have a strong impact on the size of the school-age population and the organisation and funding of public education. The costs of education are more than likely to decrease in countries where a steep decline is expected in the number of young people over the next ten years. The declining number of children also offers an opportunity to increase educational spending per pupil and to raise participation rates by expanding the education system. Assuming constant per-pupil allocations and participation rates, a saving of about 15–20 per cent of current expenditure can be expected in these countries according to the OECD (*Figure 12.4*).

According to the OECD a saving of about 15–20 per cent of current expenditure can be expected in countries where a steep decline is predicted in the number of young people over the next ten years.

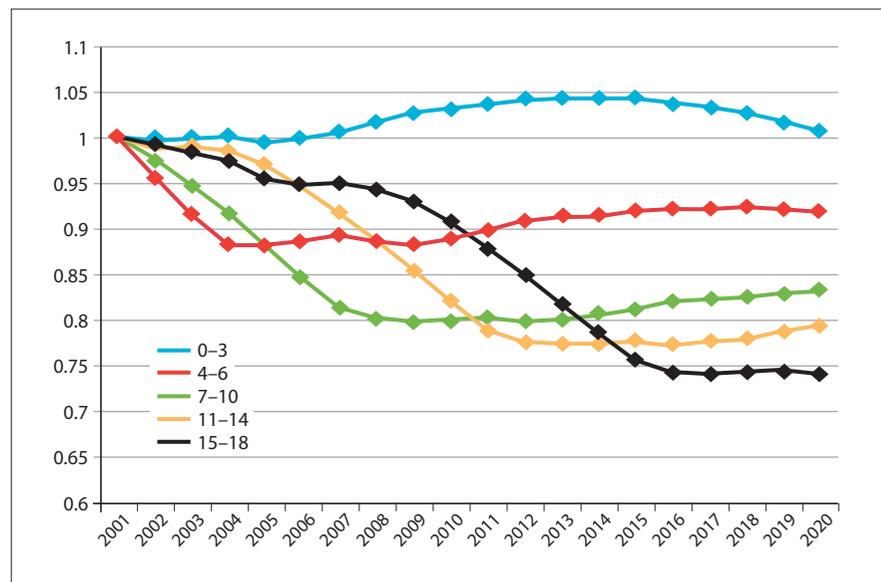
Substantial savings could be made in public education by bringing pupil to teacher ratios closer to the European Union average.

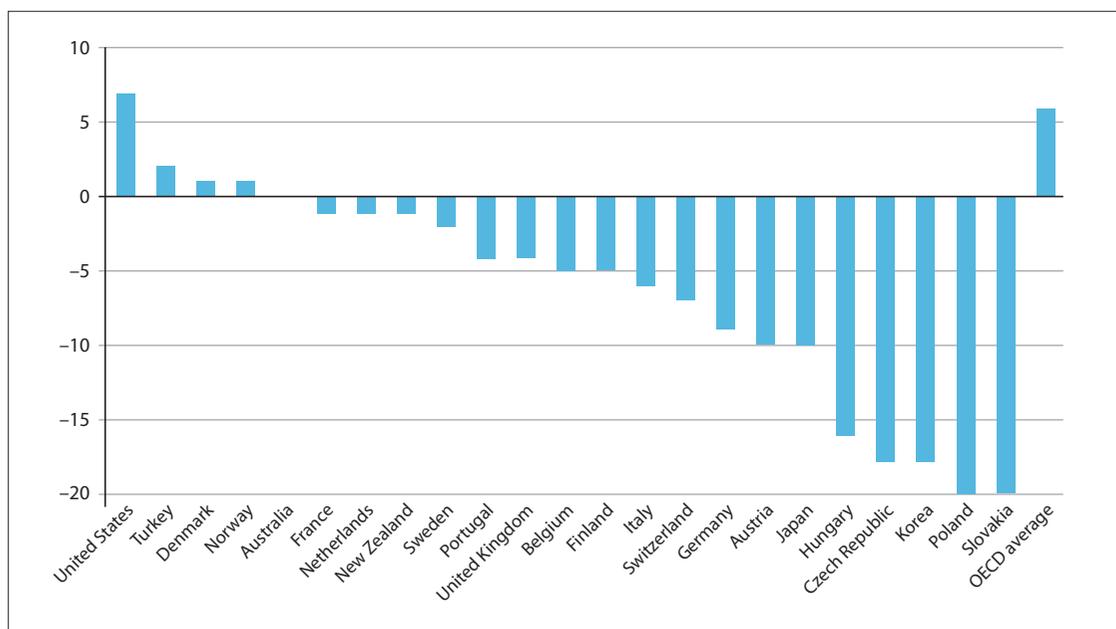
2. *Saving opportunities offered by changes in pupil to teacher ratios.* Further resources can be released by bringing per-pupil teacher costs closer to the European average. In 2004, there were on average 15 pupils to every teacher in primary education across 19 countries in the European Union, while the corresponding ratio was 10 to 1 in Hungary. The gap is smaller at secondary level: on average there were 12 pupils to every teacher across EU countries and 11 in Hungary (*Figure 12.5*).

If the pupil to teacher ratio in Hungary was raised to approximate the average EU level, fewer teachers would be needed. In 2004 130,749 teachers were

[FIGURE 12.3]
Population size projection
for children aged 0–18 by
age cohort (2001 = 100)

[SOURCE] László Hablicsek,
Institute of Demography,
Hungarian Central
Statistical Office.



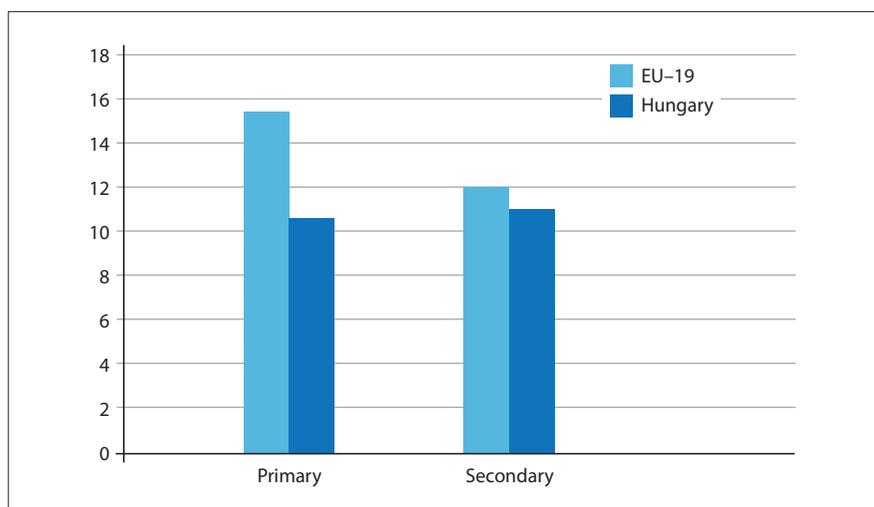


[FIGURE 12.4]
The expected effects of demographic change on the overall expenditure of educational institutions with current participation rate and per-pupil spending, 2005–2015 (2005 = 100)

[SOURCE] OECD (2006).

[FIGURE 12.5]
Number of pupils per teacher in primary and secondary education in Hungary and in the 19 EU countries, 2004

[SOURCE] OECD (2006).



employed in primary and secondary education in Hungary (HALÁSZ & LANNERT, 2006). Based on the population projection mentioned above,² if the range of services is assumed to remain constant, with the current pupil to teacher ratio 14 per cent fewer teachers would be needed in 2011 and 33 per cent fewer in 2015. If the ratio was raised to the EU average level observed in 2004, even

² 97 per cent of the projected sizes of the 7–14 year old and the 15–18 year old populations were multiplied by teaching staff/pupil ratios observed in primary and secondary education respectively.

[TABLE 12.1] ESTIMATED TEACHER WORKFORCE WITH CURRENT AND ADJUSTED PUPIL TO TEACHER RATIOS, 2011 AND 2015

RATIO	2004	2011	2015	2011/2004	2015/2004
	Number of teachers			Percentage	
Current ratio (Hungary, 2004)	130,749	113,071	85,564	86	67
Adjusted ratio (EU-19, 2004)	130,749	86,978	61,792	65	47

[SOURCE] Ministry of Education and HCSO Institute of Demography data.

greater savings would follow: 35 per cent fewer teachers would be needed in 2011 and 53 per cent fewer in 2015 (*Table 12.1*).

The adjustment of pupil to teacher ratios may, of course, not be such a straightforward process. Firstly, changes in the share of secondary education programmes and various regulations may call for more teaching staff relative to the number of pupils than the EU average and secondly, given a tradition of wasteful resource management in the Hungarian education system, a simple adjustment will not necessarily lead to effective savings. The experience of recent years is that the decline in the number of children has not been accompanied by a decrease in the number of teachers.

The analyses indicate that that the most important causes of the declining trend in pupil to teacher ratios are partly to be sought in processes independent of the issue of poor local adjustment to demographic change: in the domain of central education management and policies. Central legislation can

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PUPIL TO TEACHER RATIOS ARE JUST AS LOW IN BUDAPEST AS IN SMALL RURAL SETTLEMENTS

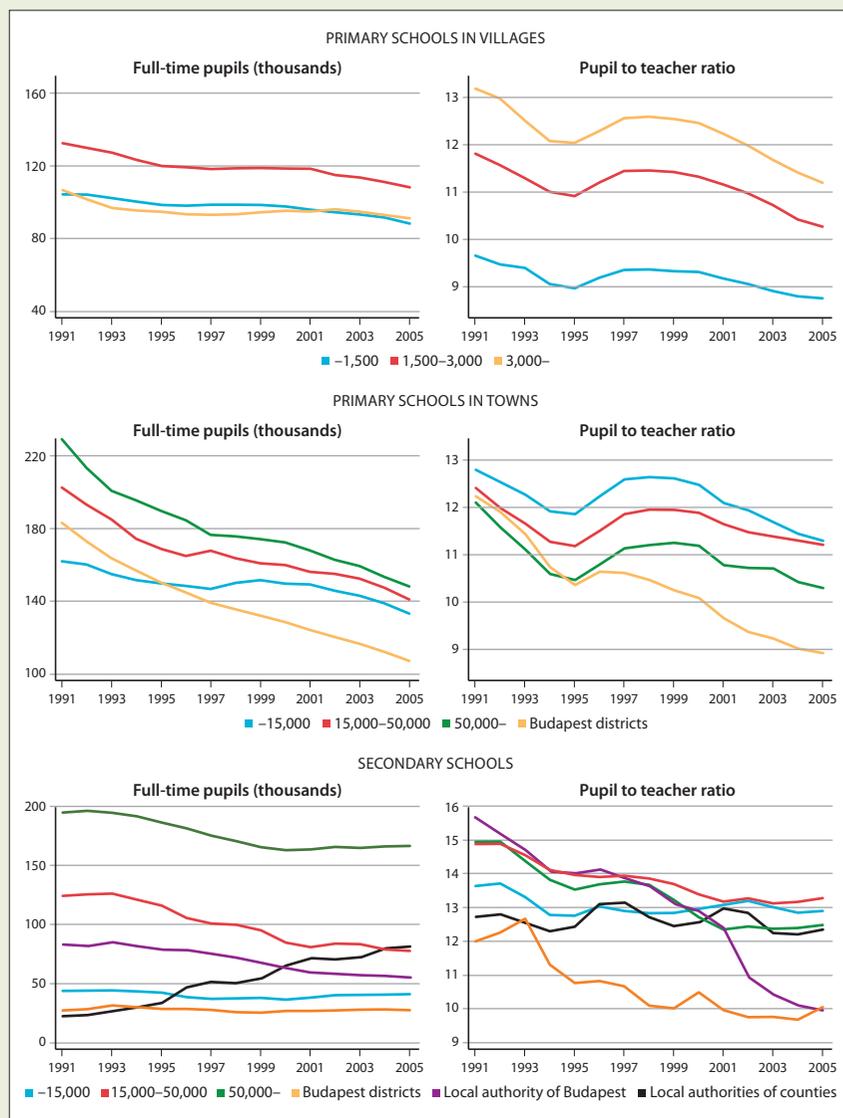
It is a wide-spread belief that village schools are the costliest of all because they have the lowest pupil to teacher ratios. This belief is in contradiction with the fact that the decline in pupil to teacher ratios has not been any greater in villages than in towns even though in small settlements typically maintaining a single school local authorities have far less room to adjust to falling pupil rolls. Moreover, although the smallest villages are characterised by a small number of pupils per teacher, the ratio was not any lower here than in Budapest primary schools in 2005 (*Figure 12.6*).

Low pupil to teacher ratios in primary schools constitute at least as much of a problem for Budapest as for rural areas (HERMANN, 2007a). The steadily decreasing trend in pupil to teacher ratios is not necessarily the result of a homogenous process. The size of the teacher workforce was only partially adjusted to changes in pupil numbers between 1990 and 2006. Looking at primary schools we find that in the first half of the nineties the trend in the pupil to teacher ratio is primarily explained by a decline in class sizes while towards the end of the nineties the main cause appears to be an increase in the number of teachers per class (and presumably a decrease in the number of hours taught per teacher) (HERMANN, 2005).

[FIGURE 12.6]
 Number of children enrolled at local government maintained kindergartens and primary schools, and pupil to teacher ratios at local government maintained kindergartens and schools, by administrative status of the settlement, 1991–2005

[SOURCE]
 HERMANN (2007a).
 Data sources: local government database of the Győr-Ménfőcsanak-Sopron county regional authority of the Hungarian State Treasury and the T-STAR database of the Hungarian Central Statistical Office.

Note
 Settlements classified according to administrative status in 2005. Only full-time pupils are included in pupil to teacher ratios. Overall pupil to teacher ratios for local government maintained kindergartens and primary schools also include the small number of kindergartens and schools maintained by county governments or (in 2005) multi-functional micro-region associations of local governments.



In secondary education the entire period was characterised by both a decline in class size and an increase in the teacher to class ratio, with the second process appearing to be dominant (Ibid.). At the settlement level the decline in pupil to teacher ratios shows *some* correlation with the decline in the child population but it was to some extent an independent process. Also, tracking the number of pupils enrolled at primary schools supports the hypothesis that the demographic change was not uniform across the country: there are both towns and villages where pupil numbers declined only slightly or not at all (HERMANN, 2007a).

provide incentives for the efficient use of resources in at least two ways: first, by regulating the number of statutory teaching hours and class sizes and second, by adjusting the system of central support. At the same time, regulations are rather lenient on the one hand (deviations are permitted if the necessary local resources are available) and have only indirect effects on the other. This leaves plenty of room for local arrangements.

In Hungary the overall share of central education grants relative to local education expenditure has not decreased in recent years. This may be explained by two factors: the central administration may have reduced real wages in the public sector or per-pupil allocations may have been increased to compensate for the effects of falling pupil numbers on local governments' budgets. With the exception of a few periods, these two processes appear to have been alternating in Hungary over the past one and a half decades: a wage decline was experienced during some periods and increased per-pupil central allocations compensated, at least to some degree, for the effects of shrinking child populations during other periods. The positive effects of the per-pupil funding system are therefore dampened by the continual adjustment of central governmental funding. A per-student formula funding system in principle constitutes a strong incentive to improve efficiency. This effect however is greatly weakened on the one hand by the high political costs of reducing the teacher workforce and the ineffective system of local government accountability, and, on the other, by the yearly adjustments to central allocations, which to some extent contribute to the unnecessarily large size of the teacher workforce. The only successful measure so far to stop the decline of pupil to teacher ratios temporarily involved substantial budget reductions, which is unlikely to be a viable, or desirable, option in the long term.

A per-student formula funding system encourages efficiency but the political costs of reducing the teacher workforce, the ineffective accountability requirements and the adjustments to central allocations have the opposite effect.

As of September 2007, central budget funding is allocated on the basis of expected teaching needs.

3. *The new formula funding scheme.* As of September 2007, central budget funding is allocated to educational institutions according to a new formula, based on a so-called public education performance indicator. The formula takes into account the regulations of the Public Education Act concerning class organisation (average class size, instruction time for students), teachers' statutory teaching hours per week and a coefficient of education programme type reflecting the cost requirements of programme types (kindergarten, primary school, secondary school).

The new system is applied from the 2007–2008 school year and introduced at grade one at kindergartens and grades one, five (start of lower secondary stage) and nine (start of upper secondary stage) at schools, thus applied for all grades by 2011. That is, as of September 2007, funding is allocated according to a formula which is essentially based on expected teaching needs (Appendix 3 to Budget Act 2007). Although the performance indicator³ continues to be based on the number

[3] Based on the number of weekly instruction hours, i.e., the number of hours each class of pupils takes and the statutory number of hours each teacher teaches, it can be determined how many extra teachers are needed for each additional class of pupils at different levels and in different

The new performance indicator ensures that legislation and funding are far more directly related and government intentions are far more explicit. In the long term, however, the level of central financing is not fixed since the basic allocation remains open to unconstrained changes.

of pupils enrolled, it is tied to centrally specified teaching hours and class sizes. Legislation and funding are therefore far more directly related and government intentions are far more explicit. The formula specifies the level of class size, instruction hours and teaching staff which the central government wants to finance. Moreover, further revisions to the funding system can make the amount of central grants for local authorities more predictable. By replacing a wide range of current grants, the performance indicator will make it easier to predict and plan for even long-term costs. Further advantages are that local governments will be more motivated to adjust to changes and the system will permit central budget savings (which will not be automatically returned to the education budget). In the long term, however, the level of central financing is not fixed by the performance indicator since the basic allocation remains open to unconstrained changes.

In addition to the revision of the funding formula, other changes affecting educational costs were also introduced in 2007. The Public Education Act was amended in an effort to establish an institutional structure which takes into consideration economy of scale in service provision. Teachers statutory weekly teaching hours were raised by 8–10 per cent, small primary schools were mandatorily integrated into 8 or 12 year schools and restrictions were introduced on free access to second training programmes. Also, in line with the government's convergence programme, tighter regulations and funding rules have been implemented for basic level art education. Central funding entitlements are conditional on institution assessment and allocations are proportional to performance (THE GOVERNMENT OF THE REPUBLIC OF HUNGARY, 2006, p. 38). These measures — introduced in September 2007 — are expected to result in a saving of 7.6 billion Hungarian forints for the central budget in 2007 and a total of 34.2 billion forints in 2008.

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The introduction of the new funding formula has led to a reduction in the per-pupil central grants for most grades in 2007. Thanks to the change, the total amount of the basic grant was reduced by an annual rate of 6.5 per cent, that is, over 20 billion forints in the short term. A more significant decrease of around 15 per cent (almost 47 billion forints) is expected in the long term on account of the new formula (HERMANN, 2007a). Primary schools are more heavily affected by the reduction than secondary schools: if the funding formula

grades of education. A pre-determined grant is allocated to local governments and other education providers for each necessary class and, thus, each necessary teacher. This class-based grant is defined as a basic allocation (2.55 million HUF/annum per year) multiplied by a so-called programme type coefficient (the coefficient is probably included to allow for wage differences due to differences in qualification requirements between schools providing various levels of education). The number of necessary classes is calculated with reference to the actual number of pupils enrolled and an estimation of average class size.

Formally, $F_i = C_i(T/C)IA = P_i[1/(P/C)](T/C)IA$, where F_i stands for the funding allocated to Local Government i ; C_i indicates the expected number of classes maintained by Local Government i calculated as the ratio of the actual number of pupils (P_i) to the estimated average class size (P/C); T/C stands for the estimated teacher to class ratio (which is the ratio of total class hours to total teaching hours); I is the programme type coefficient; and A stands for the basic allocation.

[TABLE 12.2] TEACHING STAFF CALCULATIONS

Estimated teaching staff in three scenarios: based on the funding formula of September 2007; with average class sizes as specified by the Public Education Act (PEA); and with previous statutory teaching hours

STAFF SIZE	KINDERGARTEN	PRIMARY SCHOOL	SECONDARY EDUCATION
Estimated, September–December 2007			
Based on the funding formula of September	35,812	65,425	45,175
With average class sizes as specified by PEA*	30,509	56,802	43,217
With previous statutory teaching hours	35,812	70,463	49,692
Actual, 2006			
Total	30,550	83,606	50,864
Of which			
• on-site after school care	–	11,811	68
• special needs teacher	237	1,956	243
• teacher trainee or trainee supervisor	–	–	4,880

* Assuming that the achievement indicator is calculated with reference to the average class sizes specified by PEA for each grade (class size specifications currently only apply to the first grade of each cycle of education (kindergarten, primary, lower secondary, upper secondary) and other grades tend to have smaller average class sizes). Note: Education levels are categorised according to grades for estimated teaching staff sizes (i.e., years 1–8 with primary schools and years 9–12 with secondary education) while for actual staff sizes in the case of 6 and 8 year grammar schools all teachers are counted for secondary education.

[SOURCE] HERMANN (2007a). Data sources: Central Budget Act, 2007, Public Education Act, Public Education Bureau (KIR) school database, 2006.

and the actual number of pupils are used to compute the estimated number of teachers and this figure is compared to the actual number of teachers, the difference will be greater for primary schools – even if after school child care teachers are discounted (*Table 12.2*). In secondary education, especially in upper grades, the maintenance of a large teaching staff relative to primary school staffs is justified – as expressed by the formula – by the high number of approved instruction hours per week. In the foreseeable future the newly introduced funding formula is not expected to decrease significantly the total central funding allocated to kindergartens.

The most significant factor behind the decrease in central funding is the increase in statutory teaching hours. If the statutory teaching hours specified by the amendment of 2007 to the Public Education act are replaced by the previous statutory teaching hours in the new funding formula (Column 4, *Table 12.3*) and the results are compared to the funding calculated with the increased statutory teaching hours (Column 2, *Table 12.3*) and to previous allocations (Column 1, *Table 12.3*), it becomes clear that in the short term the new formula would have led to a slight increase in funding if the number of teaching hours had not been raised. With the number of teaching hours increased, however, central grants have been reduced.

In the short term the new formula would have led to a slight increase in funding if the number of teaching hours had not been raised. With the number of teaching hours increased, however, central grants have been reduced.

4. *The effects of the new regulations on costs.* So far, cost reducing factors have been considered: the decline in the child population, the option to raise the

[TABLE 12.3] BASIC CENTRAL PUBLIC EDUCATION GRANTS PER PUPIL AND IN TOTAL IN 2007
(calculated according to the formula of September 2007 with average class sizes as specified by the Public Education Act and with previous statutory teaching hours)

EDUCATION LEVEL	YEAR	FUNDING, 2007							
		(1) January–August		(2) September–December		(3) Expected based on September–December ^d		(4) September–December, with previous statutory teaching hours	
		pupil/year (thousand forints)	year total (billion forints)	pupil/year (thousand forints)	year total (billion forints)	pupil/year (thousand forints)	year total (billion forints)	pupil/year (thousand forints)	year total (billion forints)
Kindergarten	1. ^a	199	0.07	172	0.06	172	0.06	173	0.06
	2–3. ^a	199	9.62	203	9.79	172	8.32	203	9.82
	1. ^b	199	0.91	207	0.94	207	0.94	207	0.94
	2–3. ^b	199	54.70	243	66.79	207	56.77	243	66.80
Primary	1.	204	20.11	146	14.37	146	14.37	153	15.05
	2–3.	204	40.21	183	36.07	148	29.20	191	37.73
	4.	204	21.03	222	22.84	169	17.40	232	23.94
	5.	212	23.93	172	19.40	172	19.40	188	21.27
	6.	212	23.73	198	22.12	172	19.23	217	24.26
	7–8.	212	49.21	224	52.09	195	45.30	247	57.42
Secondary (except years 9–10 of voca- tional training) ^c	9.	262	24.78	212	20.07	212	20.07	233	22.08
	10.	262	23.40	229	20.41	212	18.95	251	22.45
Vocational training, years 9–10 ^c	9.	262	8.81	258	8.68	258	8.68	284	9.55
	10.	262	6.92	258	6.82	258	6.82	284	7.50
Secondary	11–13.	262	43.77	271	45.22	251	41.99	297	49.66
Vocational training grades	1.	210	16.27	185	14.32	185	14.32	203	15.72
	2–	210	11.95	199	11.33	185	10.52	218	12.43
Total (billion forints)									
Kindergartens			65.29		77.58		66.09		77.62
Primary schools			178.23		166.89		144.90		179.68
Secondary schools			135.90		126.86		121.36		139.39

^a At most 8 hours a day.

^b More than 8 hours a day.

^c In defining the performance indicator, the Budget Act uses the average class sizes specified by the Public Education Act for grade 9. For grades 9–10 of vocational training schools, these average class sizes are smaller than the ones given in the Budget Act. Our calculations use the figures of the Public Education Act.

^d Assuming that the performance indicator is calculated with reference to the average class sizes specified by the Public Education Act for each grade of education (these class size specifications currently only apply to the first grade of each cycle of education and other years tend to have smaller average class sizes).

[SOURCE] HERMANN (2007a). Data sources: Central Budget Act, 2007, Public Education Act, Public Education KIR school database, 2006.

[TABLE 12.4] COST REDUCING AND COST INCREASING FACTORS

COST REDUCING FACTORS	COST INCREASING FACTORS
Decline in child population	Lengthening education period, expansion of kindergarten attendance, foreign language year
Increasing efficiency bringing the student to teacher ratio closer to OECD levels	Inadequate local government funding and incentives
Institution mergers, school associations (regional integrated vocational training centres)	More human resources needed for special needs education and integration
Increasing statutory teaching hours	Increasing public sector wages
Funding based on performance indicator	Increasing supplementary grants for church schools

ratio of pupils to teachers to approximate the European Union average and the introduction of new regulations encouraging cost reduction. The decline in the number of children, however, does not bring about an equivalent decrease in pupil numbers since cost reducing factors may be counterbalanced to a substantial extent by various education policies (*Table 12.4*).

Studies reveal that local and especially central authorities seek to compensate for teacher workforce reducing measures – which tend to generate conflicts – by expanding educational services and implementing various programmes. The next sections look at the estimated effects of two of these cost increasing programmes on pupil numbers and, consequently, operating costs: the planned expansion of kindergarten services and the broader implementation of the foreign language year (year 9 dedicated to language learning, thus extending the period of formal schooling from 12 to 13 years). It should be noted that our estimates do not cover the total education expenditure of the central budget and not all policy changes are taken into account. What we undertake to achieve is to characterise the available room to manoeuvre for the public education budget as a function of the pupil numbers expected in the coming few years, assuming that the education funding system and the behaviour of actors in education remain constant.

5. An estimation of the number of pupils in the future. Our estimation of changes in the number of pupils is based on population projection data from the Institute of Demography of the Hungarian Statistical Office (available at the Institute's website: <http://www.demografia.hu/Tudastar/nepelo.html>) and on current education participation rates.⁴ Pupil numbers are estimated in two scenarios: first, with participation rates held constant and second, with expanded

[4] Computations were made by Zoltán Hermann. In the default scenario with participation rates held constant, participation data from 2007 were used to calculate the participation rate in each grade for each cohort of pupils. The estimated number of pupils in a given grade in school year t is therefore:

$$D_t^j = \sum_k \frac{D_{2007}^{j,k}}{N_{2007}^k} N_t^k, \quad t = 2008, 2009, \dots, 2020; \quad k = 3, 4, \dots, 25;$$

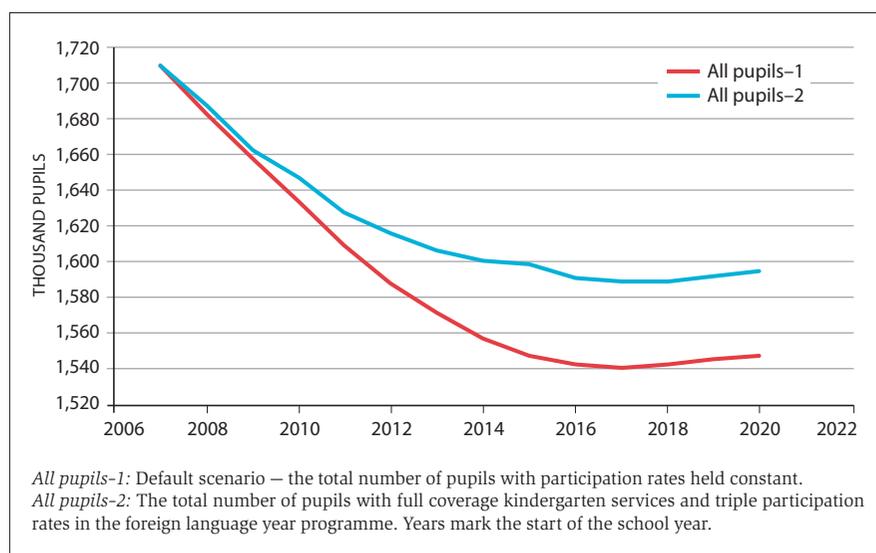
where P stands for the number of pupils, N is the size of the population, t is the year of the first term of the school year, j is the grade, and k stands for the age of students.

kindergarten attendance for children aged 3 to 6 and a substantial increase in the number of pupils taking the foreign language year before commencing secondary education. According to population projections a perceptible increase is expected in the number of kindergarten pupils even if there is no increase in the kindergarten participation rate. The foreign language year option was taken by 13 per cent of all year 9 pupils in 2007; the share of these pupils was 24 per cent among pupils attending academic secondary schools and 13 per cent among vocational secondary schools pupils. Our scenario of increased foreign language year participation is implemented in two versions: assuming doubled and tripled participation rates among academic and vocational secondary school pupils (50 and 75 per cent participation rates at academic schools, and 30 and 40 per cent rates at vocational secondary schools). On the whole, the number of pupils enrolled in public education is expected to show a substantial decline – in parallel with the decline in the child population – over the next ten years. In ten years’ time pupil numbers may have decreased by almost as much as 170 thousand under current education conditions and a decline of more than 120 thousand is predicted if kindergarten attendance and the foreign language year programme are substantially expanded (Figure 12.7).

Over the next ten years pupil numbers will decrease substantially, by almost 170 thousand, and a decline of more than 120 thousand is predicted if kindergarten attendance and the foreign language year programme are substantially expanded.

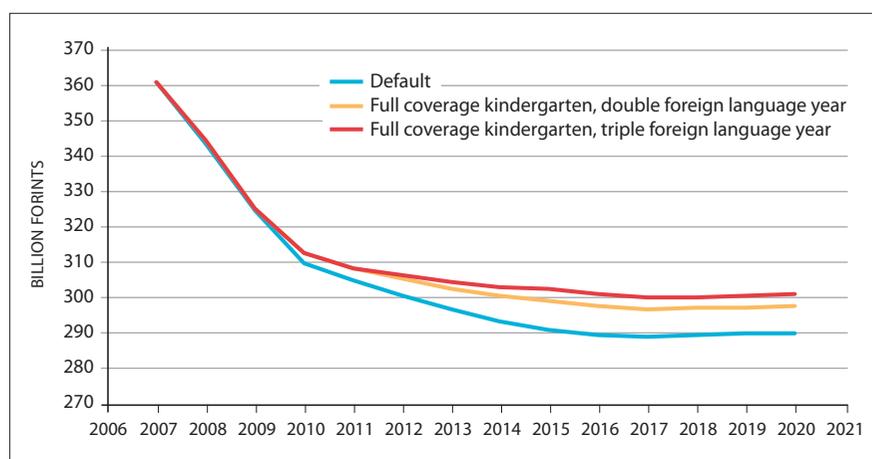
6. *An estimation of the public education operational expenditures of the central budget.* Provided that the funding formula is not modified, the education expenditures of the central budget will be significantly reduced over the next ten years due to the decline in pupil numbers and the gradual introduction of tighter class size regulations (HERMANN, 2007b). The greatest reduction is expected to be experienced over the next four or five years. One reason is that the one-off (but temporally elongated) effect of the changes to class size regula-

[FIGURE 12.7]
Expected number of pupils in primary and secondary education with 2007 participation rates held constant and with expanded kindergarten and foreign language year services, 2007–2020
[SOURCE] HERMANN (2007b).



[FIGURE 12.8]
Expected basic central budget funding* and the supplementary funding for bilingual education with participation rates held constant for each cohort and with expanded kindergarten and foreign language year programmes by school year, 2007–2020 (billion forints)

[SOURCE] HERMANN (2007b).



*Funding for kindergarten services and school education services only – excluding after school child care, pupil accommodation, basic art education and vocational training grades.

Expenditure may decrease by about 60 billion forints in five years but an expansion of kindergarten and foreign language year programmes is expected to reduce this gain by up to 10–15 billion.

tions will appear in this period. Furthermore, population projections forecast the greatest decline in pupil numbers for this period. After 2013, a period of stagnation and slow increase is expected. A significant expansion of kindergarten and foreign language year programmes can have a substantial impact on the extent of decrease in central expenditures. Firstly, both changes boost the number of children participating in public education with the size of the kindergarten and school age population held constant (in other words, a higher average number of years are spent at kindergarten and school). Secondly, the expansion of the foreign language year programme directly increases the total amount of the supplementary grant related to the provision of bilingual education services. The models show that while in the default scenario expenditure is predicted to decrease by about 60 billion forints in five years, a substantial expansion of kindergarten and foreign language year programmes is expected to reduce this gain by as much as 10–15 billion (see *Figure 12.8*).

There are several cost affecting changes that have not been included in our estimations. The future number of pupils categorised as having special educational needs (SEN) is difficult to predict since it is dependent on the statutory definition of SEN and the availability of support programmes. The impact of school maintaining associations of local governments and Regional Integrated Vocational Training Centres (TISZK) has also been excluded because the available information does not even permit an estimation of whether they are likely to decrease or increase costs. Given current regulations, the supplementary grant allocated to church schools may increase if the reduction in central funding is accompanied by an increase in average local government expenditures. In 2007 about 6 per cent of all pupils were enrolled in church schools, which means that the total amount of the supplementary church grant may be increased by 6 per cent of the spending decline resulting from the reduc-

tion of the basic per-pupil grant. This would have a one-off increasing effect on central expenditures.

The estimates discussed here cannot be regarded as central educational expenditure projections for two reasons. Firstly, the effects of changes in pupil numbers on expenditure were estimated with reference to education participation rates in the last observed year, the expansion of kindergarten services and the foreign language year programme was calculated under arbitrary assumptions and supplementary funding schemes were not taken into consideration. Secondly, it must be remembered that budget decisions are also political decisions and as such are difficult to forecast. Notwithstanding these shortcomings, our estimates probably approximate the most conservative estimates of saving opportunities since in most cases supplementary funding expenditure is likely to decrease with the decline in pupil numbers and our expansion scenario assumes a very large scale (i.e., less likely) increase in pupil numbers.

In summary, the education system appears to offer opportunities for substantial savings even if new policies – supporting further expansion in public education services – are implemented. One reason is that the number of pupils will decline to a substantial extent over the next ten years and this effect is only partially mitigated by an expansion of kindergarten services and the foreign language year programme. This trend is expected to lead to a saving of about 50 billion Hungarian forints in the next five years. It remains an open question, however, whether this sum is to be used to improve budget balance or to enhance public education outcomes.

■ SUGGESTIONS

1. Savings due to the decline in the child population offer an opportunity to increase wages predictably in the medium term in an effort to improve the quality of teaching staff.⁵ This is only possible, however, if the savings are made by the central budget. If most of the released resources appear in local government budgets and can be used without restrictions, previous experiences suggest that the teaching workforce will not be reduced, which means that there will be little chance of increasing wages to improve teacher quality.

2. The maintenance of an assessment and evaluation system calls for robust and reliable financial resources, which can also be secured from the savings.⁶ Although the 2007 budget allocated almost 300 million forints to the Education Department for this purpose, the programme struggles with insecure resources

[5] Our proposals concerning teacher pay increases are discussed in Chapter 10 of this Volume.

[6] Our proposals concerning the assessment and evaluation programme are summarised in Chapter 7 of this Volume.

year after year. If this goal is assigned high priority (as encouraged by the convergence programme), resources intended for this purpose should be strictly allocated and monitored. The Ministry of Education and the Educational Agency should be required to account for the use of the funds in detail every year.

The next few years' funding rates should be predictable and the real value of the grant should be constant.

3. Central funding could provide a stronger incentive to improve efficiency if the next few years' funding rates were predictable and the real value of the grant was constant. The more credible the central government's commitment not to amend the funding system to compensate for the decline in pupil to teacher ratios (i.e., making sustained and continual workforce adjustment unavoidable), the stronger the incentive created by the funding system will be. The new formula for the basic grant constitutes a good starting point but the basic allocation included in the formula should be tied to average or typical wage levels as specified by public sector (or teacher) pay scales.

Studies analysing and evaluating the activities of local governments are needed.

4. Studies analysing and evaluating the activities of local governments are needed to permit the development of an appropriate incentive scheme. Education management practices, the regulation of education and the various supplementary grant programmes should be subjected to a detailed analysis to identify the contribution of each component to the decline in pupil to teacher ratios. In addition to weaknesses in the process of local adjustment to demographic change, further causes of the decrease in pupil to teacher ratios should be investigated since this is a prerequisite to achieving a sustained increase in the ratio of pupils to teachers.

Education policies should be regularly assessed and their impact evaluated.

5. We propose that education policies should be regularly assessed and their impact evaluated. Cost increasing educational programmes (such as the foreign language year programme) should be systematically evaluated, comparing their real gain to their costs. The introduction of new development programmes should be mandatorily preceded by an assessment procedure.

6. In the near future, Hungary will be allocated a development grant surpassing any previous support from the European Structural Funds. The level of sustainable operational costs of the public education programmes of the New Hungary Development Plan should be calculated. As far as we know these costs have not yet been assessed partly because the significance of this task has not been duly appreciated by the actors involved. Long term running costs are increased both by information technology developments and building renovations since the resulting products need to be maintained and serviced. The proposed programme of assessment and evaluation presupposes the long-term operation of organisations, which also increases regular costs. If these expenses are not taken into account, there is a danger that savings will be absorbed by unforeseen operating costs and cannot be used to fund new programmes aimed at improving the efficiency of the public education system.

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