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## **Better financing: stronger outcomes**

**A public sector expenditure review for the education sector in Poland**

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## **Acronyms and Abbreviations**

BGK	Bank of the National Economy
CSO	Central Statistical Office
EU	European Union
GDP	Gross domestic product
GUS	Central Statistical Office
NGO	Nongovernmental organization
OECD	Organisation for Economic Co-operation and Development
PISA	Program for International Student Assessment (PISA)
PLN	Polish Zlotych
PPP	Purchasing power parity
R&D	Research and development

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## Overview

This report analyzes the public expenditures of the education sector in Poland, with special interest in uncovering trends overtime, establishing international comparisons to benchmark Poland's fiscal efforts in education, and linking those expenditures to the outcomes of the education system. The report then presents a set of concrete policy options to improve the effectiveness and the efficiency of the education expenditures in Poland.

Perhaps the most important finding is that , while the expenditures in education are somewhat lower compared to those of OECD countries, the outcomes in coverage are impressive (with the exception of preschool education, where coverage is comparably low) and the quality outcomes are at the average of OECD countries, and have been steadily improving, as measured by the PISA exams. This suggests that the Polish education system is efficient and continues to improve.

Still, the report highlights areas where improvement in the quality of expenditures can be achieved. For example, while Poland's student population in primary and secondary education continues to fall, the number of teachers has not followed the same trend as the demographic shift in the student population. There are inflexibilities in the management and deployment of teachers that have made this adjustment difficult. Incentives for local governments, which manage basic education, to quickly adjust the teaching force to demographic changes by consolidating schools and classrooms would liberate significant resources to increase the availability of financial resources to be used in non-recurrent, quality-enhancing investments in the education sector. Some specific budget management suggestions as well as the need for developing indicative standards for service delivery as a tool to determine the overall cost for delivering the educational service, are presented among the policy options that this paper outlines.

Another area where improvement of expenditures is possible is in higher education. Indeed, while the growing role of private institutions and financing in Poland's tertiary education has been an important factor in expanding coverage, adjustments in the public financing scheme for higher education may lead to a more equitable and fiscally sustainable system. The public financing strategy should be revised to change the allocation of subsidies from one that only considers merit to one that considers merit and means-testing to increase the equity of the subsidy allocation. Evidence suggests that higher-education subsidies (free education for "day students") are resulting in a regressive system that disproportionately benefits the wealthy. By establishing a mechanism through which the subsidies are allocated on the basis of need, the public system may simultaneously address issues of equity and quality. To facilitate this process and efficiently allocate the public subsidies, this paper outlines the policy option of expanding and improving the student loans/scholarship scheme.

The policy options outlined in the final paragraphs of the report are intended to spur discussion and analysis among policy-makers in Poland as they look into different possibilities to enhance the quality of expenditures and improve the outcomes in the education system.

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**Poland’s Recent History of Reform**

1. **The Polish education system has undergone profound changes during the last 20 years.** Prior to 1990, the structure of the education system corresponded to the needs of a centrally planned economy, with a large number of specialized vocational schools subordinated to different sectoral ministries. Primary education, general secondary schools, and the universities were managed by the Ministry of Education. In 1990, a gradual process of education decentralization began, in line with the practice in other EU/OECD countries seeking to strengthen democratic participation and local decision-making. Initially, municipal governments (*gminas*) became responsible for maintaining and managing preschools. In 1991, municipalities were also allowed to manage, on a voluntary basis, primary schools. However, in 1996, the management of the primary school network—both human resources and physical buildings—became a compulsory task of local governments at the municipal level. Another major step in the process of decentralization was taken in 1999, when management of secondary schools and most non-school educational tasks (for example, youth hospices, boarding-schools, reformatories), became the responsibility of a newly created county (*powiat*) administration (EU NTS 4 level). Annex 1 summarizes the current division of responsibilities (with respect to pre-primary, primary, and secondary education) between the central and local administrations.
  
2. **Thus, decentralization of education in the 1990s brought significant reforms to the mechanisms through which preschool, primary, and secondary educational financing was handled.** As the management of schools became the responsibility of local governments, they had to be endowed with revenue and other resources adequate to the challenge. The *first* of those sources was a lump-sum grant (called the “education subvention”) provided by the central government and distributed among local governments through a complex algorithm with a heavy emphasis on student enrollment. The *second* source is the right to keep in the local budget a substantial share of personal income tax (PIT) and corporate income tax (CIT) funds collected by the state from local citizens. Currently, 51 percent of PIT and 22 percent of CIT are the revenues of territorial self-government, with differentiated shares going to the budgets of municipalities, counties and regions (see Table 1)

**Table 1 – Shares of collected PIT and CIT staying in the budgets of territorial self-governments**

Territorial self-government tier	Share of PIT	Share of CIT
Municipal	39.34%	6.71%
County	10.25%	1.4%
Regional	1.6%	14.0%

Source: Law on the revenues of territorial self-government

The *third* source is an “equalization subvention,” also provided by the central government and distributed among local governments based on the local tax base levels. These three main sources of revenue (supplemented by targeted grants) are intended to



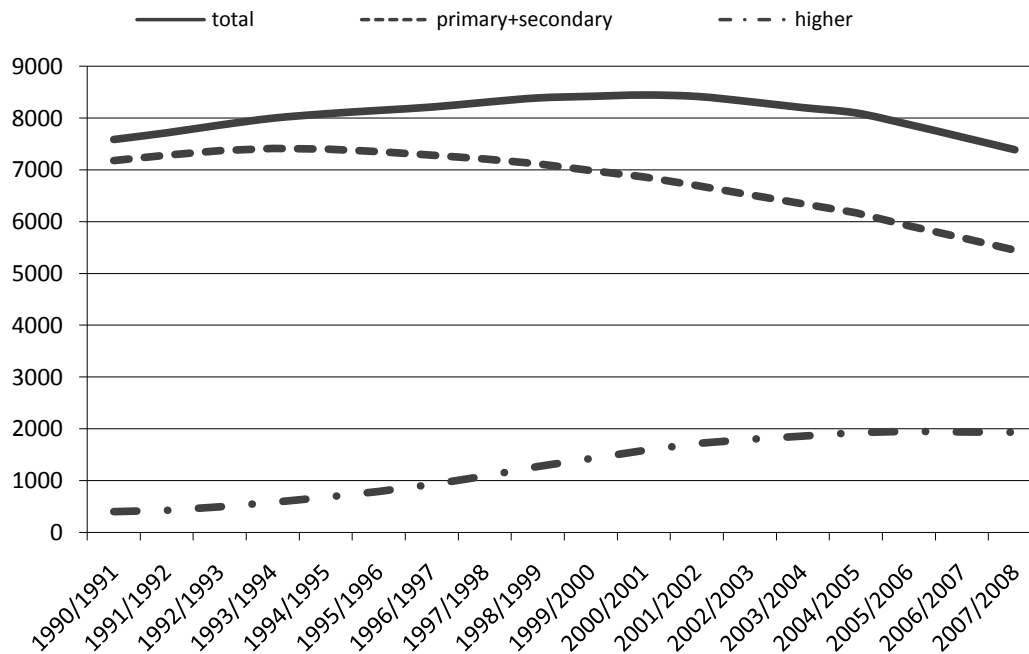
cover all services delivered by the public sector at the local government level, of which educational services represents, on average, 34 percent of expenditures (as of 2006).

3. **The “education subvention” is a two-stage funding procedure for financing education.** First, the funds are transferred from the Ministry of Finance to 2,487 municipal governments and (starting in 1999), to over 300 counties and 16 regions. Second, local authorities are responsible for direct school financing, including the subvention and additional resources coming from their own local revenues. Local governments have total autonomy in their decisions on how to spend this money. In fact, they are even allowed to finance non-educational expenditures with the education subvention, since it enters local budgets as an “unmarked” grant, and joins the “equalization subvention” and the local revenues with no specific earmarking. Adopting such a radically decentralized solution was widely seen as increasing the financial potential and autonomy of local governments under the then newly adopted decentralization, and critical to breaking old management structures relying on central administration.
4. **In 1999, the Government of Poland also launched a critical reform with the intention of improving secondary education and realigning the supply of skills with the needs of the emerging knowledge economy.** This reform focused on the integration of the content of general secondary and vocational education and on delaying the tracking into vocational training to expand students’ exposure to general secondary curriculums. The purpose was to prepare young people to have flexible skills to enable them to be effective learners of new skills and knowledge. Since then, other efforts to improve the education system delivery have been implemented in the form of discrete and incremental policy improvements. This Public Expenditure Review (PER) discusses the reform efforts and their impact on the efficiency of use of the educational financial resources.

## **Overview and Outcomes of the Education System**

5. **The Polish education system (all tiers) includes about 36,000 schools and almost 8 million students.** The primary and secondary tiers remain predominantly public, while a significant share of preschool and higher education is private (see Annex 3). Between 1990 and 2008, enrollment in primary and secondary education fell by 24 percent as a result of the demographic shift experienced in the region. However, during that period, Poland experienced a boom in enrollment in tertiary education. The number of students increased from 400,000 to almost 2 million, with an enormous growth in the number of private tertiary education institutions. Figure 1 plots the changes in enrollment starting in 1990.

**Figure 1: Change in Enrollment by Education Tier, 1990–2007**



Source: Based on Central Statistical Office data.

6. **Currently, enrollment rates in education are high, with the exception of preprimary education, where enrollment rates are below the level of comparable countries.** During the 2007/08 school year, more than 95 percent of students of the relevant ages were enrolled in elementary and secondary schools.<sup>1</sup> The net enrollment rates for different tiers vary from 96.8 percent for primary education, to 95.3 percent for the lower secondary tier, to 89.3 percent for the upper secondary tier. Of the student who complete lower secondary schooling, 94 percent continue their education at the upper secondary tier. Of citizens aged 20–24, 88.1 percent have satisfactorily completed at least upper secondary education (including a basic vocational path). This compares quite well with the 77.6 percent average among European Union (EU)-25 countries.<sup>2</sup>
7. **In preschool education, Poland has a low participation rate among children aged 3–5 (52 percent).** More specifically, only 53 percent of 4 year olds<sup>3</sup> attend preschool, which compares poorly to 100 percent in Belgium, France, and Italy, and 90 percent in the Czech Republic, Hungary, and the U.K.
8. **In higher education, net participation rates have increased impressively and are estimated at 49.7 percent of 19–24 year-olds (while the gross rate was equal to 51.1 percent) in 2007/08,<sup>4</sup> one of the highest in Europe.** With about 500 tertiary students per each 10,000 habitants, Poland ranks sixth in the world regarding the accessibility of higher education. An enrollment boom in higher education over the last 20 years was a result of the expansion of public institutions (in which the enrollment increased from 400,000 to 1.2 million over the period 1990-2007) but also due to fast development of

<sup>1</sup> Net enrollment rates reported by the Central Statistical Office Regional Data Bank.

<sup>2</sup> Eurydice database, Eurostat, Labor Force Survey.

<sup>3</sup> Ministry of National Education, 2008 data.

<sup>4</sup> Central Statistical Office (GUS), "Szkoły wyższe i ich finanse w 2007 r.", GUS 2008.

private sector in tertiary schooling. In 1992 there were only 18 private higher education institutions in Poland with 16,000 students enrolled. Today years, students in private institutions account for one third of total enrolment in tertiary education (now reaching 2 million) and the number of private institutions has increased to 324.

9. **Adult participation in education and training, which measures the use and availability of lifelong learning opportunities, is low.** Eurostat data show that 4.7 percent of the population aged 25–64 participated in any form of education in 2006. This is about half the EU average and five times less than in Finland, Sweden, and the U.K., the leading countries in the development of lifelong learning.
10. **The quality of basic and secondary education, as measured by the Program for International Student Assessment (PISA) results, is below the Organization for Economic Co-operation and Development (OECD) country average but is steadily improving, especially in reading outcomes.** Between the 2000, 2003, and 2006 tests, Poland showed significant improvement, particularly in reading literacy. Indeed, in 2000, Poland's performance in reading was significantly below the OECD average. In 2006, however, its performance was significantly above the OECD average, and was one of the countries with the strongest improvement. The PISA 2006 outcomes revealed that 16.2 percent of Polish 15-year-old students were at or lower than level 1 (minimum reading literacy competency), whereas the OECD average was 20.3 percent. Conversely, 34.7 percent of Polish 15-year-old students obtained high achievement (levels 4 and 5 on the PISA scale), above the OECD average of 29.6 percent of 15-year-old students.<sup>5</sup> Overall, in the 2006 reading test, Poland placed in the top 10 of OECD countries. One of the major reasons behind recent improvements in reading performance is the establishment of a lower secondary tier in the Polish education system (in 1999), which delayed professional tracking by one year. The creation of the lower secondary education tier also contributed to enhanced equity of the system by improving the school environment (physical conditions), particularly in rural areas.
11. **PISA results in math and science are less strong.** Poland ranks between 16<sup>th</sup> and 21<sup>st</sup> within 30 OECD countries in math and science, respectively. Of special note is the low performance of Polish students in the area of “identifying scientific issues”—the average of 483 points is below the OECD reference value (500). In general, it seems that Polish students perform better in acquiring formal knowledge than in applying it to solve problems.<sup>6</sup> Poland's scores in mathematics are also a matter of concern. Although the average of 495 points in 2006 is similar to the achievement of France, Norway, and the U.K., and well above the results of Italy, Spain, and the United States, it is still approximately 30 percent lower than in the leading European countries, such as Finland, the Netherlands, and Switzerland.
12. **Nonetheless, the outcomes of the reforms in secondary education of the last 20 years have been encouraging with regard to their impact on realigning the skills of graduates to the needs of the labor market.** *First*, there has been a shift in the profile of the type of secondary education pursued by students. In September 1990, the share of students receiving vocational training after leaving primary school was 75 percent, while only 25 percent were choosing general secondary school (*lyceum*). More than half of those attending vocational schools were receiving only basic training, without a full

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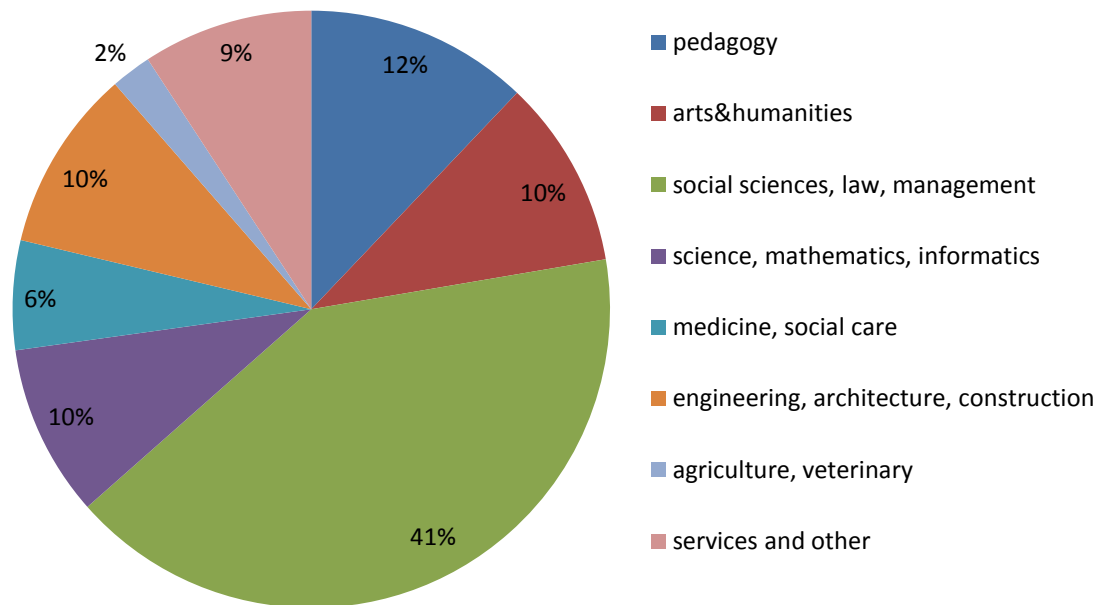
<sup>5</sup> PowerPoint presentation by the Ministry of National Education in Poland, based on the OECD Report on Results of PISA 2006.

<sup>6</sup> Following Paciorek, J. Wiśniewski, P. Szyrmer, „Co wie i potrafi 15-letni uczeń – sprawdziła OECD w badaniach PISA”, CASE 2007.

secondary education certificate (*matura*). Currently, approximately 50 percent of secondary students choose the general education path. Specifically, 44 percent of the 16–18 age cohort attends general secondary school, 32.6 percent attend secondary vocational school, and 13 percent attend basic vocational school. *Second*, these reforms have been important in reshaping the skills of secondary education graduates and, coupled with a dynamic economic environment, probably contributed to a steady decrease in youth unemployment since 2004.<sup>7</sup> These shifts point toward a slow but steady realignment of the education system to better respond to the needs of the labor market in the global economy.

13. **Still, modernization of secondary curriculums needs to continue to make the skills taught more relevant to the demands of the labor market.** As an example, according to Eurostat data, the average secondary school student in Poland is exposed to one foreign language, and about 10 percent of students are exposed to two. This is similar to the situation observed in Austria and the Czech Republic, but significantly behind France (where 50 percent of students are exposed to a second foreign language), Sweden (where 70 percent are exposed), and Finland and the Netherlands, where students leave secondary school having being taught two foreign languages.
14. **The relevance of tertiary education is widely perceived as low by employers.** Because of the educational boom, public universities experienced an enormous increase in demand for their services, but the developments on the supply side—quality of teaching and research—have not been dynamic enough. Indeed, the disciplines of study among tertiary students may not correspond to the challenges of the modern economy, because a strong emphasis is placed on social sciences, law, and management, contrasting with a weak pipeline of students in science, mathematics, and information technologies (Figure 2).

**Figure 2: Disciplines of Study among Tertiary Students in Poland, 2007**



<sup>7</sup> Youth unemployment for the 15–24 cohort has diminished from 37 percent in 2005, to 30 percent in 2006, to 21.7 percent in 2007.

Source: Central Statistical Office-Regional Data Bank.

15. **There are substantive differences between Poland and the EU-27 countries when it comes to the disciplines chosen by students.** The comparison presented in Table 2 highlights important issues. When compared to the student structure of the EU-27, Polish universities educate more students in the social sciences (48.3 percent of all students, compared to 37.1 percent in OECD countries). In turn, the shares of those studying computer sciences, mathematics, engineering, manufacturing, life sciences, physical sciences, and agriculture of the total number of students in Poland are significantly lower than in OECD countries. These differences between the structure of the Polish and OECD tertiary education market have been deepening in recent years as a result of the fast development of the private sector in Polish higher education. Private universities have played a crucial role in boosting tertiary enrollment, but most of them choose to operate in disciplines that do not require heavy investments in infrastructure and equipment but, at the same time, disciplines that may be less relevant to the needs of the labor market<sup>8</sup>. Among students attending private universities, 57 percent study social sciences and only 1 percent study engineering or architecture.

**Table 2: Structure of Tertiary Students in Poland and OECD Countries by Field, 2006**

	Poland	OECD Average
Health and Welfare	7.9	13.3
Life Sciences, Physical Sciences, and Agriculture	5.1	6.9
Mathematics and Computer Science	4.8	5.2
Humanities, Arts, and Education	25.2	24.9
Social Sciences, Business, Law, and Services	48.3	37.1
Engineering, Manufacturing, and Construction	8.6	11.9
Not Known or Unspecified	n	0.6

Source: OECD Education at a Glance 2008.

16. **The contribution of Polish higher-education institutions to global scientific knowledge is limited.** Despite the country's academic potential, Polish researchers rarely publish their articles in internationally recognized journals. The "Report on the Intellectual Capital of Poland" shows that in 2003, Poland had 177 such publications per 1 million inhabitants, which accounted for only 50 percent of the indicator value for Greece, 30 percent of the Austrian score, and 15 percent of the result for Sweden, the leader among the researched countries.<sup>9</sup> Moreover, the links between higher education institutions and the business sector remain very weak. Polish industry's contribution to funding research and development (R&D) activities is only 30 percent of total R&D

<sup>8</sup> This seems to suggest that the Polish job market is increasingly flooded with management students and has high demand and low supply for technical and science students. It is, therefore, interesting that private education students continue to pay for a less useful education in such numbers. Perhaps this points out to two separate issues: (1) the labor market can still absorb management students – at least for now- and (2) a secondary education that does not prepare students for rigorous, technical higher education. Further analytic work on labor market demands can clarify this issue.

<sup>9</sup> "Report on the Intellectual Capital of Poland," Strategic Advisors Team, Prime Minister's Office, 2008.

expenditures, compared to an average of 62 percent in OECD countries.<sup>10</sup> A survey conducted in 2006/07 by the World Economic Forum also shows that the cooperation of higher-education institutions with the business sector is underdeveloped. According to the synthetic indicator value, Poland ranked 56<sup>th</sup>, achieving 46 percent of the maximum possible score, while leading countries—Finland, Germany, and Sweden—achieved close to 80 percent of the maximum score.

## Financing the Education System

17. **Overall, Poland is making important financial efforts to finance its education system.** Table 3 summarizes the 2007 expenditures as a percentage of gross domestic product (GDP) per educational level, identifying public expenditures and calculating the per-student public expenditure. The table also compares the per-student public expenditures in Poland with those in OECD countries. As the table shows, Poland currently spends 5.25 percent of GDP on education; this is slightly higher than the 5.0 percent OECD country average. However, when compared with OECD countries, the per-student allocation (at all levels) is lower than average. Several noticeable patterns emerge from Table 3:

- Aside from tertiary education, the expenditure on education in Poland is overwhelmingly public.
- In 2004, the reported expenditure as a percentage of GDP was 6.1 percent, but it fell to 5.25 percent in 2007, mostly as a result of a significant increase in GDP over the period.
- Per-student expenditures in preschool are surprisingly high (representing 20 percent more than the per-student expenditure in general upper secondary education), revealing inefficiencies in service delivery at that level.
- Overall, per-student expenditures at all levels of education are significantly lower in Poland than in OECD countries. However, the outcomes in coverage (discussed in paras. 5-9 above) and in student learning (discussed in paras. 10 and 11 above) are generally comparable with those of the OECD average suggesting that the Polish education system is efficient: achieving OECD average outcomes with lower-than-OECD expenditures.

**Table 3: Funding Level of the Polish Education System in 2007**  
(As a percent of GDP and in PPP USD)

	Total % of GDP <sup>1</sup>	Public % of GDP <sup>1</sup>	Non-public % of GDP	Number Students	Per-pupil Expenditure			
					Poland <sup>4</sup>	OECD (2005)		
Preschool	0.45	0.4	0.05 <sup>2</sup>	695,110	3,637	4,888		
Primary	3.4	1.2	0.1 <sup>3</sup>	2,405,143	3,161	6,252		
Secondary		2.1		1,420,136			2,881	7,437
Lower				711,373			2,640	8,366
Upper								

<sup>10</sup> OECD, Main Science and Technology Indicators, 2006.

	general						
	Upper vocational				862,515	3,015	
Tertiary		1.4	0.9	0.5	1,937,404	4,907	8,102
Whole System		5.25	4.6	0.65	8,031,681	3,494	7,527 <sup>5</sup>

PPP = Purchasing power parity.

USD = U.S. dollars.

<sup>1</sup> Including all spending on education institutions and related activities.

<sup>2</sup> Estimated based on unit cost in public preschools.

<sup>3</sup> 2005 data from OECD Education at a Glance 2008.

<sup>4</sup> Only public expenditures.

<sup>5</sup> Excluding preschools.

Source: OECD Education at a Glance 2008, and calculations based on "Szkoły wyższe i ich finanse w 2007," Polish Central Statistical Office (GUS), 2008. Ministry of Finance data on local government budgets 2007, GUS Regional Data Bank 2007.

18. **Variations in the trend of expenditures over time have been quite limited, as shown in Table 4 below.** Still, when analyzing the trend of public expenditures between 2004 and 2007, a slight shift from primary and secondary towards higher education can be observed.

**Table 4: Total spending on education by tier in 2004-2007**

**(billions of PLN, constant 2007 prices)**

	2004	2005	2006	2007
preschools (public)	3.96	3.75	4.00	4.25
<i>as % of Total</i>	9.1%	8.6%	9.0%	9.6%
primary (public)	13.16	12.86	13.04	12.59
<i>as % of Total</i>	30.3%	29.4%	29.3%	28.4%
secondary (public)	14.39	14.41	14.60	14.09
<i>as % of Total</i>	33.2%	33.0%	32.8%	31.8%
tertiary (public)	9.59	10.29	10.40	10.84
<i>as % of Total</i>	22.1%	23.5%	23.3%	24.4%
tertiary (private)	2.28	2.40	2.54	2.60
<i>as % of Total</i>	5.3%	5.5%	5.7%	5.8%
Total	43.39	43.71	44.59	44.37

Source: Based on Central Statistical Office and Ministry of Finance data.

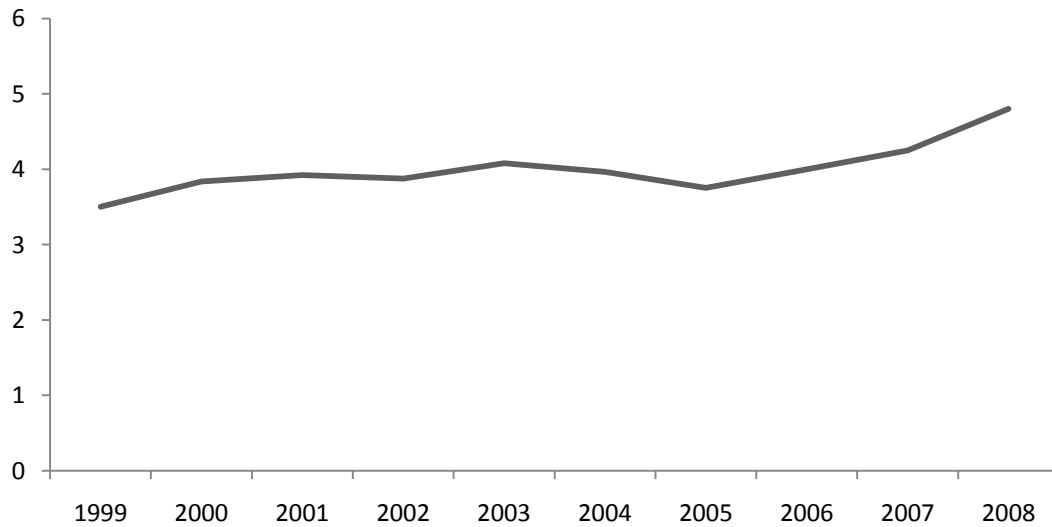
19. **The characteristics and challenges of educational expenditure, however, are quite different for each level of the educational system.** Thus, we will now disaggregate the characteristics and trends of expenditures in education according to each level in the system and identify the most critical challenges for each level.

#### **Preschool Education Financing: Expenditures**

20. **Preschool education became the first educational task assumed by local governments in the process of decentralization.** Starting in 1991, municipal authorities became responsible for the provision of early education, the maintenance of related

infrastructure, and the employment and payment of teachers. Because municipalities (*gminas*) do not receive central resources for this purpose, the preschools are intended to be financed from their general local revenues. The initial period of municipal management over preschools was associated with a significant drop in accessibility. The number of preschools fell by almost 20 percent between 1991 and 1993 and the “capacity” (places offered) fell by 14 percent. However, since 1995, the accessibility of preschool gradually improved, and so did the financial resources dedicated by municipalities to this educational level (see Figure 3).

**Figure 3: Local Government Expenditures on Preschools (1999–2008)**  
**(in billions of PLN, constant 2007 prices)**

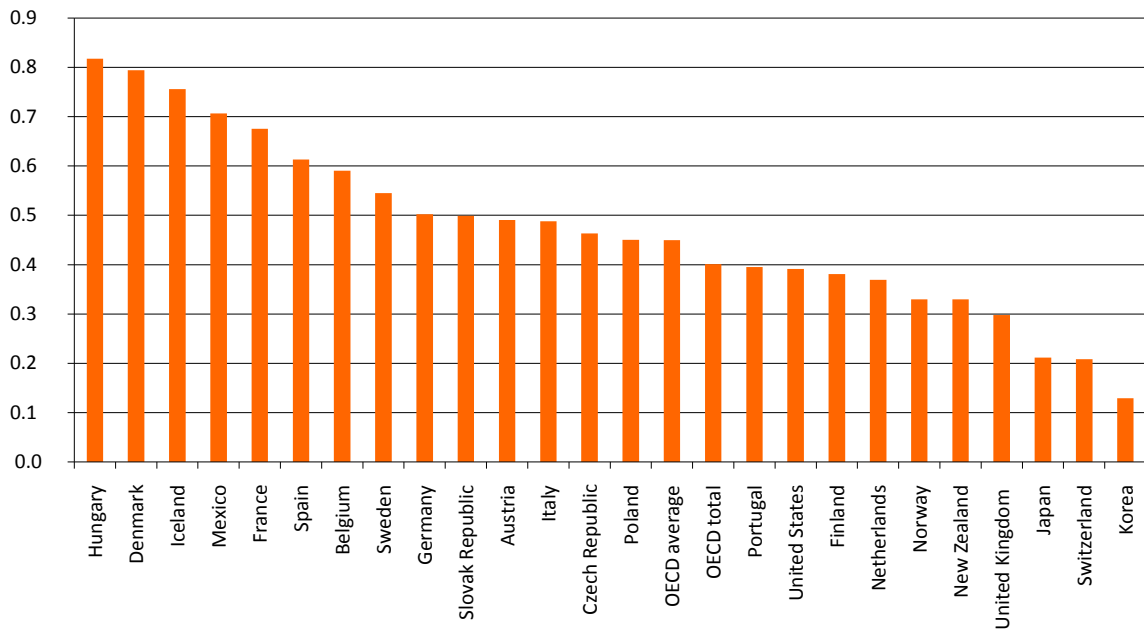


Source: Based on Ministry of Finance data.

21. **Expenditures on preschool education mimic the OECD average, but coverage is low.** Municipalities spend over 4 billion Polish Zlotych (PLN) yearly on preschool education. Once the estimated private contributions are added, Poland invests about 0.45 percent of GDP in this level of education, which is identical to the OECD average (see Figure 4). However, as discussed in para. 6, the coverage is comparatively low, with a per-student allocation that represents 15 percent more than what is spent for each student in primary education and about 74 percent of what is spent for each student in tertiary education. This mismatch in financial inputs and their outcomes appears to be the result of a highly regulated subsector with inflexible service delivery standards. The result is an expensive program that municipalities can barely afford, thereby hampering expansion.



**Figure 4: Expenditure on Preprimary Educational Institutions as a Percentage of GDP, Combined Public and Private Sources of Funds (2005)<sup>a</sup>**



a. 2007 data for Poland

Source: OECD Education at a Glance 2008.

### Preschool Education Financing: Equity

22. **Access to preschool education is inequitable, because it is mostly limited to students in urban areas.** Perhaps as a result of the rigid service guidelines, coupled with budgetary constraints among small, rural municipalities, only 18 percent of enrolled children are in rural areas. In fact, the net enrollment rate among children in rural communities is only 19 percent, compared to 62 percent among urban children. This difference in educational opportunity, so early in life, creates far different outlooks for the future of children in rural areas, who tend to come from poorer backgrounds, and the future of children in urban areas.

### Preschool Education Financing: Service Provision

23. **Provision of preschool education has been mostly public, but there are signs that the trend may be changing.** Almost 90 percent of pupils aged 3–5 attend public kindergartens, while 10 percent go to the non-public preschools established by private persons or nongovernmental organizations (NGOs). Until 2007, only one form of public (publicly funded) preprimary education was allowed by law. The operation of these officially approved preschools has been highly regulated, with strict norms imposed on teacher employment and wages—in accordance with the Teacher’s Charter<sup>11</sup>—and on curriculums, infrastructure, and organization. The non-public preschools are, by law, supported through municipal grants equivalent (in per-pupil terms) to at least 75 percent

<sup>11</sup> Teacher’s Charter is the legal act, established by the Parliament, defining the rights and duties (including statutory working time and wages) of teachers in public preschools and schools. Some of these regulations apply also the employees of non-public education institutions.

of local per-pupil spending on public pre-primary education. In 2008, as a result of pressure from NGOs and education analysts, the government introduced important modifications to the law, allowing the creation (by local governments, private providers, and NGOs) of “alternative preschool forms,” with more flexible service delivery requirements. The new law mandates that local governments subsidize these alternative preschools at 40 to 50 percent (depending on legal form) of the per-pupil expenditures on “standard” preschools in a given municipality.

### Primary and Secondary Education Financing: Expenditures

24. **Primary and secondary education financing together represent 72 percent of total public education financing.** As a percentage of GDP, public expenditures on primary and secondary education are 3.3 percent, nearing the OECD country average of 3.5 percent (see Figure 5). In 2007, per-student expenditure for primary education was around 6,000 PLN, and for lower secondary education it was about 5,500 PLN. The spending on upper secondary education was also close to 5,500 PLN, with a significant difference between general schools (5,100 PLN) and vocational schools (5,800 PLN). Compared to other OECD countries, the per-student expenditure on primary and secondary education and is still low (see Table 2). However, the trend has been one of increased funding: the nominal yearly per-student expenditure on primary and lower secondary education increased from 2,948 PLN in 1998, to 5,066 PLN in 2005, representing an approximately 34 percent real increase (the latter calculated based on 1998 constant prices),<sup>12</sup> to about 5,800 PLN in 2007, reflecting (a) important efforts on the part of municipalities to invest in education, and (b) the slightly increasing education resource envelope distribution among a smaller number of students. It is noticeable, however, that this increase in expenditures has not been a result of an increase in fiscal effort towards the financing of education. As Table 5 indicates, as a percentage of GDP the per-student expenditures has been quite steady overtime.

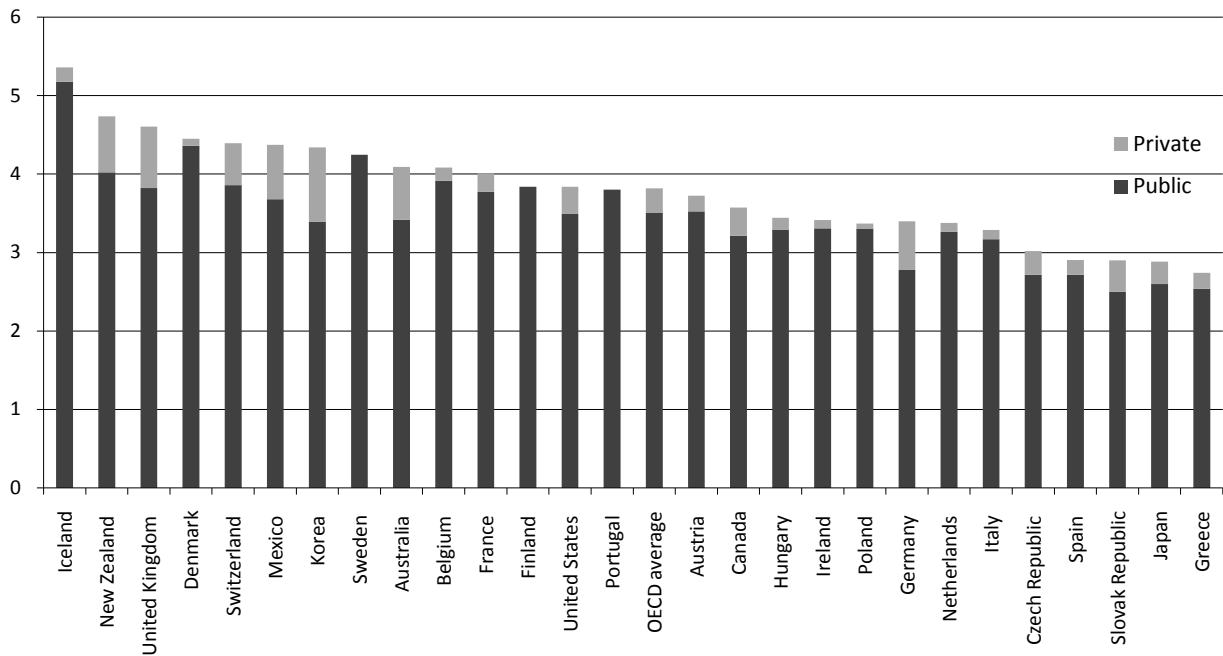
**Table 5: Poland Per-Student Expenditures (billions of PLN, constant 2007 prices)**

	1998	2005	2007
Per Capita GDP	21,246	27,181	30,634
Per-student expenditure(PLN)	4,030	5,345	5,800
As a % of per capita GDP	18,97%	19,66%	18,93%

*Source:* Based on Central Statistical Office and Ministry of Finance data.

<sup>12</sup> M.Jakubowski and I.Topinska, “Impact of Decentralization on Public Service Delivery and Equity,” Centre for Social and Economic Research, Warsaw, 2006.

**Figure 5: Expenditures on Primary and Secondary Educational Institutions as a Percentage of GDP, by Source of Funds (2005)<sup>a</sup>**



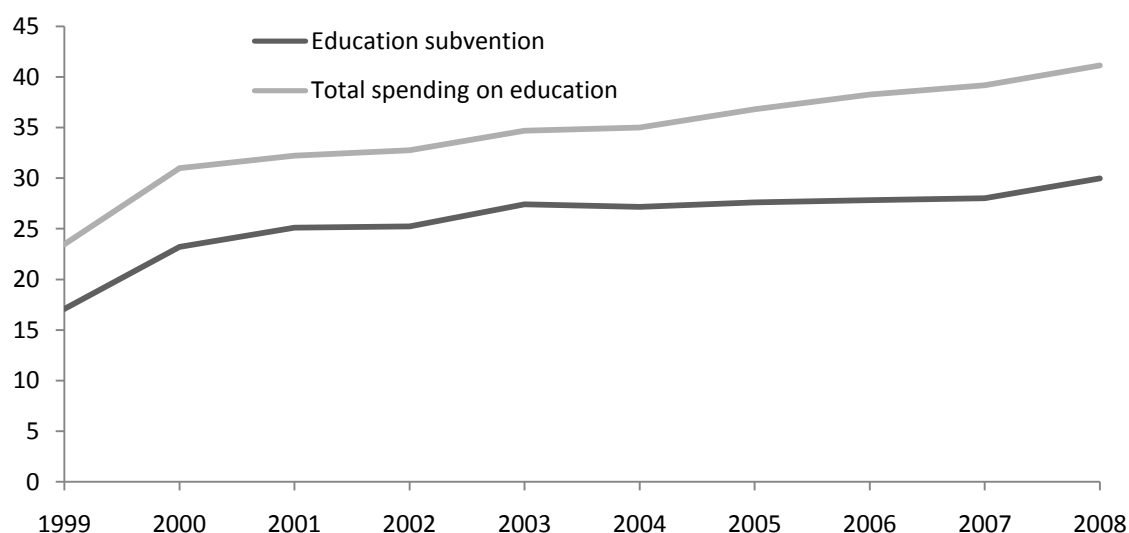
a. 2007 data for Poland.

Orange bar is public expenditures; green bar is private expenditures.

Source: OECD, Education at a Glance 2008,

25. As discussed in paras. 2 and 3, the main financing mechanism for education is a grant provided to each local government called the “education subvention.” Until 2003, the total amount for the education subvention was defined as a percentage of the national budget. Starting in 2004, the law was modified and it was determined that the yearly education subvention envelope would be at least the same nominal amount as the previous year. The complex yearly discussions to set the subvention envelope have increased the total amount of funding every year, as shown in Figure 6.

**Figure 6: Total Local Government Spending on Education excluding preschools (1999–2008)**  
**(In billions of PLN, constant 2007 prices)**



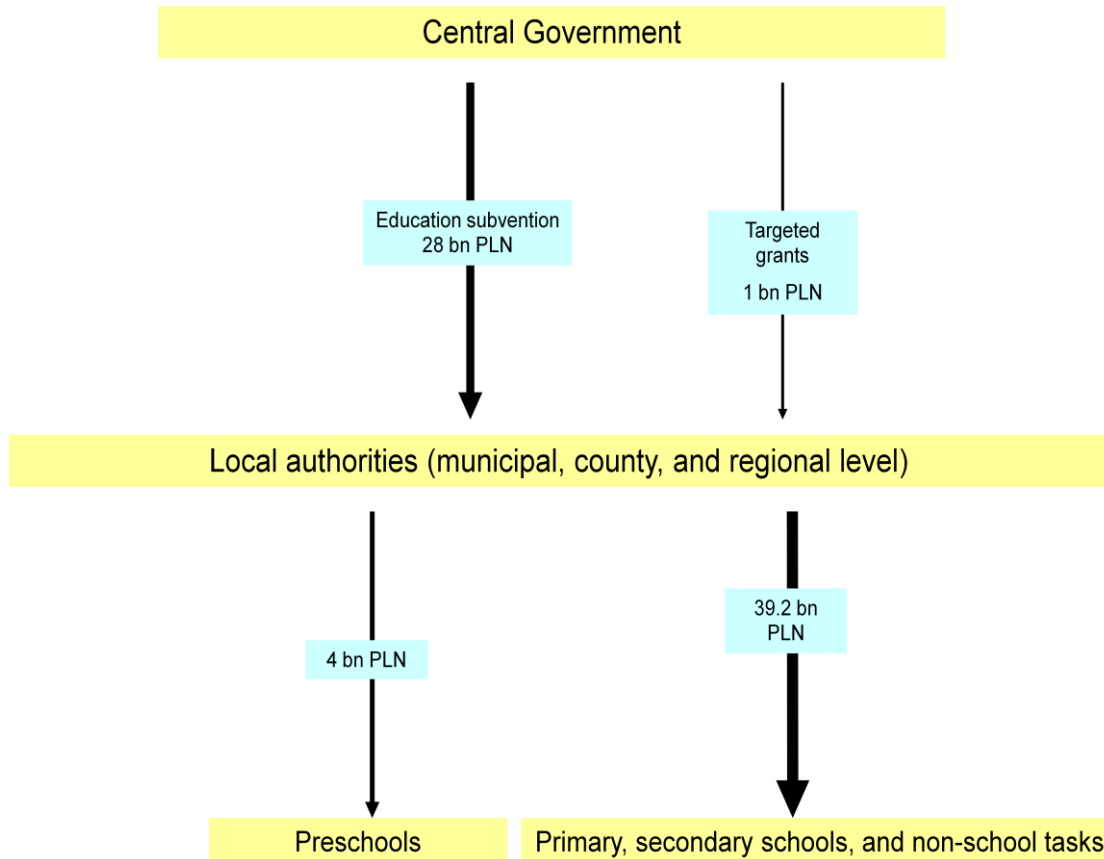
Source: Based on Ministry of Finance data.

26. **The distribution of the education subvention is made through an algorithm, which is adjusted regularly.** When distributing the subvention among local governments, the Ministry of Education is obliged to use an algorithm that takes into account enrollment plus other specific features of the school networks. The algorithm is the subject of constant political bargaining and trades, and some argue that it hardly reflects any policy goals or real cost differences among localities or schools. Yet, it is widely accepted and has played an important role in a more transparent distribution of resources. Currently, it contains 41 different parameters.<sup>13</sup> Indeed, between 2000 and 2008, the algorithm underwent significant changes. The government embarked on a gradual departure from the quasi-voucher approach, under which all funding was distributed mostly on a per-student basis, toward a mixed approach, in which funding criteria include both students (their number and characteristics) and teachers (only their average qualifications; number is not taken into account) as the main cost drivers in the education system. Most changes to the algorithm over the years have been the result of adjustments to the dynamic political and financial conditions.
27. **Because the education subvention envelope is largely defined by law, not policy, it does not operate as an effective tool to adjust educational expenditures to demographic changes.** As a result, despite being a capitation-based grant, the subvention does not adjust expenditures to demographic changes and, thus, does not serve as a cost-containment mechanism.
28. **The education subvention grant is the greatest contributor to educational expenditures.** In 2007, Poland spent over 39 billion PLN on primary and secondary schools, and on some non-school educational tasks (for example, youth hospices, boarding-schools, reformatories). The

<sup>13</sup> The criteria that carry the greatest weight in the distribution of the education subvention are: (a) location in the rural area or small city (population) under 5,000 (weight = 1.38), (b) number of disabled students (weight depending on the type and degree of disability), (c) number of students in vocational schools (weight = 1.20), and (d) average teacher qualifications (multiplier mechanism).

subvention, about 28 billion PLN in 2007, represented about 72 percent of this public expenditure on primary and secondary education, and about 65 percent of the total *local* expenditures on education (which includes preschool). Indeed, the education subvention is not expected to cover all local governments' education expenditures. In fact, local governments are currently spending approximately 11.2 billion PLN of their own revenues, about 4 billion PLN for preschool and 7.2 billion PLN to complement the subvention for primary and secondary education. Figure 7 explains the flow of the resources for preschool, primary, and secondary education.

**Figure 7: Flow of Public Spending on Preschool, Primary, and Secondary Education, 2007**



29. **The proportion of the contribution to primary and secondary education financing out of own revenues varies little among local governments.** As can be concluded from Figure 7, local governments contribute about 35 percent of educational expenditures (primary and secondary, excluding preschool), and this contribution has been increasing over time. In 2006, only 27 municipalities (about 1% of all municipalities) managed to cover all primary and secondary education expenditures without exceeding the amount provided by the subvention. In contrast, for 46 percent of municipalities, the education subvention was too low to cover even the wage expenditures in education (including the preschool tier). While it might be expected that the wealthier local governments (because of higher fiscal capacity) would contribute significantly more to education expenditures to supplement the education subvention, the data reveal that the local fiscal effort is, in general, quite similar between wealthy and poor municipalities and that, on average, the subvention just about covers the wage bill (Table 6). This seems to be the effect of strong fiscal equalization mechanisms included in both the “education subvention” (indirectly,

through rural coefficients) and the “equalizing subvention” described in para. 2. However, some The effects of these subventions on equity will be addressed later in this paper.

**Table 6: Local Expenditures (without preschools) as a Percentage of the Education Subvention, considering wealth of municipalities, 2006**

Quartile – Own Revenues Per Capita	Average Own Revenues Per Capita (In PLN)	Education Spending as Percent of Education Subvention (%)	Education Wage Bill as Percent of Education Subvention (%)
1	391	143	101
2	564	142	100
3	764	143	100
4	1499	158	107
Total	804	146	102

Source: Based on Central Statistical Office and Ministry of Finance data.

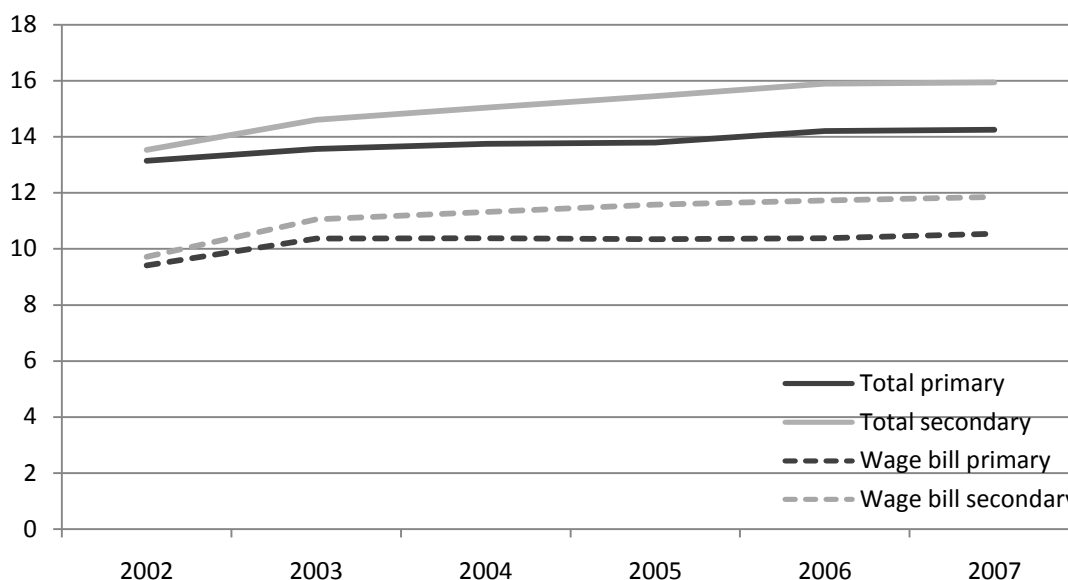
30. **The structure of education expenditures in primary and secondary education has slightly shifted over time.** As Table 7 indicates, the recurrent expenditures constitute approximately 94 percent of the total cost, while the investment takes 6 percent, and the slight changes over time are erratic with no specific trend. The wages (including both teacher and non-teacher remuneration) represent about 70 percent of educational expenditures in both primary and secondary education and—just as with total expenditures—the wage bill has been increasing despite the fall in student enrollment (Figure 8). Moreover, the wage-bill effect has no relationship to the type of municipality. That is, rural and urban, and rich and poor municipalities are similarly affected by the impact of the wage bill (Table 8). This suggests that the increases in total expenditures are a result of the proportional increase in the wage bill and in non-wage expenditures. Why is the wage bill increasing despite expectations to the contrary? The following section addresses this question.

**Table 7: Structure of Local Expenditures on Education**

	2001 (%)	2002 (%)	2003 (%)	2004 (%)	2005 (%)	2006 (%)	2007 (%)
<b>Share of Recurrent Expenditures in Total Local Spending on Education</b>	92.2	93.0	94.9	94.7	94.5	93.6	94.3
<b>Share of Wage Expenditures in Total Local Spending on Education</b>	71.1	68.3	72.2	71.6	69.9	65.3	68.0
<b>Share of Investment Expenditures in Total Local Spending on Education</b>	7.8	7.0	5.1	5.3	5.5	6.4	5.7

Source: Based on Ministry of Finance data.

**Figure 8: Total Spending Compared to Wage Bill on Primary and Secondary Education, 2002–07 (billions of PLN, constant 2007 prices)**



Source: Based on Ministry of Finance data.

**Table 8: Fiscal Equalization Effects in Polish Municipalities (2006)<sup>a</sup>**

Type of Municipality	Number	Percent of Municipalities in which the Subvention Does Not Cover Total Wage Bill (excluding preschools) (%)
Rich (own revenues per capita in last quartile)	406	35
Not rich (own revenues per capita below median)	450	39
Poor (own revenues per capita in first quartile)	227	20
Scarcely populated (first quartile)	258	22
Not rich and scarcely populated	147	13

a. Wage spending of the rich municipalities may be higher because of their fiscal capacity to raise teacher salaries and extend curriculums, whereas poorer municipalities may have higher costs just because of lower student/teacher ratios.

\*Non-weighted averages calculated on municipal data.

Source: M.Herbst, J.Herczyński, and A.Levitas, „Finansowanie oświaty w Polsce – diagnoza, dylematy, możliwości”, EUROREG 2009.

### Primary and Secondary Education Financing: Efficiency and the Teacher Factor

31. **Teacher compensation poses interesting challenges in Poland.** Teacher salaries (as measured in purchasing power parity [PPP] converted U.S. dollars) are among the lowest of OECD countries.<sup>14</sup> However, teachers in Poland have lower net teaching time per year (788 hours) than

<sup>14</sup> The annual statutory teacher's salary (for a teacher after 15 years' experience) in Poland was US\$20,945 (equivalent, converted through PPP) in 2007. The OECD Education at a Glance (2008) reports that the corresponding teachers' salary for 2005 in Germany,

the average in OECD countries (803 hours).<sup>15</sup> According to statutory requirements (Teacher’s Charter), a full-time teacher in primary school works 18 hours a week in the classroom, plus one hour of additional in-school supervision (remedial classes, playground supervision, and so forth).<sup>16</sup> However, in reality, the average weekly teaching time (including extra hours) is close to 21. When adjusted by GDP per capita, the average teacher salary (for a teacher with 15 years’ experience) in Poland is 1.31 percent of GDP per capita, comparable to the OECD country average of 1.29 percent. A further disaggregation (see Table 9) shows an additional trend: when adjusted by GDP, per-capita entry salaries are comparably low, while salaries of long-tenure teachers become quite high compared to other OECD countries. In essence, the salary gradient is too steep and, although formally based on quality assessment, in reality reveals a compensation system essentially linked to tenure. Long-tenure teachers (known as “expert teachers”), which represent over 40 percent of the teaching force, earned (in 2008) on average 250 percent of the salary of junior teachers—even more than the 225 percent required by the Teacher’s Charter.<sup>17</sup>

**Table 9: Ratio of Annual Teachers’ Salary to GDP and Salaries in PPP Converted USD in Poland and OECD Countries**

	Poland (2007)		OECD Average (2005)	
	GDP Per Capita (%)	USD (PPP)	GDP Per Capita (%)	USD (PPP)
Junior Teacher	0.62	9,913	0.94	27,723
Experienced Teacher (15 years)	1.31	20,945	1.29	37,603
Top of the Scale	1.89	30,218	1.61	45,666

Source: M.Herbst, J.Herczyński, and A.Levitas, „Finansowanie oświaty w Polsce – diagnoza, dylematy, możliwości”, EUROREG 2009.

32. **Some progress is being achieved in leveling the teacher salary gradient.** For 2009, the government has approved an important first step to eliminate the negative incentive embedded in the steep gradient. Indeed, in reaction to significant analysis and debate, the government modified the regulations by decreasing the obligatory ratio between expert and junior teacher salaries from 225 percent to 184 percent. To achieve this, in 2009, junior teachers will get average salary improvements of 34 percent, while expert teachers will get salary raises of 10 percent. Still, the incentives are perverse: the Polish system cannot attract the best candidates to teaching, but those who enter the system have the incentive to remain for the long run.
33. **Efforts to improve efficiency in primary and secondary education have been gradual and have brought benefits, but much more needs to be accomplished.** Indeed, some efficiency gains have been achieved by reducing the number of primary schools from 19,800 (in 1996) to 14,500 (in 2006).<sup>18</sup> These gains are a natural response to the demographic trends experienced over those years. The number of students in primary schools has been constantly falling since 1992/93. The major drop was, however, caused by the reform of 1999, which introduced lower secondary schools and shortened the duration of primary school from eight

the Republic of Korea, and Switzerland was US\$50,000, and in Luxemburg it was US\$68,000. The average hourly wage for a teacher in elementary and secondary education in Poland is US\$15 (equivalent PPP US\$) compared to the US\$54 average in OECD countries.

<sup>15</sup> OECD Education at a Glance (2007).

<sup>16</sup> The one required non-teaching hour was added to the statutory working time starting in November 2008.

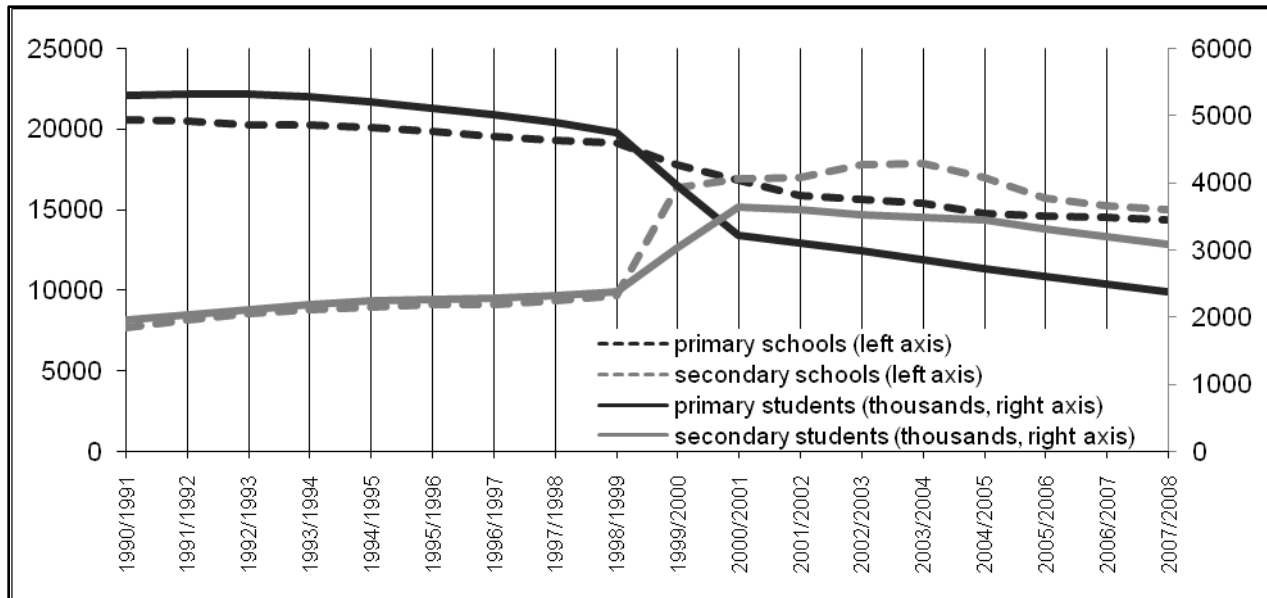
<sup>17</sup> M.Herbst, J.Herczyński, and A.Levitas, „Finansowanie oświaty w Polsce – diagnoza, dylematy, możliwości”, EUROREG 2009.

<sup>18</sup> M.Jakubowski and I.Topinska, “Impact of Decentralization on Public Service Delivery and Equity,” Centre for Social and Economic Research, Warsaw, 2006.



grades to six. As shown in Figure 9, the reform resulted in the creation of over 6,000 lower secondary schools (*gymnasia*). The number of primary schools dropped immediately (from 1998/99 to 1999/2000) by 1,300, but the total effect of reform implementation over three years was the closure of over 3,000 primary schools. The demographic trend in upper secondary schools remained positive until 2004/05, and then the number of students began to fall. Overall, the trend in the number of schools followed quite closely the changes in enrollment in both the primary and secondary tiers.

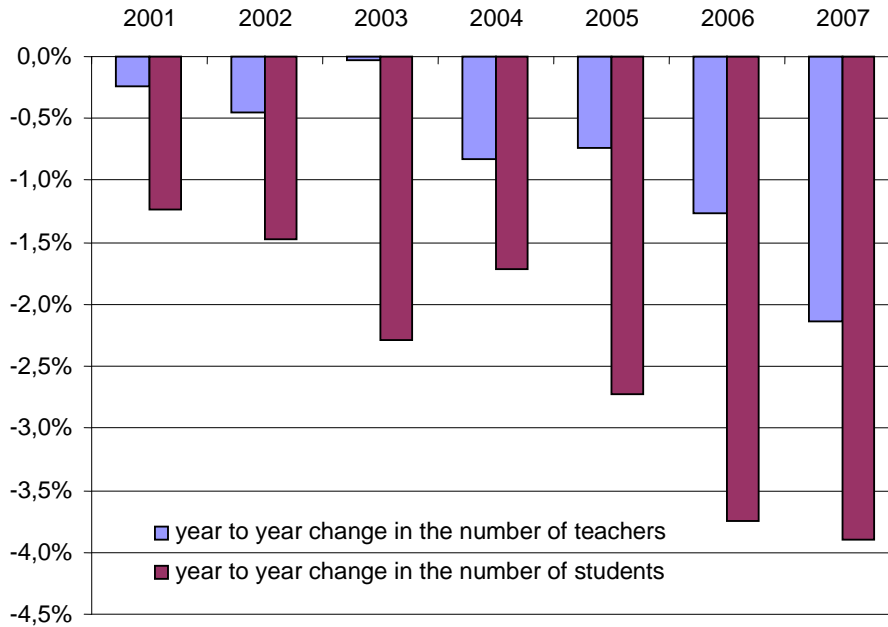
**Figure 9: Total Enrollment and School Number in Poland (Primary and secondary education)**



Source: Based on Central Statistical Office data.

However, adjustments to the size of the teaching force have not responded in the same manner. During 1994–2000, employment remained relatively stable, despite an 8 percent drop in enrollment. Over the next seven years (as Figure 10 demonstrates), the 16 percent decrease in the number of students in primary and secondary education was accompanied by an only 6 percent decrease in the number of (full-time equivalent) teachers. Additional efficiency gains have been difficult due to the rigid Teacher’s Charter, which makes the management of the teaching force cumbersome and inflexible. Moreover, local authorities have little incentive to adjust the size of their teaching force because (a) the subvention envelope floor (in the presence of demographic decline) guarantees that their per-student allocation will increase yearly, (b) the severance costs of firing a teacher (estimated at an additional six months’ salary) are too heavy a weight to carry at once, and (c) their constituents (parents and teachers) do not like to see teachers fired. Nonetheless, with an average age of the teacher population of 42, there are opportunities to achieve reductions through attrition or reallocation of teachers to other levels of education that need to expand (such as preschool), but these reductions will take time.

**Figure 10: Dynamics of Enrollment and Teacher Employment, 2000–07**



Source: M.Herbst, J.Herczyński, and A.Levitas, „Finansowanie oświaty w Polsce – diagnoza, dylematy, możliwości”, EUROREG 2009.

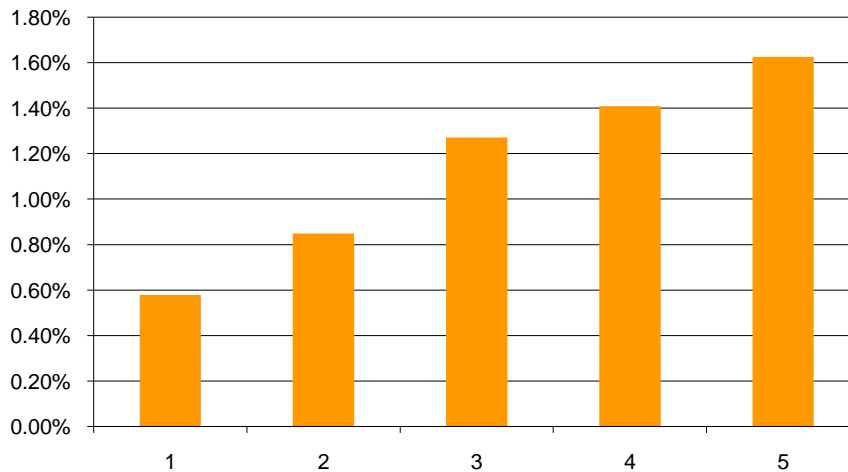
### Primary and Secondary Education Financing: Equity

34. **The financing mechanism for primary and secondary education appears to be reasonably equitable.** High and virtually universal enrollment rates guarantee that even the poorest populations are being served by the mainly public education system. Moreover, the capitation mechanism of the subvention coupled with the ultimately similar fiscal efforts among municipalities help in avoiding gross inequities in the distribution of financial resources around Poland. Indeed, when analyzing the behavior per municipality of total per-student spending on primary education, it is positively correlated with the tax base of the local government, but the magnitude of this effect is rather weak.<sup>19</sup> Finally, the current ratio of per-student expenditure between tertiary and primary education is 1.55, which compares well with the average among EU-15 (1.9 in 2001) and EU-8 (2.8 in 2001) countries. This partially reflects an under-spending on higher education (discussed below), but it also reflects attention to the financing of primary schools, important to providing a level ground for all students in the country.
35. **The high enrollment rates and equitable access to schooling are confirmed through analyses of data from the 2007 Household Survey.** In particular, the out-of-school rate of 8 percent (for students aged 6–18), although slightly higher than what is reported in official data, is uniform across the quintiles of per-capita consumption of households. The survey also shows that families in cities and those with high income spend significantly more per capita

<sup>19</sup> M.Herbst, J.Herczyński, and A.Levitas, „Finansowanie oświaty w Polsce – diagnoza, dylematy, możliwości”, EUROREG 2009. . Econometric modeling shows that a 10 percent difference in the tax base among municipalities is associated with an only 0.8 percent gap in per-student spending on primary education (controlling for average class size and population density).

on education than rural and low-income households. More noticeably, affluent families spend more on their children's education, not only in terms of nominal amounts, but also as a percent of their budgets (Figure 11).

**Figure 11: Per Capita Spending on Education in Polish Households as a Percent of Total Monthly Consumption, by Quintile**



Source: Household Survey 2007.

**The education subvention grant alone contributes to equity, but its complex algorithm could be improved.** Table 8 provides important insights on the effects of the education subvention on equity. Even though richer local governments have a tax base that is 3.8 times higher than poorer counterparts (Table 10 column a ), their total revenues per capita are only 1.2 times higher once all the subventions and targeted programs are factored in (Table 10 column d), suggesting that the overall subvention strategy serves a critical equalizing role. When *only* the education subvention is factored in (Table 10 column b), wealthier municipalities are down to twice as much revenue as poorer municipalities, suggesting some contribution by the education subvention to equity of expenditures.<sup>20</sup> This indicates that the general equalization mechanism works well, and the education subvention contributes to it.

A further analysis of the differences between education financing in urban and rural municipalities also appears to confirm the subvention's role in equitable resource distribution. The per pupil expenditure at the primary education level in 2006 is about 6,000 PLN (2008 price levels). Looking more closely at the regional variations, rural municipalities in 2006 averaged around 6,800 PLN per pupil while urban municipalities expended on average 5,200 per pupil. The cost of a pupil in a rural setting is 31% higher than that of a pupil in a city. This different level of expenditure agrees with cost expectations based on average class sizes across municipality types. Urban primary schools with lower per pupil expenditures averaged 23 pupils per class while rural schools with higher costs averaged just 17 pupils per class. The education subvention appears to take these cost differentials into account. The weighting for a

<sup>20</sup> Another way of looking at this analysis is that the full subvention system reduces the standard deviation of the local revenues per capita by 46 percent, thus generating important equalization among municipalities. When only the education subvention is factored in, the reduction of the standard deviation on the local revenues per capita is just about 10 percent, suggesting that the education subvention contributes to, but is not the strongest driver toward, equity among the municipalities.

rural student is 1.38 that of an urban student<sup>21</sup> and indicates that financing provisions are helping achieve an equitable balancing of education financing across municipalities.

36. Thus, the education subvention plays both a transparency and an equalizing role, but due to its global envelope floor, it does not play a role in gaining efficiency for the system. It is important to observe, however, that there is space for improvement in the education subvention algorithm with respect to promoting further equity and simplifying the algorithm to make it more easily understood and, thus, more transparent. In fact, Tables 6 and 8 suggest that, although overall the system addresses the equity challenge between municipalities in a relatively effective way, the variation among local governments' financial efforts (though not necessarily between the poor and affluent) is significant. Analysis suggests that the subvention could be distributed more efficiently. Even if, on the national average, the education subvention is essentially equal to the wage bill, the education wage bill for one-fifth of municipalities is over 110 percent, while for another one-fifth the total wage bill in education is less than 90 percent of education subvention (preschools excluded).

**Table 10: Fiscal Equalization Effects in Polish Municipalities, 2006**  
(Data in PLN)

Quartile – Own Revenues Per Capita	Average Own Revenues Per Capita (a)	Average Own Revenues + Education Subvention Per Capita (b)	Average Own Revenues + Education Subvention + Equalizing Subvention Per Capita (c)	Average Total Revenues Per Capita (includes average own revenues + education subvention + equalizing subvention + others*) (d)
1	391	987	1,362	1,966
2	564	1,144	1,425	1,998
3	764	1,295	1,460	1,992
4	1,499	1,986	2,025	2,515
Average	804	1,353	1,568	2,118

\* “others” includes targeted grants, which play an important role in poor municipalities, and a small subvention (on average, 10 PLN per capita) based on a horizontal mechanism. The richest local governments pay the 15 percent tax on their tax revenues above 150 percent of the national average, and 30 percent tax on the revenues above 300 percent. Then the subvention is distributed according to “social needs,” mostly based on housing benefits needs.

Source: Based on Central Statistical Office and Ministry of Finance data.

### Primary and Secondary Education Financing: Summary

37. **The above-mentioned financing strategy has resulted in an equitable and generally transparent distribution of resources; however, the strategy does not promote efficiency in expenditures. As a result, there has been no decline in the education wage bill expenditures despite a sharp drop in student enrollment.** The subvention system (education plus equalization subventions) are generally effective in providing financial support to the local governments that need it in order to deliver the education service. This explains why the fiscal effort among municipalities—rich and poor—to complement the subvention does not depart significantly from the average local revenue

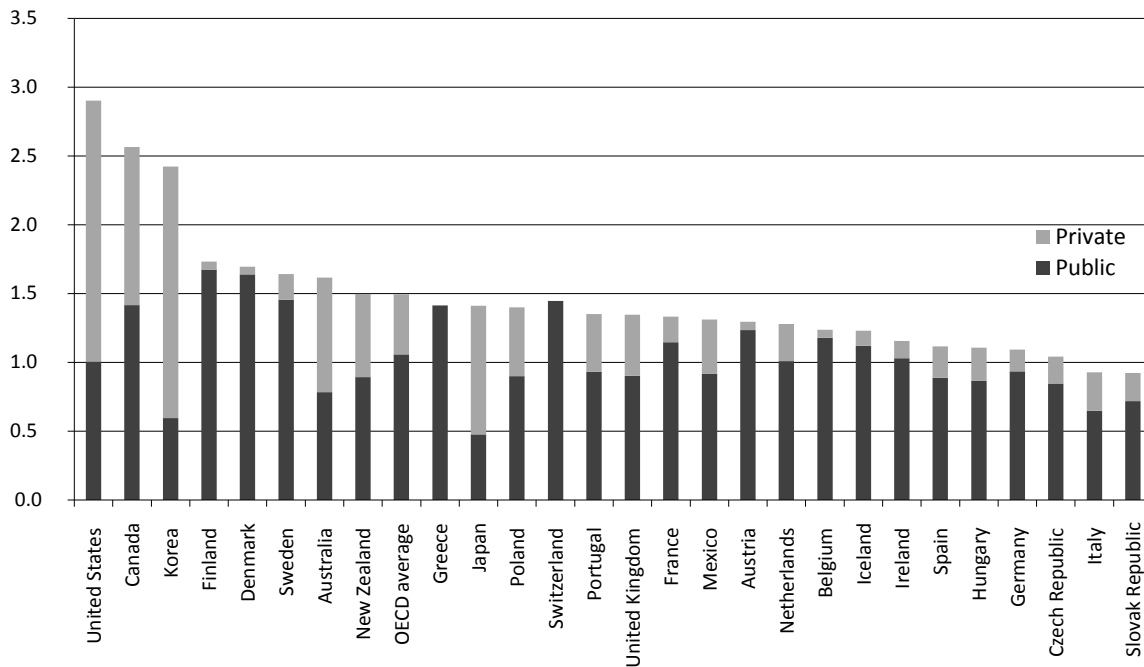
<sup>21</sup> Rosalind Levacic, “World Bank study: A stocktaking of per capita financing in education in Poland”. Annex A: Additional Statistics on School Funding. November 2007.

financing (35 percent of total education expenditures). Moreover, the capitation nature of the algorithm of the education subvention helps in providing some transparency to the distribution of resources, despite the complexity of the algorithm itself. However, the lack of incentives for efficiency should be a matter of concern. At the center of this issue are: (a) the presence by Law of a floor for the total envelope of the subvention, which effectively limits the subvention's ability to adjust to demographics, and (b) the difficulties adjusting the teaching force to the falling number of students. The effect of this is that the per-student allocation of the subvention (and therefore the expenditure in primary and secondary education) is increasing. This would be a welcome development for Poland, a country with comparably low per-student expenditures. Unfortunately, the lion's share of these resources seems to be financing inefficiencies nested in the poor deployment and management of the teaching force. Indeed, with a falling number of students, the wage bill continues to increase and its participation over the total expenditures continues to be relatively constant.

### **Tertiary Education Financing: Expenditures**

**38. Public expenditure on tertiary education in Poland represents 0.9 percent of GDP, lower than the 1.1 percent average of OECD countries.** Once private investment is factored in, Poland spends about 1.4 percent of GDP (2007), which is close to the 2005 OECD country average (see Figure 12). Clearly, private provision and financing of tertiary education in Poland has been a critical element in explaining the rapid enrollment growth and the impressive enrollment patterns of the country. Tertiary education public spending represents about 19 percent of total public spending on education, comparable to the 21 percent average for OECD countries. Moreover, the ratio of tertiary to primary per-student public spending is 1.55, lower than the 1.9 average for EU-15 countries, suggesting that expenditure within subsectors is progressive, because it does not overspend on tertiary education at the expense of lower levels of education. This indicator, incidentally, would also suggest some level of under-spending in tertiary education. Indeed, in 2007, the per-student expenditure on tertiary institutions in Poland was 9,422 PLN (equivalent to PPP EURO 4,932) which represented about 59 percent of the average 2005 public expenditure in EU-15 countries.

**Figure 12: Expenditure on Tertiary Education as a Percentage of GDP, by Source of Fund (2005)<sup>a</sup>**



a. 2007 data for Poland.

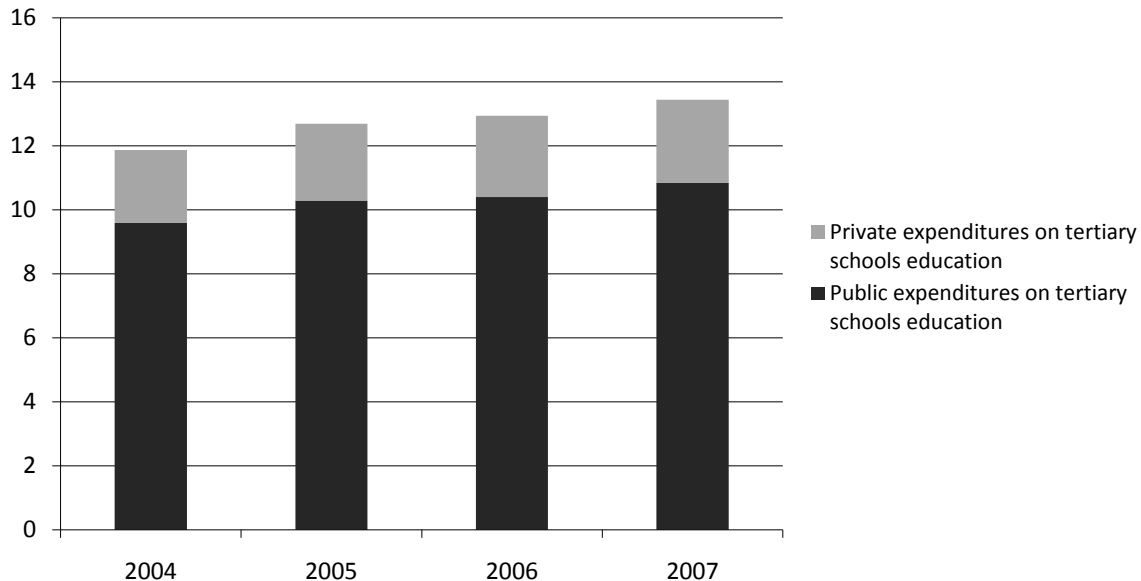
Note: Orange bars are public expenditures; green bars are private expenditures.

Source: OECD, Education at a Glance 2008.

39. **An algorithm is also used to distribute public resources to public higher-education institutions.** Public tertiary institutions receive funds from the Ministry of Science and Higher Education through an algorithm that takes into account variables such as the number of regular students (evening and weekend students excluded), the structure of teaching staff (professors, assistant professors, others), the research activity (number of projects in the previous year), the number of Ph.D. and professor titles, and the intensity of international exchange. The total envelope of resources to be distributed under this algorithm was 7.5 billion PLN, representing about 80 percent of the resources that the Ministry of Science and Higher Education spends on higher-education activities. Overall, it has been observed over the last few years that the allocation to a given institution from one year to another varies little.
40. **Total public expenditures by higher-education institutions in Poland exceeded 10.8 billion PLN (2007), including spending generated by revenues from both budget revenues and some student fees.** Figure 13 summarizes the private/public expenditures in higher education. Private financing is high and growing. With regard to public expenditures, aside from the resources distributed through the algorithm, additional public spending from the budget is a result of (a) direct assistance to students for educational materials (1.5 billion PLN), which is also distributed to universities through a per-capita algorithm and which is allocated by a committee in each institution (private and public) and paid in cash to students; (b) subsidies for interest rates on student loans (0.15 billion PLN); and (c) other expenditures including support for specialized universities and administrative costs. Public funds go almost exclusively to public institutions (more than 99 percent). However, approximately 20 percent of the budgets of

public institutions comes from student fees paid by weekend and evening students. In contrast, private tertiary schools are financed almost exclusively by student fees.

**Figure 13: Higher-education Funding in Poland (2004–07),**  
**(PLN billions, constant 2007 prices)**



*Note:* The numbers in the figure refer to the revenues of tertiary schools. They do not include the expenditures in the higher-education sector that do not enter Higher Education Institution’s budgets.

*Source:* Central Statistical Office.

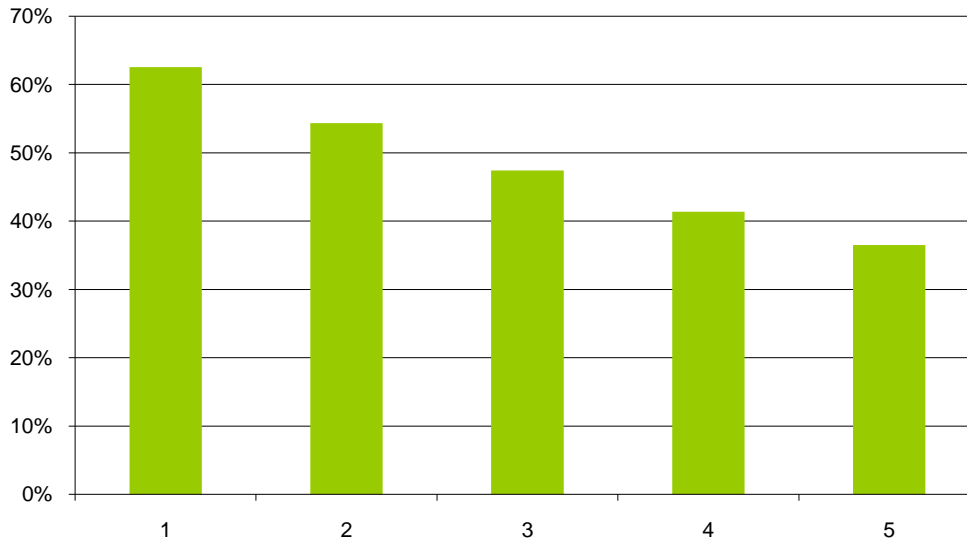
### Tertiary Education Financing: Equity

41. **Higher education in Poland presents an equity challenge.** With the expansion of higher education and the growth in private service delivery, the competition for the “day spaces” that are free of charge in public universities became fierce. In 2003, for example, Warsaw University could take only 1 of 10 applicants, with even worse ratios in fields such as economics, management, biotechnology, and law. Students prepare assiduously for this selection process by taking private lessons. Indeed, a pilot survey at Warsaw University demonstrated that 63 percent attended paid courses or took private lessons to prepare for admission. The result is not surprising: students from more affluent, urban families are overrepresented in the group that benefits from the full subsidy. Unfortunately, few data exist about this, but a 1999 study based on a survey of second-year students at Warsaw University revealed that students whose parents had higher education had better access to the “day spaces” than those whose parents did not. On average, 64 percent of survey participants paid tuition fees, but when disaggregated, if a student’s father had higher education, this percentage fell to 48 percent, and if a student’s father had only primary education, the percentage was 78 percent.<sup>22</sup> The enrollment rates in higher education by household consumption quintile confirm this inequitable pattern, since the rate was 63 percent for the highest quintile in 2007 compared to 37 percent for the lowest quintile (Figure 14). Moreover, while the enrollment rate within the highest quintile has increased significantly since the 2003 Household Survey (from 53 percent),

<sup>22</sup> Information obtained from “Tertiary Education in Poland,” EIB and the World Bank, July 2004.

the value for low-income families remained at the same level, which indicates that the inequality of access to higher education rises over time.

**Figure 14: Share of 19–26-years-olds Not Attending any School, by Quintile of Household Monthly Consumption Per Capita**



Source: 2007 Household Survey.

42. **Poland created the Student Loan and Credit Fund, in 1998, to help students pay tuition and living expenses.** This fund is operated by the Bank of the National Economy (BGK) and loans are granted to students through commercial banks. The fund covers the costs of interest payments during studies and the administrative costs on behalf of the students. Loans are available for low-income students<sup>23</sup> (regardless of type of institution attended), provided they are under age 25 when starting their studies. Students can borrow 400 PLN or 600 PLN per month during the 10 months of the academic year, for a maximum of six years for undergraduate students and 10 years for graduate students. Repayment begins two years after completing studies and lasts twice as long as the duration of the loan disbursements. After studies are completed, the interest rates are paid by students at about 50 percent of the rediscount rate of the national Bank of Poland (between 5.25 percent and 6.25 percent in 2008). The debt is discounted by 20 percent for students graduating among the top 5 percent of their class, the debt is discounted on a case-by-case basis for students with difficult living conditions (that is, accident, illness), and the debt is fully eliminated for students who die or suffer permanent disability.

43. **However, the impact of the loan program is limited, since few students actually use it.** Indeed, during the 2007/08 academic year, only 16,423 new loans were approved, bringing the total number of active loans to 209,383 (representing 10.5 percent of coverage among the active student population). Of the new loans, 76 percent went to full-time students and 81 percent went to students attending public universities. Officials believe the loan program does not have wider coverage because the involved commercial banks require physical collateral to approve the loans, thus making this option less viable for poorer students. Limited access to loans may be considered to be one of the reasons

<sup>23</sup> For the 2008/09 school year, this was defined as students from families with less than the 2,500 PLN per capita of income.



for low enrollment rates in higher education among individuals aged 19–26 from low-income families (as discussed in para. 35). Household Survey data show that only 9 percent of private-day-school students come from households within the first quintile of per capita consumption, while 40 percent come from households from the last quintile.

### **Tertiary Education Financing: Summary**

44. **The growing role of private institutions and financing in Poland’s tertiary education has been an important factor in expanding coverage without overburdening public expenditures, but also raises new issues of quality and relevance.** Nevertheless, within the public financing strategy there is a need to revise the allocation of subsidies from one that only considers merit to one that considers merit and means-testing to increase the equity of the subsidy allocation. This implies some politically difficult decisions, such as establishing tuition charges for all students in public tertiary education institutions that can be supported by a stronger and more effective student loan program, and perhaps more important, that can also be condoned (or partially condoned) through consideration of merit and financial need of the student. Countries in Western Europe (i.e. Netherlands), in Asia (i.e. China) and more recently in Latin America (i.e. Colombia, Chile) have successfully made this shift in higher education financing.

### **Summary and Policy Options for the Unfinished Agenda**

45. **Enrollment in preschool education is lower than expected for the amount of resources spent.** Preschool education in Poland has low coverage (only 53 percent of 4 year olds attend) despite representing an investment (0.45 percent of GDP) equal to OECD countries, and using 75 percent of the comparable PPP per-student expenditures. This mismatch in outcomes is the result of a highly regulated subsector with inflexible service delivery expectations. The result is an expensive program that can barely be afforded by municipalities, thus hampering expansion. However, it is widely recognized that expanding preschool education will have important effects on equity and will increase the school readiness of students, potentially improving student learning throughout their educational experience. Investing in the early years of education (pre-primary) has been widely studied as one of the investments with highest returns (according to the High/Scope Perry study in the United States, USD 17 in benefits over the lifetime of a student for every USD 1 spent in quality pre-primary programs).

#### **Policy options to achieve these objectives include:**

- **Diversify service delivery for 3–4 year olds:** While a first step was taken in 2008 to increase the opportunity for service delivery through social and community organizations, the efforts to diversify service delivery and create a flexible but effective framework for monitoring service delivery should be deepened. This implies focusing on diversifying service delivery methods (non-public institutions are in the best position to explore these), with lower per-capita costs, and creative staffing and management arrangements. The government should continue to gradually support the expansion of preschool (for 3- and 4-year-old children) through increased flexibility for non-public institutions to flourish. This can be a costly endeavor, and will likely need to be implemented

overtime. However, for the purpose of quantifying the effort, we estimate that if all 4 year olds that are out of school in 2009 were to be enrolled in a pre-primary education program during 2010, the cost for Poland would represent an additional PLN 1.7 billion, estimating per-capita savings of 25% through the use of alternative delivery mechanisms (i.e., non-government organizations).

- **Enhance participation gradually for 5 year olds:** The government should strengthen the schooling of 5 year olds by linking their classrooms to primary schools and by developing age-appropriate curriculums to better respond to the needs of these children. By linking to primary schools, new shared service delivery mechanisms can be developed that will allow wider accessibility, even maintaining the existing teaching force in primary schools. This is especially crucial in rural areas, where participation is low and primary schools small.

46. **Efficiency and quality of instruction of primary and lower secondary education can be further improved by addressing challenges in teacher management.** While a reduction of 25 percent of primary schools since 1996 reflects important adjustments in the school network to respond to falling demand, these reductions have not been as significant among the teaching force, whose wage bill represents 70 percent of educational expenditures. Moreover, as discussed, teacher salary structures present negative incentives to quality of teaching. Therefore, it is important to adjust both the size of the teaching force and the gradient of teacher salaries.

**Policy options to adjust the teaching force to the size of the demand include:**

- Set indicative standards on class size to be applied mainly by urban local governments, and determine the per-student allocation of the subvention based on those standard average class sizes. The low student:teacher ratios in Poland (11:1 in primary and 12.3:1 in secondary) suggest that there may be ample space for this policy adjustment. The savings here can be substantial: in a simulation with expenditures for 2006, an increase from 23 students to 25 students per class in urban districts would have resulted in savings of about 391 million PLN that year. This calculation is explained in Annex 4.
- Establish a central fund for severance packages to be used as an incentive for local authorities to rationalize their teaching force. For example, a fund generated with 0.5 percent of reserves from the education subvention would cover the severance packages of about 11,000 teachers every year, generating yearly savings of about 280 million PLN in the wage bill, which represents cumulative savings of 4.2 billion PLN over five years.<sup>24</sup>
- Remove the established floor for the subvention envelope, and instead determine total funding based on the development of indicative standards for service delivery (class size – as indicated above, teacher ratios, teaching time, wages, non-recurrent educational inputs, facilities, etc.) These indicative standards should be revised at least every five years in a transparent and technical manner.

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<sup>24</sup> The cost of a severance package is six months' base salary of the teacher. The severance is paid only to teachers that have reached one of the two upper tiers of the professional hierarchy (expert teachers or nominated teachers). These two tiers account for 80 percent of teachers. Given that the average base wage for expert and nominated teachers is 1,991 PLN (1,037 PPP euro), the average severance pay is estimated at 11,946 PLN (6,222 PPP euro).

It may also be advisable to separate the budget lines of the education subvention (which is meant for administering and maintaining the operations of the system) from the budget lines for investments in quality improvement. While the distribution of both can be done under the same per-capita guidelines of the subvention, separating the budget lines will avoid an undesirable trade-off between quality and efficiency. Overall, these indicative standards would be used to calculate the total funding envelope, which then is distributed through the education subvention's funding formula. It must be emphasized, however, that developing these standards as a tool to identify the total funding envelope is not intended to interfere with the freedom and obligations of local governments for the quality of education, which are clear and should be maintained.

- Further expand the weekly hours of work of teachers to rationalize the teaching workforce. The Ministry of Finance estimates that with an increase of six hours per week (that is, from 18 hours/week to 24 hours/week of classroom work) nearly 70,000 teaching posts could be rationalized, equivalent to about 14 percent of the workforce (about 1.6 billion PLN per year).

**A policy option to adjust the gradient of teachers' salaries is:**

- Increase entry salaries but reduce the tenure-related salary increases throughout a teacher's career over time to attract an energetic and well-prepared teaching force that may leave the profession earlier and be replaced by a new cohort. This rapid rotation will convert the teaching force into a younger cadre, open to innovation and circulating more fluidly between schools and industry throughout their careers. This is a budget-neutral option. A transition toward this policy option was initiated in 2009, by providing higher salary increases for junior teachers (34 percent) than for expert teachers (10 percent).

**47. Skills attained in secondary education should continue to shift toward further alignment with those demanded by the labor market.** Building on early successes in secondary education reform, the government should continue to strengthen and expand the teaching of general secondary education skills among all students.

**Policy options for achieving further alignment with labor market demands include:**

- **Further delaying tracking into specialized training to 10<sup>th</sup> grade.** Aside from the educational merits of this option, some fiscal savings can be expected because in calculating the education subvention, the delivery costs for general education are lower than for diversified training.
- **Continue reform of the upper secondary education curriculum to better integrate vocational training with general education.** This implies a further consolidation of tracking options within secondary schools to focus more on the development of a family of broad skills instead of on specific occupation training.
- **Establish stronger and more stable national examinations, including revamping the *matura* test, and including mandatory math testing at the exit of secondary education.** Starting in 2002, Poland developed a National

Assessment system that yearly tests all students in the last grade of elementary school and the last grade of lower secondary school. These two tests are complemented by the *matura*, which tests all aspiring candidates for entrance into higher education. Both the National Assessment tests and the *matura* have been important in introducing a culture of information and accountability into the system, but clearly, they need to be further strengthened from a technical perspective to ensure their validity and reliability and, ultimately, their long-term sustainability.

48. **Adjustments in the financing scheme for higher education may lead to a more equitable and fiscally sustainable system.** Evidence suggests that higher-education subsidies (free education for “day students”) are resulting in a regressive system that disproportionately benefits the wealthy. By establishing a mechanism through which the subsidies are allocated on the basis of need, the public system may simultaneously address issues of equity and quality.

**Policy options for establishing a more equitable and fiscally sustainable higher-education system include:**

- **Expand student loan opportunities.** The current student loan program is small, in part due to some of the loan conditions (real collateral, for example). International experience suggests that revising the loan scheme and making it more flexible, and affordable (which includes some embedded subsidies), will expand its reach with little risk to repayment given that the students’ human capital and associated future income are perhaps the strongest guarantee of repayment.
- **As a key element of higher-education reform, revise the tuition policies of public universities so that those who can pay will pay independently of the type of program (day, evening, or weekend) attended.** While this may be a politically difficult transition, it is possible to enact the following intermediate policies:
  - Mandate that students who prolong their studies over and above a standard period of five years will have to pay for the additional study period.
  - Mandate that students will benefit from only one fully subsidized degree, and those pursuing additional degrees will have to pay for their studies.

49. **The relevance of higher-education programs can be improved and the quality-assurance mechanisms must be strengthened in light of the rapid expansion of private service delivery.** The government and private sector providers can complement and support each other given their shared goals of expanding access to quality and highly relevant higher-education training for students. It is important, therefore, that the higher-education reform currently under discussion establishes mechanisms to address quality and relevance for both public and private higher-education institutions.

**Policy options to address quality and relevance include:**

- **Establish a quality-assurance framework.** The government should consider strengthening the existing accreditation system by linking it to international accreditation agencies and strengthening the consequences for a poor evaluation of a program or institution. This is a critical instrument in providing a quality improvement road map for public institutions, but also for private institutions. The accreditation system does not need to be controlled directly by the government, it may also be managed by an independent organization, respecting the autonomy of higher education institutions.
- **Adjust the mechanisms through which financing flows to higher-education institutions, including research institutes.** The algorithm for the distribution of public resources should be strengthened to provide stronger incentives for outcomes on technological inventions and patents. Moreover, all resources for R&D should be assigned on a competitive basis.
- **Centralize a national one-point access to the web-based labor market observatories created at regional levels.** Several regional governments have created web-based labor market observatories to assist in student decision-making and to broadly inform both providers and users of higher education. These are important because they are able to address information failures that result from a rapidly changing labor market. Creating a one-point access that leads to the regional observatories will dynamize their use and foster stronger labor market fluidity.

**Accelerate the development of a lifelong learning framework, strategy, and plan.** Lifelong learning is a critical instrument to ensure that skills of those employees that are already in the job market are constantly renewed and updated to the rapidly changing demands of the knowledge economy. However, Poland appears to be lagging behind in tackling this challenge as a result of institutional coordination deficiencies and unclear roles and responsibilities among different Government agencies.

**Annex 1: Division of Responsibilities in the Polish Education System—Preschool, Primary, and Secondary Level**

<b>Task</b>	<b>Ministry of Education</b>	<b>Ministry of Science and Higher Education</b>	<b>Other Ministries</b>	<b>Regional Education Bureau (Kuratorium)</b>	<b>Central Examination Committee</b>	<b>Regional Government</b>	<b>County Government</b>	<b>Municipal Government</b>
<b>Programmatic norms, standards</b>	Preschool, primary, and secondary education	Tertiary education						
<b>Pedagogical supervision</b>				Preschool, primary, and secondary education				
<b>Standardized tests</b>					Primary and secondary schools			
<b>School maintenance, network management</b>			Selected specific professional schools (e.g., agricultural, art)			Specific professional schools (e.g., teacher training)	Most upper-secondary schools, most non-school educational institutions	Preschools, primary schools, lower secondary schools
<b>Indirect funding</b>	Primary and secondary schools (algorithm)	Public tertiary schools (algorithm)						
<b>Direct funding</b>			Selected specific professional schools (e.g., agricultural, art)			Selected schools (e.g., teacher training)	Most upper secondary schools, most non-school educational institutions	Preschools, primary schools, lower secondary schools

## Annex 2: Schools and Students in the Polish Education System, 2007/08a

Tier Run by	Schools			Students		
	Local Government	Central Administration	Private and NGO	Local Government	Central Administration	Private and NGO
<b>Preschool</b>	6,541	—	1,224	609,346	0	85,764
<b>Primary</b>	13,540	30	793	2,347,921	3,780	53,442
<b>Lower secondary</b>	5,678	16	631	1,373,248	503	46,385
<b>Upper secondary</b>	5,297	19	514	1,525,191	2,725	39,451
<i>General</i>	1,923	1	434	678,387	138	32,848
<i>Vocational</i>	3,374	18	80	641,526	2,587	6,603
<i>Basic vocational</i>	1,278	17	54	205,278	330	6,191
<b>Tertiary</b>	—	131	324	0	1,276,937	660,467

— = Not applicable .

a. Without schools for students with special educational needs.

Source: Central Statistical Office.

### Annex 3: Calculating Savings from Minimum Indicative Class Size Standards in Poland

The average class size in urban primary schools in Poland is 23 (2006 data). At the same time, regression analysis (Table 11) shows that in urban municipalities the elasticity of per-student spending to the average class size is close to 1. This means that, statistically, a 10 percent increase in the average class size is associated with an identical drop in per-student expenditures.

**Table 11: Estimation of Per-student Municipal Spending on Primary Schools, 2006**

Variable	All Municipalities		65 Large Cities		Rural Municipalities	
<b>Intercept</b>	<b>6.71</b>	<b>(37.2)</b>	<b>11.3</b>	<b>(6.29)</b>	<b>6.37</b>	<b>(17.1)</b>
$\ln DW_i$	<b>0.09</b>	<b>(16.9)</b>	<b>0.15</b>	<b>(4.50)</b>	<b>0.08</b>	<b>(12.2)</b>
$\ln SO_i$	<b>0.36</b>	<b>(20.4)</b>	-0.10	(-0.53)	<b>0.39</b>	<b>(9.22)</b>
$\ln DypI_i$	<b>0.01</b>	<b>(4.25)</b>	<b>0.12</b>	<b>(2.77)</b>	<b>0.01</b>	<b>(2.22)</b>
$\ln WO_i$	<b>-0.58</b>	<b>(-39.6)</b>	<b>-0.98</b>	<b>(-6.19)</b>	-	<b>(-31.2)</b>
					<b>0.54</b>	
<b>N</b>	2,471		65		1582	
<b>R<sup>2</sup></b>	0.58		0.65		0.42	

Endogenous variable: log (recurrent spending on primary schools per student in 2006).

Parameters significant at 5 percent level are bolded.

$\ln WO$  is the natural logarithm of the average class size.

Given that Polish cities (urban municipalities) spent around 4.5 billion PLN on primary schools in 2006, if we assume that the indicative standard of the class size was set at 25 (compared to the actual average class size of 23), and assuming that local governments follow this standard, a decrease in total spending by 391 million PLN in 2006 could be expected.

The analysis becomes more complex in the case of rural areas, in which the elasticity of spending to the class size (around 0.54) is lower than in cities, revealing some inefficiency in the distribution of the education subvention. If the indicative standard for primary school class size was set at 20 (with 17 being the average in 2006), and if rural municipalities adjust their network to this standard, the estimated drop in total spending would be of 475 million PLN.

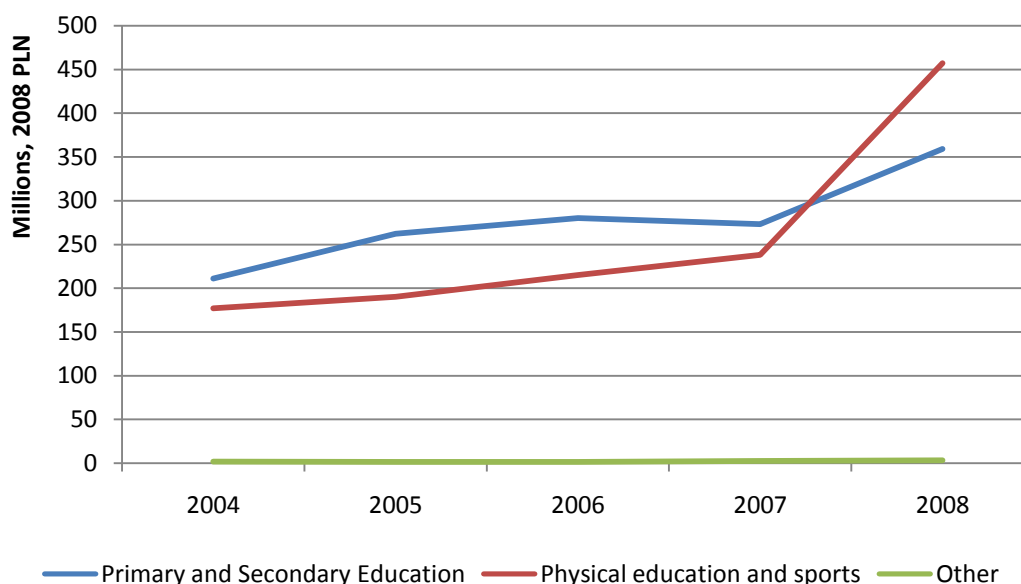


#### Annex 4: Local capital expenditures for primary and secondary education

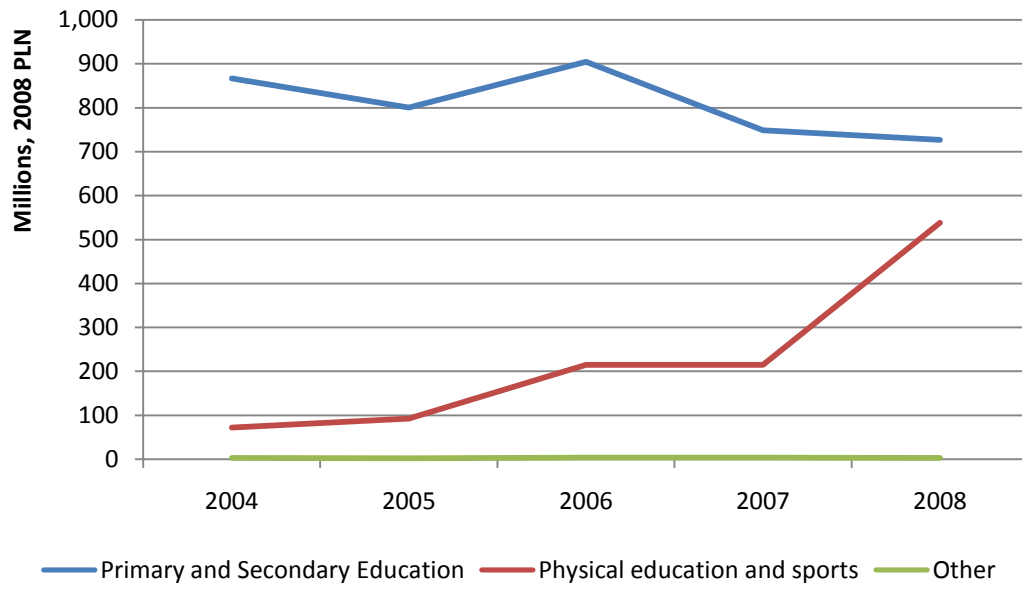
Using the budget classification provided by the Ministry of Finance, a different and broader measure of capital expenditures can be seen in more detail than the previously cited ‘investment expenditures’. These capital expenditures within the educational sector have shown recent and dramatic changes in level of outlays. As classified by the Ministry of Finance, investments in education were 12% of total educational expenditures in 2008. However, this average does not accurately capture the differences in investment options between rural and urban municipalities.

Within this broader capital expenditures classification, almost all funds were spent on a) primary and secondary schools and b) physical education. In urban areas, both categories are roughly of the same magnitude and have more than doubled in real terms over five years. For rural areas, investment in primary and secondary schools has constituted the main target of capital expenditures. Starting in 2008, however, investment in physical education has nearly tripled to 538 billion PLN and is close to the levels primary and secondary educational investments which reached 727 billion PLN. The recent increase in capital expenditures is correlated with population growth of a municipality. While in aggregate terms the capital expenditures in rural areas were much larger than in urban areas, the average expenditure per capita is roughly the same. Rural municipalities in 2008 averaged 117 PLN per capita of education-related investment while urban towns spent an average of 113 PLN per each resident.

Figure 15: Capital Expenditures for Education for Urban Municipalities



**Figure 16: Capital Expenditures for Education for Rural Municipalities**



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