This chapter discusses the funding formulas for the 5 selected countries and regions. For each country, we distinguish between primary, secondary and special needs schools’/students’ funding. As in all subchapters, we follow the same structure to describe the funding mechanism. First, we describe the funding formula for primary education, followed by that for secondary education and, finally, we describe the support for special needs students. In some cases, this division between primary and secondary education might be artificial as there is in fact just one funding formula; however, we keep the description of these two systems at least partially separate for the sake of consistency between chapters. The subchapter on special needs education includes students in regular classes as well as separate special needs schools. In British Columbia, Estonia, Finland and Massachusetts, we describe how the central government calculates the transfers to municipalities and we present some case studies of chosen municipalities in order to explain how the funds are then allocated to particular schools or schools districts. The funding formula in the Flemish system provides school boards with some funds that they can flexibly allocate among schools and classes (by changing school sizes or merging grades) but also with some ear-marked allocations (such as some allocations for additional lessons or on ICT).

It should be noted that a summary of the funding system, including a diagram, is presented at the end of each sub-chapter. Based on availability, we also include a (simplified) example of a primary and secondary school/school district funding calculation at the end of each sub-chapter. Table 21 provides a systematic overview of the main characteristics of each system.

### 4.1 British Columbia

Primary school districts in British Columbia receive funding on a per pupil basis, while secondary school districts are funded on a per course basis. The total funding consists of so-called “Basic Allocation” (for the 2017/18 academic year, this covered about 79 percent of the total allocation), “Unique Student” (13 percent), “Unique District” (7.5 percent), and “Funding Protection / Enrolment Decline” (0.5 percent). The “Basic Allocation” is the same as for primary and secondary school students (the allocation per course is set to 1/8 of the basic allocation per eligible primary school-age full-time equivalent
pupil). The secondary school funding differs mostly in some aspects of the calculation of “Unique Student” and “Unique District” allocations.

The Basic Allocation is a standard amount of money determined by the number of school-age pupils enrolled in a school district, and it includes resources to support the needs of pupils who are identified “as having learning disabilities, mild intellectual disabilities, students requiring moderate behaviour supports and students who are gifted” (BC Ministry of Education, p.138, 2016). The allocation recognizes needs for additional funding to support Boards of Education in providing learning assistance, speech-language pathology services, hospital homebound services, and assessment services. Regarding gifted students, a special guide has been developed for teachers on how to approach and help such students already for the 2006/2007 academic year. However, the numbers of students identified as gifted have dropped dramatically from 2.5 percent in 2002/2003 to 1.1 in 2013/2014. This is often explained as a consequence of there being no extra funding for students identified as gifted (Sherlock and Skelton, 2015).

The Basic Allocation differs for (1) Standard (Regular), Continuing Education and Alternate schools and for (2) Distributed Learning. For the first type of schools, districts receive 7,218 CAD in the 2016/17 academic year per eligible school-age full-time equivalent (FTE) student enrolled in the district. For the latter, the districts receive 6,030 CAD per eligible school-age full-time equivalent (FTE) student enrolled in schools and reported in the September enrolment count (British Columbia, Resource Management Division, 2016). In the remainder of this chapter we discuss the standard schools.

**Primary schools**

**Basic Allocation**
The Basic Allocation is a standard amount of money determined by the number of school-age pupils enrolled in a school district and it includes resources to support the needs of pupils who are identified “as having learning disabilities, mild intellectual disabilities, students requiring moderate behaviour supports and students who are gifted” (BC Ministry of Education, p.138, 2016).

The Basic Allocation per eligible school-age full-time equivalent (FTE) primary school pupil in the district was set at 7,218 CAD in the 2016/17 academic year (British Columbia, Resource Management Division, 2016).

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13 The guide is available online at http://www2.gov.bc.ca/assets/gov/education/kindergarten-to-grade-12/teach/teaching-tools/inclusive/gifted-education.pdf [accessed on 2017/09/03].

14 The term used for distance learning in Canada.
Unique Student
On top of the Basic Allocation, some primary school pupils with special needs may require additional support and funds. There are 3 different levels of special needs support in British Columbia which are presented in Table 2. The districts then obtain supplementary funding of 37,700 CAD per pupil in Level 1, of 18,850 CAD per pupil in Level 2 and of 9,500 CAD per pupil in Level 3. Details are provided in the chapter on support for special needs students below.

Supplement for other unique students’ needs
Furthermore, there is a supplement for other unique students’ needs. Students with such needs may be eligible to receive funding for Aboriginal Education (additional funding of 1,195 CAD per pupil) or English/French as a Second Language (1,380 CAD per pupil) if the requirements of these programs are met (Guiltner et al., 2008).

The province also provides supplements to fund services for “vulnerable students”. These are determined from the following factors:
– economic conditions (65 percent weight in the calculation),
– demographic vulnerability (12.5 percent),
– social conditions (12.5 percent),
– and educational attainment (10 percent).

The economic conditions are measured by the share of people receiving income assistance (40 percent), being in deep poverty (30 percent), and being in moderate poverty (30 percent). The demographic vulnerability includes factors such as the share of the aboriginal population (50 percent), single parents (30 percent) or recent immigrants (20 percent). The social conditions include having children in care (60 percent), serious crimes (20 percent), suicide/homicide (20 percent). And lastly educational attainment is measured as the share of adults who have not graduated from high school. All these factors are taken into account and then, based on available resources, the province provides additional funding proportionally based on vulnerable student population sizes. In 2017/18, 25 out of 60 school districts received a total funding of 11.219 million CAD.15

Unique District
A supplement for a unique district consists of a small community supplement, a low enrolment factor, a rural factor, a climate factor, a sparseness factor, a student location factor, a supplemental student location factor and a salary differential.

15 See https://www2.gov.bc.ca/assets/gov/education/administration/community-partnerships/communitylink/communitylink_vss_funding.pdf.
Small community supplement
The small community supplement is provided in order to support primary schools in small districts. The rationale behind it is that smaller classes and smaller schools are costlier per student.\(^{16}\) For regular\(^{17}\) primary schools, the supplement is provided in cases when the full-time student equivalent population in a defined area – which is either a single school or all schools located within 5 kilometers by the shortest road – is less than 250 students. The population of students is measured as the previous year’s enrolment. Specifically, a district receives:
- for each community with 8 or fewer primary full-time equivalent students: 78,250 CAD,
- for each community with 9 to 110 primary full-time equivalent students: 164,360 CAD,
- for each community with 110 to 250 primary full-time equivalent students: \(164,360 - (1,160 \times (\text{the number of time equivalents students} - 110))\) CAD.

Furthermore, a district is eligible for funding for small remote schools if there is a community with 75 or fewer primary school-age full-time equivalent students and one of the following is fulfilled:
- the school is at least 40 kilometers by road from the next nearest primary school,
- the school is at least 5 kilometers from the next nearest primary school but accessible only by gravel road, logging road or by water;

Then a district receives 166,800 CAD for each community with 15 or fewer primary full-time equivalent students and 187,600 CAD for each community with 16 to 75 primary full-time equivalent students.

Low enrolment factor
The low enrolment factor is also determined using the enrolment numbers for the previous school year. A district with 2,500 or fewer school-age full-time equivalents receives 1,385,000 CAD and a district with more than 2,500, but fewer than 15,000 school-age full-time equivalents receives:
\[1,385,000 - (110.80 \times (\text{the number of full-time equivalent students} - 2,500))\] CAD

Larger districts with more than 15,000 full-time equivalent students are not eligible.

\(^{16}\) In economics, the differences in costs per student would be explained as economies of scale.\(^{17}\) Other types of schools are not eligible.
Rural factor
The rural factor supplement is only for districts that have a district education office at least 100 kilometers away from Vancouver by road. It is calculated (in %) as follows:

\[(5 – \text{Population Scale}) \times 100 + \text{km to Vancouver} + \text{km to Regional Center} \times \text{previous year’s Basic Allocation} \times 0.2\]

So the factor is determined by the population of the city in which the district education office is located and the distances to Vancouver\(^\text{18}\) and the nearest city with a minimum population of 70,000.

The index is then multiplied by the Basic Allocation from the previous year’s funding for each school district, and finally the factor is weighted by 20 %.

Climate factor
The climate factor is calculated as follows:

\[(\text{Total Climate Days} – \text{provincial minimum}) \times \text{previous year’s Basic Allocation} \times 0.05\]

Total Climate Days is given as the sum of the number of very cold (so-called Days of Cooling) and very warm days (so-called Days of Heating) between 1981 and 2010 for each district.\(^\text{19}\) The provincial minimum is 2,748.3 Climate Days.

The index is then multiplied by the Basic Allocation from the previous year’s funding for each school district, and finally the factor is weighted by 5 %.\(^\text{19}\)

Sparseness factor
The sparseness factor aims to address the additional costs arising from increased travel in districts where schools are separated from the district education office. The details of the calculation are provided in the Operating Grants Manual.\(^\text{20}\)

The index is then again multiplied by the Basic Allocation from the previous year’s funding for each school district, and finally the factor is weighted by 12 %.\(^\text{20}\)

\(^{18}\) Different weighting might be applied to the distances if there is water separation.
\(^{19}\) Detailed definitions of Total Climate Days etc. are provided in the Operating Grants Manual https://www2.gov.bc.ca/assets/gov/education/administration/resource-management/k12funding/17-18/17-18-operating-grants-manual.pdf.
Student location factor
The student location factor is additional funding that reflects the school-age population density of communities within a given district. The density weighted full-time equivalent students are calculated first.\textsuperscript{21} A district receives:

\[ 258.75 \times \text{weighted primary full time equivalent student} \text{ CAD}. \]

Districts with fewer than 500 weighted full-time equivalents (during the previous school year) receive a basic amount of 50,000 CAD.

Supplemental student location factor
This supplement is paid as an addition to the student location factor and is calculated as

\[ 5,000 \times \text{nr. of Level 1 special needs student} + 1,000 \times \text{nr. of Level 2 special needs student}, \]

the numbers of students are based on the previous school year’s enrolments.

Supplement for salary differential
This supplement aims to address the differences in salaries across districts (a supplement is paid to districts with a higher average, no punishment to districts with a lower average) with higher average teacher salaries. The calculation of the supplement is simple:

\[ \text{Estimated number of educators in the district} \times \text{District salary differential} \]

The estimated number of educators is calculated as the total district enrolment divided by the assumed average student/teacher ratio (18). District salary differential is calculated as the difference between the provincial average and the district’s average salary.

Funding Protection / Enrolment Decline
This funding for enrolment decline is an additional amount for school districts with a funding decline larger than 1.5\% (in comparison with the previous year funding).

If the total operating grants from the previous school year to the total operating grants for the current year decline by more than 1.5\%, an additional funding protection is in place so that the year-to-year decline is no greater than 1.5\%.

Community LINK
CommunityLINK (Learning Includes Nutrition and Knowledge) is funding outside the Operating Grants (described above) that is meant to further support vulnerable students. It is proportionally (with respect to the number of vulnerable students) distributed to all districts. In 2017/18, the province distributed approximately 52 million CAD.

The funding is spent predominantly on services such as breakfasts, lunches and snack programs, academic support, counseling, youth workers and after-school programs.

Total per student funding
After accounting for all these factors, the funding formula generates very different per student funding for different districts. For example, while the funding per student in the district of Vancouver is around 8,000 CAD, the remote islands of Haida Gwaii receive almost 17,000 CAD per student, to recognize the various challenges they face there. In the following paragraph, we will discuss the district municipality of Mission. The population is about 38,833 and the area is 227.65 km² which makes the district similar to many small to middle-sized districts in Europe. The district includes many rural remote localities such as Silverdale, Silverhill or Ruskin.

An example a primary school budget in the district of Mission
In the following paragraph, we present an example of funding of the Deroche Elementary School. The funding presented below is based on real figures which were provided during the interviews.

In the 2016-2017 school year, there were 77 students enrolled in the school. In general, the district assumes a maximum of 24 students per class. However, in smaller schools, this might be impossible since there can be fewer students in a grade; therefore, the districts fund 4.9 full teachers’ positions (assuming approximately a ratio of 15 students per teacher).

Besides funding for teachers, there is funding for supplies and services and for staff development. The funding for supplies and services includes basic elementary funding per school, funding for the library, art and physical education, textbooks, paper, supplies, photocopying and other allocations (learning resources and library). The staff development is funding used mostly for in-service training.
The funding for supplies and services consists of:

1. **Basic elementary funding per school** – this is given by the number of students. Schools with fewer than 200 full-time equivalent students (such as the Deroche school being studied) receive 1,840 CAD. Schools with more than 200 but fewer than 300 receive 1,710 CAD, schools with more than 300 but fewer than 400 receive 1,580 CAD, schools with more than 400 but fewer than 500 receive 1,450 CAD.

2. **Funding for library** – for schools with fewer than 300 students, the funding is 15 CAD per student and 10 CAD per student for larger schools. In the case of the Deroche school, this means $77 \times 15 = 1,155$ rounded up to 1,200 CAD.

3. **Funding for art and physical education** – for schools with fewer than 300 pupils, the funding is 8 CAD per student and 6 CAD per student for larger schools. In the case of the Deroche school, this implies $77 \times 8 = 616$ rounded down to 600 CAD.

4. **Funding for textbooks** – for schools with fewer than 300 students, the funding is 12 CAD per student and 10 CAD per student for larger schools. In the case of the Deroche school, this means $77 \times 12 = 924$ rounded down to 900 CAD.

5. **Funding for paper** – This is again given by the number of students. It is 1,500 CAD for schools with fewer than 100 students, 2,500 CAD for schools with 101 to 300 students and 3,500 for schools with over 300 students. So, it amounts to 1,500 CAD for the studied Deroche school.

6. **Funding for supplies** – This input is determined by the number of full-time equivalent students which is then multiplied by 5 CAD. In the case of the Deroche school, this means $77 \times 5 = 385$ rounded up to 400 CAD.

7. **Funding for photocopying** – It is given by the number of students. It equals 1,500 CAD for schools with fewer than 100 students, 5,250 CAD for school with 101 to 300 students and 8,250 for schools with over 300 students. So, it amounts to 1,500 CAD for the Deroche school.

8. **Other allocations for learning resources and library** – They are determined case by case, and were 5,000 CAD and 2,000 CAD for the Deroche school, respectively.

*The staff development* is determined as the number of full-time equivalent teachers $\times 200$ augmented with a number of full-time equivalent enrolled students $\times 7$. So in the case of the Deroche school, it amounts to $4.9 \times 200 + 77 \times 7 = 1,519$. Both were rounded down to first hundreds so the final amount was 1,500 CAD.
The school, thus, in total receives funding for 4.9 full-time equivalent teachers, 14,940 CAD for supplies and services and 1,500 CAD for staff professional development.

<table>
<thead>
<tr>
<th>Area</th>
<th>Calculation</th>
<th>Total funding (in CAD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic elementary funding per school</td>
<td></td>
<td>1,840</td>
</tr>
<tr>
<td>Funding for library</td>
<td>77 (FTE students) × 15= 1,155</td>
<td>1,200</td>
</tr>
<tr>
<td>Funding for art and physical education</td>
<td>77 × 8 = 616</td>
<td>600</td>
</tr>
<tr>
<td>Funding for textbooks</td>
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<tr>
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<td></td>
<td>1,500</td>
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<tr>
<td>Funding for supplies</td>
<td>77 × 5 = 385</td>
<td>400</td>
</tr>
<tr>
<td>Funding for photocopying</td>
<td></td>
<td>1,500</td>
</tr>
<tr>
<td>Other allocations</td>
<td>5,000 + 2,000</td>
<td>7,000</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>14,940</td>
</tr>
</tbody>
</table>

Table 3: Calculation of funding of Deroche Elementary School; source: Authors’ representation of the data provided by Superintendent in the district of Mission.

Special needs students do not directly generate additional funding for the school. Most of the additional funding that is received by the district from the province of British Columbia is spent directly on educational assistants or medical/psychological testing, administration or physical devices. This is paid for by the district, not the school (under the direction of the Director of Student Services). So if we assume for instance one deaf-blind student – i.e. a student with special needs of level 1 – in Deroche Elementary School, the district would get additional funding of 37,700 CAD for this student and would use it directly for the needs of this student.

Secondary schools

The calculation of funding for secondary schools differs mostly in the calculation of the number of students for “Basic Allocation” and some aspects of the calculation of “Unique Student” and “Unique District” allocations. We focus on the description of the aspects of the calculation that are different, for the aspects that are identical we refer the reader to the previous sub-chapter.
Basic Allocation
As for primary schools, the Basic Allocation for secondary schools is a standard amount of money determined by the number of courses secondary school students are enrolled in in a school district, and it includes resources to support the needs of pupils who are identified “as having learning disabilities, mild intellectual disabilities, students requiring moderate behaviour supports and students who are gifted” (BC Ministry of Education, p.138, 2016).

The Basic Allocation per course is set to 1/8 of the Basic Allocation per eligible secondary school-age full-time equivalent (FTE) pupil. In the 2016/17 academic year, the per course allocation was 902.25 CAD (British Columbia, Resource Management Division, 2016). All courses are funded by the same amount.23

A regular full-time student takes 8 courses. However, it is possible that some students take only 7 courses, in which case a district is funded as to 7/8 of the full-time amount (in comparison with a full-time primary student or a secondary student who takes 8 courses). In other words, 100 secondary school students in a hypothetical district might – in terms of funding – be an equivalent of only 96.65 full-time primary school students. This number of full-time equivalent secondary students is then used in determining other funding such as unique district funding and so on.

There are very few compulsory courses such as math, language, arts and similar. No additional funds are specifically provided for vocational or technical courses, although some schools apply for special grants that work outside the standard funding formula.

Unique Student
In the same way as primary school students, some secondary school pupils with special needs may require additional support and funds on top of the Basic Allocation. There are the same 3 levels of special needs support (see Table 2). The calculation is identical to the one for a primary school.

Supplement for other unique students’ needs
While the calculation of the supplement for other unique students’ needs is identical to the calculation of the supplement for primary schools, the allocations for students with limited and/or no English (or French) are targeted to recent migrants and are funded for up to 5 years. This is not the case for primary school students.

22 \[ = \frac{7,218}{8}.\]

23 Note, however, that the costs of the courses vary widely, whether because of class size limits (for a science lab the limit is 24 students and for a math class the limit is 30) or, for instance, consumables.
The supplements to fund services for “vulnerable students” are calculated in the same way as for primary schools.

Unique District
A supplement for a unique district consists of a small community supplement, a low enrolment factor, a rural factor, a climate factor, a sparseness factor, a student location factor, a supplemental student location factor and salary differential. The difference compared to primary schools’ funding is predominantly in the calculation of full-time equivalent students which is based on the number of courses the students are enrolled in (the calculation is done as described in the subchapter about Basic Allocation). Moreover, the exact amounts and coefficients for the small community supplement and student location factor differ; thereby, we focus on these three elements of the “Unique District” funding calculation. The other elements – i.e. low enrollment factor, rural factor, climate factor, sparseness factor, supplemental student location factor and supplement for salary differential – are identical to those for primary education.

Small community supplement
The small community supplement for secondary schools serves the same function as for primary schools, i.e. it is provided to schools in small districts as smaller classes and schools are supposed to be costlier per students. For regular secondary schools, the supplement is provided in cases when a full-time student equivalent population in a defined area – which is either a single school or all schools located within 25 kilometers by the shortest road distance – is less than 635 students. The population of students is measured on the previous year’s enrolment. Specifically, a district receives:

– for each community with 100 or fewer secondary full-time equivalent students:
  \[ 4,681.25 \times \text{the number of time equivalent students} \text{CAD} \]

– for each community with 100 to 635 secondary full-time equivalent students:
  \[ 468,125 - (875 \times (\text{the number of time equivalent students} - 100)) \text{CAD}. \]

Furthermore, a district is eligible for funding for grades 11 and 12 small community funding. A community eligible for the small community supplement as described above with students in grades 11 and/or 12 receives:

– for each community with 15 or fewer secondary full-time equivalent students in grades 11 and/or 12:
  \[ 12,600 \times \text{the number of time equivalent students} \text{CAD} \]
– for each community with 15 to 215 secondary full-time equivalent students: 
\[ 189,000 - (945 \times (\text{the number of time equivalent students} - 15)) \text{ CAD}. \]

**Student location factor**
The student location factor is meant to reflect the secondary school-age population density of communities within a given district. The density weighted full-time equivalent students are calculated at first. A district receives:
\[ 340.67 \times \text{weighted secondary full-time equivalent student CAD}. \]

Districts with fewer than 500 weighted full-time equivalent students (during the previous school year) receive a base amount of 50,000 CAD.

**Funding Protection / Enrolment Decline**
This funding for enrolment decline is calculated in the same way as for primary schools.

**In-service training**
The district also manages educational funds that are used for in-service training. Schools get a small amount of funds (currently the amount is set at 210 CAD per teacher and 10 CAD per student) for individual professional development of teachers, and a larger pool for professional development determined by the teachers’ union in consultation with the district. District initiatives are determined by senior staff in consultation with principals and teachers. In addition, the district gives 155 CAD per full-time equivalent teacher to the Mission Teachers’ Union each year, and these funds are then managed by the teachers’ union. The district also organizes itself in-service training when it provides resources, teaching materials etc. These funds are directly controlled by the district.

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**An example of a secondary school budget in the district of Mission**

In the following paragraph, we present an example of funding of the Mission secondary school. The funding presented below is based on real figures which were provided during the interviews.

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In the 2016-2017 school year, there were 1,434.25 full-time equivalent students enrolled in the school. In order to keep the ratio of approximately 21 students to 1 teacher, the districts funds 66,684.9 full-time teachers’ positions.

Besides funding for teachers, there is basic secondary funding for supplies and services and funding for staff development. The staff development is funding used mostly for in-service training.

The funding for supplies and services consists of:
1. Basic secondary funding per school – this is given by rounding up the number of students to hundreds of CAD. The school receives 190 CAD per student, i.e. $1,434.25 \times 190 = 272,500$ CAD.
2. Other allocations for learning resources, library and international cooperation – These were set to 15,000 CAD, 6,000 CAD and 20,000 CAD, respectively.

The staff development is determined as the number of full-time equivalent teachers $\times$ 210 augmented by a number of full-time equivalent enrolled students $\times$ 10. So in the case of the Mission Secondary, it amounts to $66.684.9 \times 210 + 1,434.25 \times 10$. Both were rounded down to first hundreds so the final amount was 28,300 CAD.

The school, thus, in total receives funding for 66.684.9 full-time equivalent teachers, 313,500 CAD for supplies and services and 28,300 CAD for staff professional development.

Support for special needs students

The legal basis for additional funding for students with special needs is the School Act Section 106.3 (5) and the Ministerial Order M150/89 (“the Special Needs Students Order”). The necessary level of support for pupils with special needs may vary. In order to account for this variation in needs, 3 different levels were established. The levels and the associated disabilities are shown in Table 2.

School districts report pupils with special needs. Such pupils must be assessed, identified as coming within one of these 3 levels and have an Individual Education Plan (IEP). The additional funding is received by the districts. The amount of additional resources differs for different levels and is obtained on per pupil basis.

The districts in British Columbia obtain supplementary funding of 37,700 CAD per pupil in Level 1, of 18,850 CAD per pupil in Level 2 and of 9,500 CAD per pupil in Level 3. These amounts do not differ for primary and secondary school pupils.
A case-study of the funding formula in the district of Mission

As mentioned already earlier, the funds are transferred to districts, not directly to schools. Thus, we provide a case study of how the funding of schools works in the district of Mission.

Primary schools
The main aim of funding in the district of Mission, just like provincial funding, is to support equality of opportunity for all learners. The districts provide basic staffing to primary schools primarily based on enrolment from a ratio of an average of 27 students to 1 teacher. Thus, for instance, a primary school with 300 students would receive funding for 11 teachers on staff. The district also sets class size limits that vary by grade level and subject. In primary education from grades 1 to 3, the limit is 24 students in class at the maximum and from grades 4 to 7, it is 30 students. The maximum class size is reduced by 1 for having a student with special needs in the class. The maximum reduction of the class size is by 3; however, if a class has more than 3 students with special needs other specific allowances are put in place.

Based on a Collective Agreement, the district is required to staff certain amounts of time for Teacher-Librarians, Music, and Special Education.

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25 This detailed information about the funding formula in Mission was provided by Angus Wilson, Superintendent in the district of Mission in British Columbia.
A school, further, receives administrative time for the School Principal (reserved for responsibilities other than teaching) based on the number of students, but on a declining rate. At 275 students, a school gets 1.0 FTE administrative time and the school is triggered into getting a Vice Principal at 300 students. As the number of students moves from 50 students towards 275, how much of 1.0 FTE the school gets is increased. For instance, at 100 students a school gets approximately 0.6 FTE and at 200 it gets 0.9.

School-based budgets for site-based purchases are generated by the enrolment. Secondary schools get in general more than elementary schools. The money is calculated by the number of full-time equivalent students and typically runs from 25,000 CAD up to 1,000,000 CAD depending on school size.

Furthermore, schools in the district of Mission can ask for capital funds (such as for maintenance, planning and similar). This spending is centrally controlled by the district. It reviews the needs of the schools and attempts to allocate funds based on need.

**In-service training**

The district also manages educational funds that are used for in-service training. Schools get a small amount of funds (currently the amount is set to 200 CAD per teacher) for the individual professional development of teachers, and a larger pool for professional development determined by the teachers’ union in consultation with the district. District initiatives are determined by senior staff in consultation with principals and teachers. In addition, the district gives 155 CAD per full-time equivalent teacher to the Mission Teachers’ Union every year and these funds are then managed by the teachers’ union.

The district also organizes in-service training itself when it provides resources, teaching materials etc. These funds are directly controlled by the district.

**Supplements for transport, school trips and sports**

Mission runs school buses for rural students to get to school. A fee is charged – from 200 to 400 CAD per year. The fee is waived if the family demonstrates economic need (this is families making less than a certain amount, 24,000 to 39,000 CAD depending on family size).

The funds for school trips and sports are controlled by schools. However, the district keeps small additional funds to ensure that activities that have costs associated with them (for example, a trip to the museum or a soccer game in Vancouver) are compensated for so that students in poverty do not need to pay.
Other special programs
The district further receives specific targeted funds for certain programming, such as “StrongStart”, an early childhood education program. These are effectively money in, money out – i.e. the money from the provincial government is 100 percent spent on this specific program. Local control is only in determining how many “StrongStart” Mission can have, and placing them in the various buildings.

The determination of the next year’s budget for schools in the Mission district
Every year between March and May, the Committee of the Whole, comprised of the Board of Education, senior district staff, and representatives from unions, principals, educational partners, and the community at large, meet every other week to discuss the next year’s budget. Additional funds for a special project, a particular educational initiative, technology refresh, and the like all go through the process of evaluation by the Committee. Such process is transparent since it is decided when all interest groups are present. On the other hand, such process to determine the budget is time-consuming.

Secondary schools
The funding formula provides basic staffing for secondary schools based on enrolment from a ratio of an average of 21 students to 1 teacher. In particular, there are approximately 67 full-time teachers for about 1,434 students.

As for primary schools, the budget for site-based purchases is also generated by the enrolment and managed by the district. Secondary schools receive, in general, more than primary schools.

Capital spending is – as in the case of primary schools – centrally controlled by the district. It reviews the needs of the schools and attempts to allocate such spending based on need.

Typically secondary schools require greater funding not just because of their size, but due to their programming—things like metalwork, science labs, etc. Further, a school in a more challenging neighborhood can receive funding for additional counsellors, after-school programs, etc. In general, the enrolment determines approximately 90 or more percent of the school’s funding.

In-service training
The amounts paid to secondary schools for in-service training are also slightly higher. In particular, in 2017 the amount was set at 210 CAD per teacher and
The funding is intended for the individual professional development of teachers. District initiatives are determined by senior staff in consultation with principals and teachers. In addition, also for secondary school teachers the district gives 155 CAD per full-time equivalent teacher to the Mission Teachers’ Union every year.

**Special needs students and other additional student-focused funding**

Even though it is the districts that receive the unique students’ funding, the funding is generated and directed per individual student. That is, a parent in Mission should be able to be shown how this additional funding (9,500 to 37,700 CAD according to the level of the student’s special needs) his/her child generates is allocated to the child. Most of this funding is spent on educational assistants or medical/psychological testing, administration or physical devices. It is spent by the district under the direction of the Director of Student Services. She ensures that the student in question is getting adequate support. As a general rule, the more spread out and rural a district is, the more decentralized this spending becomes.

The aforementioned supplement for other unique students includes Aboriginal Education. These funds are also spent centrally by the district by the Principal of Aboriginal Education.

All schools are, further, allocated “First Nations Resource Workers”. A share of the core funding (the amount that is determined by the number of full-time equivalent students) is also partly used to pay the Principal’s salary and Halq’emeyem teachers (the language of the local First Nation, the Sto:lo people). However, schools receive additional funds to support the language. Specifically, every student that identifies as First Nations/Inuit/Metis generates an additional 1,100 CAD per year. This money is spent on things like First Nations Resource Workers, Language Support workers, Consumables, Indigenous Cultural support and so on. About 20 percent of students in the district have indigenous ancestry, but some schools have significantly larger populations or ratios, and thus are allocated greater resources.

Additional staffing and resources are allocated by the Superintendent of the district of Mission by determining the Social Services Index of the school. This is a measure of the “at risk” function of students. Thus, an ‘inner city’ school with a vulnerable population will be given “bonus” staffing in the form of more Principal administration time, lower student-teacher ratios,

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26 So it is not the schools that receive or manage this money.
district support, and so on, in comparison to a more economically advantaged community neighborhood.

**Summary of the education funding system in British Columbia and the district of Mission**

In British Columbia, the basic allocation is predominantly determined by the number of primary school age pupils enrolled in a school district and by the number of courses provided by secondary school districts. It also includes funding for most students with special needs including gifted students. Given the large variety in the size of districts and population density, the province faces a big challenge in distributing appropriate funds to the districts. Therefore, it takes into account various unique geographic factors and provides supplements for schools in small communities. These are provided based on geographical distances from other schools, not just by the size of a school (which is different from the practice in Estonia, see Chapter 4.2) and it makes the funding formula less prone to support small schools that could easily merge.

Below, we summarize some strengths and weaknesses of the funding formula in British Columbia. Furthermore, Figure 2 shows the main determinants of the total allocation from the province to a school district.

<table>
<thead>
<tr>
<th>STRENGTHS</th>
<th>WEAKNESSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The system rather discourages over-identification of special needs</td>
<td>1. Allowances for declining enrollment are sometimes too generous,</td>
</tr>
<tr>
<td>students as most of them are included in the basic allocation;</td>
<td>allowing districts to 'coast' rather than implement changes due to the</td>
</tr>
<tr>
<td>2. The system in general reflects very well the geographical and other</td>
<td>reality of smaller student numbers;</td>
</tr>
<tr>
<td>differences between districts.</td>
<td>2. The funding formula does not really reward innovation or marked</td>
</tr>
<tr>
<td></td>
<td>improvements; thus it is supporting the status quo.</td>
</tr>
</tbody>
</table>

On the district level, funding is to a large part determined based on class size and funding for teaching staff that is necessary to keep this number of classes. The district, furthermore, also funds a certain number of Teacher-Librarians, Music teachers, and, importantly, it directly hires educational assistants for special needs students. A parent of such a student in Mission should be able to be shown how the funds are allocated to the child and how they are spent.
Estonia has been gradually coming to per capita funding of general education during 1990s with two reforms in 1994 and 1998. The school population as well as the number of students attending the Estonian general and vocational secondary schools continued to decrease (see Figure 3), as did class and school sizes. Thus, reforms to keep sufficient funding for such schools were introduced. The 2008 Estonian funding formula essentially removed the per capita element for small rural schools and used a per class basis system, which makes this formula an interesting case-study of how the political preference for keeping small rural schools might hamper the efficiency incentives of a funding formula (Levačić, 2011). Thus, first we will introduce the 2008 formula with the focus on the per class basis of the funding (note that in this part vocational schools, that as general secondary schools educate students in grades 10 to 12, are not considered) before the current funding formula
(starting in 2012) – which mostly returned to the per student system with fixed coefficients – is discussed. In this final part, we also include information about vocational education.

The current formula does not have clear separate components like the one in, for instance, British Columbia (Basic Allocation, Unique Student etc.). However, it assumes 20 percent extra resources, 21 lessons per teacher on average and 24 students in class on average. These basic assumptions yield per student allocations that are weighted by fixed coefficients calculated in 2012 using the old formula that was class-based especially for small rural schools.

**Primary schools**

The revised version of the 2008 Estonian funding formula was in force until 2012. The major revision of the previous funding formula was done mainly because some (small) municipalities were criticizing the fact that the formula did not take into account the expenditure needs of municipalities with small schools or schools with small classes. The previous formula was based mainly on the size of municipalities. It did not take into account the distribution of pupils between grades within the schools and assumed the same expenditure for pupils of all ages, which is not reasonable at least because of the higher number of classes per week for older students (Levačić, 2011).

The 2008 formula was favorable to municipalities with fewer than 1,600 students in one of the main languages of instruction — Estonian and Russian. The municipalities in this category were funded according to the number of classes that were needed to be organized according to the formula, given the number of pupils in each grade. The larger municipalities – i.e. those

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Figure 3: Secondary school population (the number of students in thousands is on the vertical axis) in Estonia; source: European Commission (2016).
having more than 1,600 pupils – were funded per student. The formula treated Estonian and Russian pupils separately provided that they were taught in separate classes.\textsuperscript{27} The number and size of the classes were not set by the formula or the law; however, funding remained based on the assumed number of classes. The actual number of classes created by the schools was not taken into account for funding. So, municipalities could sustain smaller primary schools and classes provided that they chose to allocate funds to support the additional teaching costs.

\textbf{The calculation of the funding in the 2008 Estonian funding formula}

The education grant according to the 2008 formula can be split into two parts in order to work out the allocated amount per student. First, it is an allocation for the basic minimum amount that covers teaching and the other resources that a school must provide according to the law (this includes textbooks, workbooks, investments etc.). And, second, it is an additional amount that is for local governments to use according to their own policy choices in education. This is about 10 percent of the total allocation and it is derived from the left-over amount after subtracting the first part from the total allocated amount. So, this additional funding is only artificially separated for the purposes of explaining the formula. In reality, it is included in the per student calculated amount (Levačić, 2011).

Funding per student differs for 3 stages (according to the grades) in primary education as they were introduced in the overview of education systems. In Table 4, we present the per student funding amount calculation. Column 1 gives the number of compulsory lessons taught per week to classes in respective grades (e.g. in grades from 1 to 3, the pupils must be taught 68 lessons per week). In Column 2, there is the number of teachers assuming that a teacher teaches on average 21 lessons per week. This number is then multiplied by the cost of a teacher in order to get the total costs of teachers which is in Column 3. The teachers’ cost is assumed to be the basic salary of a regular teacher including unemployment insurance (we use the figure from 2008), other labor taxes paid by employers and in-service training (36.3 percent). Finally, in order to obtain the per student amount, the number from Column 3 is divided by the class sizes in the respective grades. The minimum size of a class is 17 students in primary schools and the formula generates enough resources for a school with this class size. Column 4 then shows the average per student allocation for the different grades based on the total cost of teachers calculation.

\textsuperscript{27} We use the exchange rate EEK/EUR = 0.06387082763, as of September 1, 2008. Retrieved from http://statistika.eestipank.ee/?lng=en#treeMenu/VALUUTA.
The figures calculated in Column 4 of Table 4, were then enhanced by the second part – the additional funding. This amount changes over time depending on the available funds, and in 2008 it was 9.5 percent. The total per student amounts for basic teaching are in Column 5.

**Additional funding for municipalities smaller than 1600 students**

Municipalities that have fewer than 1,600 students attending Estonian- or Russian-speaking schools receive funds based on the assumed number of small classes as long as the grade has 33 or fewer students. For grades 1-9, a small class is 17 students. Such municipalities with small classes receive additional funding for “empty places” in those small classes. This funding is provided only for primary education. Table 5 below provides an overview of the additional funding for small classes.

**Table 5: Additional funding for small classes; Note: P = per student funding; A = additional funding; source: Levačić (2011).**

Furthermore, in grades 1-5, it is assumed that in schools with grades with fewer than 7 pupils, students of 2 or 3 grades will be combined in one class. However, if this is not sufficient to create a class of 17 students, the school would receive additional funding based on empty places, but the maximum that can be provided is three times the per student funding. So,
for instance, a school with a grade with only 1 student can get a maximum of 3 times per student allocation (i.e. the additional funding is provided for 2 empty spaces in a class – in total 3 times per student allocation, not 16 empty spaces up to the minimum class size of 17 students). Thus, in the end, the cut of the additional funding is applied only for classes smaller than or equal to 5 students (since by having 6 students per 3 grades means that a school can combine classes that reach the minimum of 17 that is then fully funded). Following the example from Levačić (2011), a primary school having just one student in each of grades 1 to 6 can combine them into one class since it gets 6 times 3 the per student funding. This applies only for grades 1 to 6; there is no additional funding for higher grades with fewer than 10 students.

Allocation for school directors and deputies

The number of funded school directors and deputy posts can be determined from Table 6.

<table>
<thead>
<tr>
<th>Number of students</th>
<th>Number of classes</th>
<th>Posts</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-74</td>
<td>1</td>
<td>0.1</td>
</tr>
<tr>
<td></td>
<td>2-3</td>
<td>0.25</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>0.5</td>
</tr>
<tr>
<td>75-99</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>100-199</td>
<td></td>
<td>1.5</td>
</tr>
<tr>
<td>200-49</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>350-599</td>
<td></td>
<td>2.5</td>
</tr>
<tr>
<td>600 and more</td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

Table 6: Funding for school directors and deputies; source: Levačić (2011).

A full-time director was funded at 1.4 times the teacher’s basic salary, which was also the minimum salary for a director. As seen in Table 6, in small schools directors needed to teach since they were not funded highly enough to have full-time positions. However, it was common also in bigger schools for directors often to teach at least a few lessons per week.

Furthermore, form teachers who were in charge of a class were funded with a bonus of 10 percent of teacher’s basic pay. The municipalities got additional form teachers’ funding calculated from the assumed number of classes in schools.
Split size schools
Schools with single managements that were split over multiple sites might have received funding calculated as if the sites were separate schools if requested by the municipality. This additional funding was provided if the sites were at least 10 kilometers apart for funding for grades 1-5 and at least 30 kilometers for funding for grades 6-9.

Additional funding
Schools in sparsely populated and isolated areas might have received additional funding for regionally important schools which is meant to compensate teachers who could not have been given a full-time contract and they cannot obtain another part-time contract in a different school since it is too far away. These schools were funded additionally for small classes.

A similar system based on additional funding for small classes was used in order to determine the additional funding for special needs students, since the regulations required special needs students to be taught in smaller classes. The details about special needs education funding are provided in the sub-chapter below.

The current funding formula
The funding according to the current formula is as before received by municipalities from the central government and has four components: funding for salaries of teachers and school directors, funding for professional development of teachers and school directors, funding for school lunches, and funding for study materials (textbooks). The funding flow to primary and secondary schools is shown in Figure 4.

Education is currently mostly regulated by the Basic Schools and Upper Secondary Schools Act (2010, § 82 (3)) which states that “the expenses of a municipal school are covered by the owner of the school. Based on the number of students of municipal schools, the support to be allocated to rural municipalities and cities for covering the labour expenses and in-service training expenses of the teachers, heads and head teachers of the municipal schools and the expenses relating to educational literature are determined annually in accordance with the State Budget Act.”

As explained above, the 2008 formula stressed the importance of keeping small schools in rural areas. This, however, might hamper the efficiency of the educational system. Therefore, in 2012, the Estonian government again changed the formula and returned to the per student funding-based formula. As before, the formula is designed to provide additional funding for smaller municipalities; however, the new formula incentivizes municipalities to consolidate their school networks (Santiago, 2016).
The grant per student is the same for all municipalities except the grant for teachers’ salary. For every municipality, there has been calculated a special coefficient to take into account their extra need per student because of the smaller classes. For primary education, coefficients vary between 1 and 2.05. These coefficients were calculated (using the 2008 formula from above) in 2014 and has been left the same afterwards.

**Teachers’ salary funding calculation**

In order to compute the grant for teachers’ salary, the funding formula (as in the 2008 formula) uses the number of full-time professional staff that is needed to teach the national curricula for different grades and levels of education. Class sizes are used to determine the number of teachers needed, which, in turn, translates to the funding for teaching positions which municipalities with given student populations receive.

For basic education, the teachers’ salaries allocated according to the formula are calculated using an assumption that the average class should have “24 students for municipalities with a student-teacher ratio equal or above 15; 21 students for municipalities with a student-teacher ratio between 7.8 and 14.9; and 10 students for municipalities with a student-teacher ratio of 7.7 or below” (Santiago, 2016, p. 116). The assumed class sizes are, subsequently, adjusted by coefficients that reflect the need for additional teaching time (i.e. additional funding).
for special needs students and students who take classes in Estonian (mostly ethnic Russian Estonian citizens whose instruction language in schools is Russian). This computation gives the number of teaching hours needed, which is then multiplied by the Estonian minimum teacher salary and multiplied by 1.2 to determine the teaching staff funding for a municipality (Santiago, 2016).

A simple illustration of the calculation of the coefficients for primary schools follows. The formula takes as a baseline a school with 24 students for all grades from 1 to 9, the calculated grant using the 2008 formula and the basic teachers’ salary in 2014 would be 222,000 EUR which is equivalent to 1,028 EUR per student funding \( (222,000 \div (9 \times 24)) \). Making the same computation for a school with only 15 students, we would have a grant of 201,050 EUR which is equivalent to 1,489 EUR per student funding \( (201,050 \div (9 \times 15)) \). Subsequently, the coefficient for a municipality with 15 students per class is calculated as \( 1,489 \div 1,028 = 1.45 \). And in the current system, the coefficients computed in this way have been frozen since 2014 despite subsequent changes in the number of students.

The calculation of transfers to school districts

The total amount is simply computed on a per student basis with coefficients used as weights:

\[
\text{number of students} \times \text{coefficient} \times \text{per student sum}
\]

The per student sum is given as

\[
\text{the average number of lessons needed per class per week} \times \text{teacher’s minimum salary} \times 1.2 \times \text{taxes} \times 12 \div 21 \div 24
\]

where 1.2 stands for 20 percent extra resources, 12 for the number of months since the salary was given as monthly salary, 21 is the average number of lessons per teacher in a week and 24 the assumed number of students in a class. The special needs students coefficients are computed from the same formula; they simply assume a different class size.

An example of a primary school budget in Estonia

This box presents an example of a budget of an Estonian school. The basic calculation of funded lessons in grades 1-9 is described in Table 7. In this example, we assume a school with 180 students and that its students are spread equally across the grades, i.e. there are 20 students in each grade.
The calculation of funding is based on the calculation of the need for lessons which then translates to the number of teachers and, consequently, the funding needed.

In the example (see Table 7), the school needs $23.7 \times 3$, $36.0 \times 3$ and $41.0 \times 3$ lessons for all 9 grades. In order to calculate the necessary funding per student, we multiply the number of lessons $\times$ teacher’s minimum salary $\times 1.2 \times$ taxes $\times 12 / 21 / 24$. As before, $1.2$ stands for 20 percent extra resources, 12 for the number of months, 21 the average number of lessons per teacher in a week and 24 the assumed number of students in class.

Assuming the teacher’s minimum salary to be 958 EUR (as in 2016) and labor taxes of 36.3 percent, the school would receive $23.7 \times 958 \times 1.2 \times 1.363 \times 12 / 21 / 24 = 884$ EUR for students in grades 1-3, $1,343$ EUR for students in grades 4-6 and $1,530$ EUR for students in grades 7-9. In total, this means that the school would receive $884 \times 60 + 1,343 \times 60 + 1,530 \times 60 = 225,420$ EUR.

While other regions and countries (e.g., Flanders or some Nordic countries) take into account many additional criteria of students’ backgrounds including the number of students from low income families, from single parent families, minority etc., this is not the case in Estonian municipalities.

**Note:** If there are many schools in a district, it is considered necessary to keep the system competitive and effective. Then, a district component could be added. The main idea is that the calculations are based on the number of students in grades in a single educational district and their distribution between schools is not taken into account anymore. No school in the district is then funded per student more than the smallest funding calculated as in the case when all students were in one school. A single educational district consists of districts in which the closest schools (in the same study language) are less than $x$ km apart or decided separately for different areas.

### Secondary schools

*The calculation of the funding in the 2008 Estonian funding formula*

The calculation of funding for secondary schools follows the principles from primary education. It has also been reformed and the current version is presented in the subsection below. In Table 8, we present the per student funding for general secondary schools (grades 10-12).
<table>
<thead>
<tr>
<th>Number of students in single grade at single educational district</th>
<th>Stage I (Grades 1-3)</th>
<th>Stage II (Grades 4-6)</th>
<th>Stage I (Grades 7-9)</th>
<th>Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-10</td>
<td>2.27 lessons per student</td>
<td>2.77 lessons per student</td>
<td>3.13 lessons per student</td>
<td>The funding covers minimum costs if a school has 10 students per class. For example, a school with 5 students will get 5/10 of needed funding and, therefore, is forced to make mixed classes. Note: The number of lessons stated here is without the separate lessons.</td>
</tr>
<tr>
<td>11-19</td>
<td>22.7 + (number of students – 10) × 0.1</td>
<td>27.7 + (number of students – 10) × 0.83</td>
<td>31.3 + (number of students – 10) × 0.97</td>
<td>The number of supported lessons increases according to the number of students per grade.</td>
</tr>
<tr>
<td>20-24</td>
<td>23.7</td>
<td>36.0</td>
<td>41.0</td>
<td>The number of lessons for a full-size class that has separate lessons (language, gymnastics, manual training).</td>
</tr>
<tr>
<td>27-39</td>
<td>45.3 + (number of students / 2 – 10) × 0.2</td>
<td>55.3 + (number of students / 2 – 10) × 1.67</td>
<td>62.7 + (number of students / 2 – 10) × 1.93</td>
<td>2 small classes</td>
</tr>
<tr>
<td>40-48</td>
<td>47.3</td>
<td>72.0</td>
<td>82.0</td>
<td>2 full classes</td>
</tr>
<tr>
<td>53-59</td>
<td>68.6 + (number of students / 3 – 10) × 0.3</td>
<td>88 + (number of students / 3 – 10) × 2.5</td>
<td>99.8 + (number of students / 3 – 10) × 2.9</td>
<td>3 small classes</td>
</tr>
<tr>
<td>60-72</td>
<td>71.0</td>
<td>108.0</td>
<td>123.0</td>
<td>3 full classes</td>
</tr>
<tr>
<td>79-96</td>
<td>94.7</td>
<td>144.0</td>
<td>164.0</td>
<td>4 full classes</td>
</tr>
<tr>
<td>25-26; 49-52; 72-78; 97...</td>
<td>0.99 lessons per student</td>
<td>1.5 lessons per student</td>
<td>1.71 lessons per student</td>
<td>Oversized classes (normal maximum class size is 24 in Estonia) or 5+ classes per grade.</td>
</tr>
</tbody>
</table>

Table 7: Funding of schools with students in grades 1-9; source: own representation of the information provided by Andrus Jõgi, advisor at the Department of Financial Management of Local Governments of the Estonian Ministry of Finance.
### Grades/ Stages | Compulsory lessons per week | Teachers needed | Total costs of teachers | Per student amount [EEK] | Total per student amount [EEK]  
---|---|---|---|---|---
10-12 | 105 | 5.0 | 823,794 | 13,076 | 14,319 (914.57 EUR\(^{29}\))

Table 8: Calculation of per student funding; source: Levačič (2011).

Additional funding for municipalities smaller than 1,600 students that is provided for primary schools is not provided for secondary schools. Furthermore, secondary schools do not receive additional funding for split schools, as was the case for primary schools.

**Allocation for school directors and deputies**

The number of funded school directors and deputies’ posts is determined identically as for primary school: see Table 6.

**The current funding formula**

The funding for secondary schools follows similar principles and laws as for primary education, so the grant per student is the same for all municipalities except the grant for teachers’ salary. However, for upper secondary level, the coefficients are from 1 to 1.12 based on the total number of students in the municipality (compared to the coefficients varying between 1 and 2.05 for primary schools). These coefficients were calculated (using the 2008 formula from above) in 2014 and have been left the same since.

**Teachers’ salary funding calculation**

The assumed class sizes are used to calculate the number of teachers and teaching hours, which are then multiplied by the Estonian minimum teacher’s salary and multiplied by 1.2 to determine the teaching staff funding for a municipality (Santiago, 2016).

The total number of transfers for general secondary schools is calculated in the identical way as for primary schools.

**Re-centralization of general secondary education**

According to Santiago, P. et al. (2016), local governments have been slow to respond to the falling enrolment and consolidate secondary schools. The

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\(^{29}\) We use the exchange rate EEK/EUR = 0.06387082763, as of September 1, 2008. Retrieved from [http://statistika.eestipank.ee/?lng=en#treeMenu/VALUUTA](http://statistika.eestipank.ee/?lng=en#treeMenu/VALUUTA).
Estonian government has recently decided to re-centralize general upper secondary education. And it established state-run gymnasiums in all county capitals. This is the opposite to the step that is planned for the primary schools where the government plans to give even more autonomy to the municipalities. Furthermore, it is also expected that the state will again also run special and vocational schools.

According to the new plan by 2020, the municipalities take full responsibility for pre-primary and primary education and the state for general and vocational secondary as well as special schools.

**Vocational education and its funding**

Vocational education is already mostly run by the Estonian state as it runs 30 out of 33 vocational education and training schools (Santiago, P. et al., 2016). The vocational schools run by local government are funded based on special coefficients that differ for the particular type of study. These coefficients (as in the formula for primary and general secondary education) were designed to align the funding with the number of teaching hours necessary for a given type of education, which makes the formula flexible to adjustments in curricula or per class norms.

Besides the state- and municipality-run schools, there are 5 private vocational schools. They typically provide education in highly subscribed areas such as information technologies, catering, or hairdressing (Santiago, P. et al., 2016).

For the 2016/17 school year, the base cost of a program per full-time student in vocational education was set at 1,665 EUR. The following mechanism is then used to calculate the total allocation:

\[
\text{number of students} \times \text{coefficient} \times \text{basic cost}
\]

The coefficients vary, ranging from 1.0 to 4.0 depending on curriculum group and study. For instance, for music and the performing arts the coefficient is set at 4.0; very high coefficients are also for media technologies and design (both 2.6). The lowest coefficient (1.0.) applies for trade and business services (see all coefficients at https://www.riigiteataja.ee/akttilisa/1210/2201/4020/VV_28m_lisa.pdf; in Estonian). The funding allocations calculated using this mechanism cover salaries, training materials and maintenance. The base costs are re-calculated every year. (Cedefop, 2017).
An example of a secondary school budget in Estonia

This box presents an example of a simplified budget of an Estonian vocational school (as for a general upper secondary school, the calculation would be very similar to that for a primary school, we rather present the vocational school budget calculation). In this example, we assume a school with 180 students of whom 60 study “Music and performing arts”, 60 “Media technologies” and the remaining 60 “Design and crafts”.

The calculation is based on the coefficients for particular programs and the base cost set for the particular year. The coefficients are:
- 4.0 for “Music and performing arts”,
- 2.6 for “Media technologies”,
- 2.6 for “Design and crafts”.

The basic funding determined by the number of students is thus as follows:
- 60 students in “Music and performing arts” – $60 \times 4.0 \times 1,665 = 399,600$ EUR.
- 60 students in “Media technologies” – $60 \times 2.6 \times 1,665 = 259,740$ EUR.
- 60 students in “Design and crafts” – $60 \times 4.0 \times 1,665 = 259,740$ EUR.

Thus, the total funding for all 180 students is 919,080 EUR.

Special needs schools

Funding under the 2008 system

A similar system to that for additional funding for small classes for primary and general education was used to determine the additional funding for special needs students. The underlying reasoning is that special needs students need to be taught in smaller classes, which was also required by the regulations. The assumed maximum number of students in class depended on the type of special educational needs – specifically the limits were 7, 12 and 16.

Taking an example from Levačić (2011), we will now illustrate how the calculation worked. In a school with 14 special needs students for whom the maximum class size was 7, two classes were created and funded as two 17-student regular classes.

Funding of special schools

There are two types of special needs education for which the funding also works differently. These are state special needs schools and municipal special needs schools.
The state special needs schools receive funding based on a per student formula. This funding should fully cover the operating costs of the school.

The municipal special needs schools receive their funding based on the same principles as the mainstream schools (that are also funded via municipalities). So it has the same four components: funding for salaries of teachers and school directors, funding for professional development of teachers and school directors, funding for school lunches, and funding for study materials (textbooks). Operational costs are covered by municipalities.

In both cases of state and municipal special needs schools, the coefficients in the formula are designed to reflect the severity of the disability and the type of curriculum the student is being taught. The coefficients are summarized in Table 9.

<table>
<thead>
<tr>
<th>Grade/type of education</th>
<th>Number of students in class</th>
<th>Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Basic education</strong> (grades 1-9)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>12</td>
<td>1.79(^{30})</td>
</tr>
<tr>
<td>8</td>
<td>2.43</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>3.40</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>3.58</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>14.30</td>
<td></td>
</tr>
<tr>
<td><strong>Upper secondary</strong> (9-12)</td>
<td>12</td>
<td>2.66</td>
</tr>
</tbody>
</table>

Table 9: Coefficients for special needs students; source: RiigiTeataja et al. (2017).

The calculation of transfer is then identical to the one for primary schools. Only the coefficients are different.

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**An example of an additional funding calculation for special needs students in Estonia**

This box presents an example of an additional funding calculation for special needs students in an Estonian school. We assume a primary school with 180 students and that its students are spread across the grades equally, i.e. there are 20 students in each grade. According to the calculations provided above (in a box for primary schools), the school would receive \(884 \times 60 + 1,343 \times 60 + 1,530 \times 60 = 225,420\) EUR for all students without special needs.

If there was one special needs student that required one-to-one education in the school on top of the 180 students considered above, the school would

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\(^{30}\) If the coefficient of the standard coefficient for the given municipality is higher then the higher one is used.
Summary of the Estonian education funding system

The Estonian system has been heavily influenced by the rural character of the country and the political will to keep small schools and small classes. It has also been facing the challenge of two language groups. While the latter led to the separate calculation of funding for Estonian- and Russian-speaking schools, the first challenge and political pressure from small schools led to a system that incentivized the municipalities to keep even very small schools. This might have been hampering the efficiency of the school funding system, and that is why the coefficients (that promoted small schools) were frozen in 2014 and have not since been recalculated on annual bases. This makes the per student income fixed and incentivizes the municipalities to merge schools if possible, and definitely not to create new small schools since they would not get any additional funding for such schools. On the other hand, it is not possible to recommend such a system that is not a sustainable solution in the long term (given the population and structure of population changes over time).

A different case is the funding formula for special needs which is based on the specific class size needs of special needs students. This approach takes effectively into account the teacher time requirement of students and provides sufficient funding for schools in order to create special classes within mainstream education.

Below, we summarize some strengths and weaknesses of the Estonian funding formula. Furthermore, Figure 5 presents the main components of the total allocation to Estonian municipalities.

<table>
<thead>
<tr>
<th>STRENGTHS</th>
<th>WEAKNESSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Simplicity in terms of calculation;</td>
<td>1. Unfair for municipalities with a decline in the number of students (fixed coefficient will not take into account the real expenditure needs) and the other way around;</td>
</tr>
<tr>
<td>2. Predictability budgets for municipalities (since the coefficients are fixed);</td>
<td>2. Cognitive/real injustice, today similar municipalities can have very different coefficients as these were calculated years ago (taking into account the situation in the past), which leads to dissatisfaction and makes the system not suitable as a long-term solution;</td>
</tr>
<tr>
<td>3. Increased responsibility of the municipality as changes of its expenditure needs per student are not taken into account;</td>
<td></td>
</tr>
<tr>
<td>4. Increased motivation for municipalities to close down schools, because coefficient were set per municipality and consolidating the school network does not have an impact on coefficients.</td>
<td></td>
</tr>
</tbody>
</table>
In Finland, the majority of providers of basic and upper secondary level education are run by local authorities or joint municipal consortia (Finnish National Agency for Education, 2017). The funding of basic education is regulated by the Basic Education Act and was reformed in 2010. In this book, we will focus mainly on the situation since this reform. The funding that municipalities receive in order to provide basic education is calculated using the number of school-age children in the municipality for mainstream students, while the funding for special needs students is determined as an estimate for organizing such education which is not based on the actual number of special needs students (Kirjavainen, 2010).

Basic education is provided as a municipal basic service, and local authorities receive statutory government transfers to be used to provide the education. The amount of transfers is calculated based on the number of children aged from 6 to 15 living in the municipality and so-called special

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31 In Finland, pupils attend comprehensive schools from the age of 7 to the age of 16, which is called basic education, and then they can voluntarily attend upper secondary education in ages 16 to 19.
conditions of the municipality. It is necessary to note that in the end it is the municipalities that democratically decide the exact amount that schools will receive. In contrast to primary education, the numbers of students reported by the schools and the unit prices set by the Finnish Ministry of Education and Culture are used to determine the funding of general upper secondary education and vocational education and training. However, ultimately even this funding is not tied to its use, although the distribution of funding is based on the number of students (Finnish National Agency for Education, 2017).

The general as well as vocational secondary schools are provided mostly by municipalities or the state. The municipalities have two main sources of income (that are then used to fund secondary education): transfers from the central government (including those mentioned to be used for education provision as well as a general allowance, health and social care transfers or culture transfers; the transfer is provided as lump sum) and local taxes. Local councils determine the rate of local income tax and real estate tax. The transfers are calculated using population, some geographical factors and various socio-economic factors (Finnish National Agency for Education, 2017). The description of calculation of these statutory grants is beyond the scope of this book.

Most of the students with special needs are in regular classes. The very much decentralized decision-making system in which municipalities decide about the funding led to a reduction in the number of special schools. Special classes have been founded within mainstream education (as seen below in the case of the Hanko municipality). Besides that, according to the European Agency for Special Needs and Inclusive Education (2017), the Finnish state currently maintains 7 special schools providing comprehensive school education. These are funded in the same way as regular schools.

Below, we provide an explanation of a simplified calculation of the grants from the central government to providers of primary and general and vocational secondary education.

**Primary schools**

*Detailed amounts paid per student*

For the year 2017, municipalities received a basic amount of €6,573.54 per pupil aged from 6 to 15 living in the municipality. This basic part of the home allowance is established by the Ministry of Social Affairs and Labor. The special conditions of the municipality then determine some additions to this amount based on the demographics in the municipality such as estimated morbidity, unemployment, number of other than Finnish speaking people, Swedish/
Saame speakers, archipelago area or educational level in the municipality. This supplement is calculated by the Ministry of Finance.

**An example of a primary school in a municipality in Finland**

In this box, we present an example of a budget of a school in Finland. In principle, the municipality simply follows the state funding. This implies that a primary school with 180 students received funding of $180 \times 6,573 = 1,183,140$ EUR.

This could be increased by funds for education for students with special needs which is, in general, organized so that these students receive tuition in special groups (classes) within mainstream education. In order to establish these special classes, the school receives €30,351.24 per students with severe developmental disabilities and €18,937.64 per student other than those with severe developmental disabilities.

**Secondary schools**

The calculation of funding for secondary schools is more complex than in the case of primary education and, for instance, performance indicators are also taken into account.

**General upper secondary education**

The funding that is transferred to municipalities organizing secondary schools is calculated as the number of students multiplied by the organizer specific unit price of a single student (Saastamoinen and Kortelainen, 2018). The calculation of the unit price for organizer $i$ in year $t$ ($P_{it}$) can be summarized in the following formula

$$P_{it} = \frac{M_{it} \times N \times P_{a}}{100}$$

Where $P_a$ is the national average unit price (which is set by the Finnish National Board of Education), $N$ is a national multiplier that smooths out the changes in the average price unit price $P_a$ that might occur because of the differences in organizer specific prices (note that both $P_a$ and $N$ are constant across all organizers). The variation in the unit price for the organizer comes, thus, from the $M_{it}$. This unit price is determined by the number of students as follows
\[
M_{it} = \begin{cases} 
100 & \text{if } s_{it-1} \geq 200 \\
100 + 0.4 \cdot (200 - s_{it-1}) & \text{if } 60 \leq s_{it-1} < 200 \\
100 + 0.4 \cdot (200 - s_{it-1}) + 2.1 \cdot (60 - s_{it-1}) & \text{if } 40 \leq s_{it-1} < 60 \\
206 & \text{if } s_{it-1} < 40 
\end{cases}
\]

where \( s_{it-1} \) is the number of students observed at the beginning of the previous school year. For schools with more than 200 students, no coefficient is applied (\( M_{it} \) is 100). Other thresholds are 60 and 40, the multiplier does not increase for schools with fewer than 40 students anymore. Figure 6 shows how the multiplier changes with a change in the number of students. According to Saastamoinen and Kortelainen (2018), the origins of these thresholds are clear from any official documents and are assumed to be set arbitrarily as a result of political negotiations. They nevertheless take into account that average secondary schools in Finland are attended by 100 to 299 students.

It should be noted that basically every municipality needs to add something to the allocation from the central government, and that is a political decision at the municipal level. For all levels of compulsory education, the additional funding from municipalities covers on average 40 to 55 percent of the resources sent to schools. Thus, the differences between the funding per student across municipalities can be relatively large.

**Vocational education and training**

Vocational education and training is mostly financed from the budget of the Ministry of Education and Culture and is included in the transfers from the central government to local governments (similarly as for primary and general upper secondary education). This funding calculation is mostly based on unit prices multiplied by the number of students and is granted directly to authorized vocational education providers. The providers are then free to spend the money according to their decisions. Currently, the transfers from the central government cover approximately 42 percent of operating costs, and some 58 percent comes from municipalities (Finnish National Board of Education, 2010).

In the calculation of the average unit price, “the total costs of vocational upper secondary education and training, change in the level of costs as well as changes in the scope and quality of operations due to legislation and other actions by state authorities” are taken into consideration (Finnish National Board of Education, 2010, p. 23). A unit price of a particular vocational education provider is then based on

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32 This information was obtained from Prof. Dr. Markku Jahnukainen at the University of Helsinki [email conversation on 7-14/08/2017].
“factors such as the field of education provided, whether the education and training is particularly expensive, the number of students receiving special needs education and the number of students receiving housing from the education institution” (Finnish National Board of Education, 2010, p. 23). The unit price of an apprenticeship is approximately 63 percent of the average unit price for vocational education. In Table 10, we summarize the funding model for vocational education.

<table>
<thead>
<tr>
<th>Statutory government transfers</th>
<th>Performance-based funding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Based on operational outcomes</td>
<td>Based on quality assessment</td>
</tr>
<tr>
<td>Vocational upper secondary education and training</td>
<td>unit price / student / year</td>
</tr>
<tr>
<td>Apprenticeship training</td>
<td>unit price / student = confirmed apprenticeship agreement / year</td>
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</tbody>
</table>

Table 10: Vocational education funding model; source: Finnish National Board of Education (2010).
As seen in the table, as well as the government transfer, there are also performance-based criteria that influence total funding. These criteria are based on operational outcomes determined on the basis of some quantitative indicators and quality assessment. The performance-based funding covers 3 percent of total funding. The quantitative indicators include “the employment situation of qualification holders, placement in further studies in higher education, drop-out rate, proportion of students passing their qualifications, formal teaching qualifications of the staff and resources allocated towards staff development” (Finnish National Board of Education, 2010, p. 24).

**Calculation of the funding**
The average unit price for vocational education was set at EUR 10 278.43 (excluding VAT) in 2017. Due to austerities, the average unit price decreased from 2016 to 2017 by 1.8 percent.

In Table 11, we present the training type-specific unit prices in vocational education. The average unit prices per student in the sectors are obtained by multiplying the unit price in the sector with a sectoral equalization coefficient (equalization coefficient I). Subsequently, all unit prices are adjusted by a general factor of 0.983308.

The funding is then simply calculated by multiplying the number of students in the sector by the adjusted unit price.

<table>
<thead>
<tr>
<th>Field of study</th>
<th>Unit price</th>
<th>Equalization coefficient</th>
<th>Adjusted unit price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Humanities and education</td>
<td>8 861.97</td>
<td>0.936722</td>
<td>8 301.20</td>
</tr>
<tr>
<td>Culture</td>
<td>11 489.55</td>
<td>0.871292</td>
<td>10 010.75</td>
</tr>
<tr>
<td>Business administration</td>
<td>7 567.27</td>
<td>0.930568</td>
<td>7 041.86</td>
</tr>
<tr>
<td>Natural sciences</td>
<td>8 030.58</td>
<td>0.913317</td>
<td>7 334.47</td>
</tr>
<tr>
<td>Technology and transport</td>
<td>10 566.28</td>
<td>0.84926</td>
<td>8 973.52</td>
</tr>
<tr>
<td>Natural resources and environment</td>
<td>13 720.56</td>
<td>0.775241</td>
<td>10 636.75</td>
</tr>
<tr>
<td>Social services, health and sports</td>
<td>8 320.14</td>
<td>0.941028</td>
<td>7 829.48</td>
</tr>
<tr>
<td>Tourism, catering and domestic services</td>
<td>10 101.29</td>
<td>0.872817</td>
<td>8 816.58</td>
</tr>
<tr>
<td>In total</td>
<td>10 278.43</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 11: The unit prices per training sectors; source: Opetushallitus Utbildningsstyrelsen (2017).
There are also some additional increases for students with special needs.\textsuperscript{33} On top of the basic per unit funding, providers that perform better than 80 percent of all eligible providers\textsuperscript{34} receive performance-based funding which accounts for 3 percent of total funding. The calculation is as follows:
\[
\frac{(\text{Performance Index} - 0.928 \times \text{min rating}) \times 0.4039490 \times \text{number of students} \times \text{the unit price calculated per training sector}}{1000}
\]
where 0.928 is the minimum needed to get the performance-based funding and 0.4039490 is so-called price point.\textsuperscript{35}

\begin{center}
\textbf{An example of a secondary school in a municipality in Finland}
\end{center}

In this box, we present an example of the budget of a school in Hanko. In principle, the municipality simply follows the state funding and adds some additional funds that are needed. Since the figures for 2017 are unavailable, we use the year 2016.

The basic amount per students was 9,075.81 EUR (see https://vos.oph.fi/cgi-bin/tiedot2.cgi?saaja=783;tnimi=vos/v16/v06yt7s16.lis) and the city added on average 3,695 EUR in 2016. So the net effective funding per student in 2016 was 12,770.81 EUR (see https://www.hanko.fi/files/8570/talousarvio2018-2020.pdf, p. 74).

This implies that a general secondary school with 180 students received funding of $180 \times 12,770.81 = 2,298,745.80$ EUR.

\begin{center}
\textbf{Special needs schools}
\end{center}

Since 2011, special needs students have generally not received any special funding. The funding for most students is already included in the basic allocation. The only exception is a small group of students within Tier 3. For these purposes, the Finnish system distinguishes between two types of additional funding for extended education: i) students with severe developmental disabilities and ii) students other than those with severe developmental disabilities. For the first group, the municipalities receive the basic allocation

\textsuperscript{33} For details we refer to http://oph.fi/download/187736_opetus_ja_kulttuuritoimen_rahoitus_2017.pdf.

\textsuperscript{34} Note that not all providers can receive this funding; they must be big enough to get reliable statistical data and the funding is limited to some study fields.

\textsuperscript{35} Details of its calculation are provided again in http://oph.fi/download/187736_opetus_ja_kulttuuritoimen_rahoitus_2017.pdf.
amount multiplied by the coefficient 4.76 (i.e. €30,351.24 per student in 2017). For the latter group, the municipalities receive additional funding equal to the basic amount multiplied by the coefficient of 2.97 (i.e. €18,937.64 per student in 2017). Funding for these students is decided on an individual basis and these funds are often used to pay for, for example, educational assistants.

In the following chapter, we will describe how the funds received by a municipality from the central government are further allocated to the schools. It should be noted that basically every municipality needs to add something to the allocation from central government and that it is a political decision at the municipal level. 36

**The case of the municipality of Hanko** 37

As a case study for Finland, we have chosen the municipality of Hanko as it faces the challenge of two language groups (Finnish and Swedish speakers). As in the majority of Finnish municipalities, the state funding is not enough to finance education, so the city council decides annually on the (additional) budget resources. In Hanko, there are 53.5 percent of Finnish and 43.7 of Swedish speakers. Within the basic education, there are 6 schools that provide instruction in Finnish and 6 in Swedish.

The funding formula in Hanko is kept relatively simple and is based on the number of students in the given school. It largely follows the amounts determined by the central government. Thus, the amount that a school obtains per student is determined by the level of education. The schools receive fixed amount of €6,573 per student in elementary education and €10,275 in secondary education.

The funds for education have been budgeted to enable the education for pupils with special needs to be organized so that these students receive classes in special groups (classes). These special groups are administered by a special school and its principal. In order to establish these special classes that require more teachers and (educational) assistants, the school receives €30,351.24 per student with severe developmental disabilities and €18,937.64 per student other than students with severe developmental disabilities. These funds are paid to the school based on the number of enrolled students at the beginning of the academic year.

36 This information was obtained from Prof. Dr. Markku Jahnukainen at the University of Helsinki [email conversation on 7-14/08/2017].

37 The funding system was described by Mr. Karl-Erik Gustafsson, Head of Education Department of the municipality of Hanko [email conversation on 10-13/08/2017].
Summary of the Finnish education funding system

Finnish education as well as the education funding system is very much decentralized with a large share of decision-making in the hands of the municipalities. Figure 7 shows the main sources of the allocation from central government and municipalities to Finnish schools.

In such a system where municipalities receive funds on a per citizen of school age basis and only relatively a very limited share of students receive further support leads to a reduction in the number of special schools, and more often the inclusion of special needs students into mainstream educational institutions. This is further strengthened by the fact that the basic allocation already includes funding for most special needs students. Since the allocation does not depend on the number of classes or similar factors, the municipalities have little incentive to further promote or create small schools that would make the provision costlier and less efficient. In the municipality of Hanko, they mostly follow the national system of funding and fund schools based on the per student formula. The funding for special needs students is directly paid to the schools, which makes them responsible and able to establish classes for special needs students within mainstream schools. Even students in intensified support (Tier 2) often study in special small groups although this has not been the aim. These students should mainly study in mainstream classes/groups in accordance with inclusion principles.

Below, we summarize some strengths and weaknesses of the Finnish funding formula.

An example of a school in a municipality in Finland

In this box, we present an example of the budget of a school in Finland. In principle, the municipality simply follows the state funding. This implies that a primary school with 180 students received a funding of $180 \times 6,573 = 1,183,140$ EUR.

This could be increased by funds for education for students with special needs which is, in general, organized so that these students receive classes in special groups (classes) within mainstream education. In order to establish these special classes, the school receives €30,351.24 per student with severe developmental disabilities and €18,937.64 per student other than students with severe developmental disabilities.
<table>
<thead>
<tr>
<th>STRENGTHS</th>
<th>WEAKNESSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Large flexibility and responsibility given to municipalities that can</td>
<td>1. Municipalities have often to co-fund schools from their budgets and local</td>
</tr>
<tr>
<td>democratically decide on the level of funding as well as on the policy</td>
<td>taxes;</td>
</tr>
<tr>
<td>preferences in spending;</td>
<td>2. Since schools are in large part co-funded by municipalities, there are</td>
</tr>
<tr>
<td>2. Focus on outcomes (self-evaluation of schools and teachers) instead of</td>
<td>larger differences in the level of funding that is provided to schools</td>
</tr>
<tr>
<td>inputs;</td>
<td>among municipalities which would not be the case were the schools funded</td>
</tr>
<tr>
<td>3. Disincentivize over-identification as a large share of special needs</td>
<td>mostly directly by the state;</td>
</tr>
<tr>
<td>students are included in the basic allocation;</td>
<td>3. Little or no extra support for gifted students;</td>
</tr>
<tr>
<td>4. Very equitable system since primary schools have to accept students</td>
<td>4. The additional funding for small general secondary school may</td>
</tr>
<tr>
<td>and they provide lunches and text books for free to all students.</td>
<td>disincentives merges etc.</td>
</tr>
</tbody>
</table>

1. Municipalities have often to co-fund schools from their budgets and local taxes;
2. Since schools are in large part co-funded by municipalities, there are larger differences in the level of funding that is provided to schools among municipalities which would not be the case were the schools funded mostly directly by the state;
3. Little or no extra support for gifted students;
4. The additional funding for small general secondary school may disincentives merges etc.

Figure 7: Simplified diagram of the main sources allocated to schools in Finland; source: Authors.

### 4.4 Flanders

Unlike in the other regions studied in the book, it is primary and secondary school boards that receive funding from the Flemish Community, and not strictly geographically determined areas such as municipalities or districts. A new funding formula for operating expenses in primary and secondary schools
was introduced in 2008/09. In addition, a new mechanism for allocating teaching staff in primary education was implemented in 2012/2013. In the following part, we describe important parts of this funding formula before the funding for special needs students – which has recently been reformed – is discussed in detail.

**Primary schools**

The funding for primary schools consists of funding for staff (including teaching staff, replacement units for teachers’ absences, school principals) and operations budgets.

**Staff funding**
The funding of teaching hours for primary schools in Flanders is mainly based on the number of students and certain point envelopes. The staff formation of the schools consists of teaching hours, other hours, points and replacement units. Teaching hours can be used to appoint teaching staff. Other hours can be used to appoint paramedical staff. Each of the point envelopes is in turn used for staff and support members. The replacement units are used to fill short absences of personnel. Finally, every school is entitled to hire a principal (if a school has fewer than 180 pupils, the principal also has a part-time teaching assignment).

**Teaching staff funding**
The basic framework of primary schools’ financing is comprised of the teaching hours according to the scales, SES-teaching hours and additional teaching hours.

In primary education, the basic framework for staff funding can be used to appoint teachers, physical education teachers and teachers for ideological courses. Conversion from the basic framework funding to financed or subsidized full-time jobs of teachers or physical education teachers and teachers of ideological courses is done by dividing the teaching hours by 24. The quotient is equal to the number of possible full-time jobs to be funded.

**Teaching hours according to the scales**
The regular students are counted to determine teaching hours according to the scales. Afterwards they are separated into categories and weighted based on several characteristics. Students in primary schools that are situated in Brussels receive a weighting coefficient of 1.11, students in schools that are situated in a community with a population density of fewer than 100 inhabitants
per square meter have a weight of 1.05 and students that live in a center for child care and family support, or have been living outside their own family, receive a weighting coefficient of 1.5. For other students, the coefficient is 1. These coefficients are multiplicative. A student living outside his/her family and going to school in Brussels is as such weighed at 1.665 (1.5 × 1.11). The number of students is then rounded up. In schools with multiple locations, the count can be separate or together depending on the distance between the locations. There is one common scale for all primary schools (Appendix A of “Lestijdenschaal gewoon basisonderwijs”). It shows the number of teaching hours the school receives based on the number of weighted students. On the teaching hours generated by these scales, an SES-percentage of 97.16 is subsequently applied. The result of this calculation is rounded. Schools that are not entitled to at least 26 teaching hours according to these scales receive 26 teaching hours.

**SES-teaching hours**

Socio-economic status teaching hours are allocated to schools based on the socio-economic status of students. This status is assessed based on several student characteristic indicators. Each indicator represents an aspect of the socio-economic status; the indicators are the following:

1. Whether or not the mother finished secondary education is used to indicate the cultural baggage and the social capital of the family and the student.
2. Whether or not the student receives an educational grant is used to indicate the financial situation of the family.
3. Whether or not the language spoken in the family differs from the instruction language in the given school is used as an indicator for both cultural and linguistic capital of the family.

For each student that ticks off at least one indicator, the school receives SES-teaching hours. For the educational level of the mother the school receives 0.26710 teaching hours; for language spoken in the family this is 0.29116 and for educational grant 0.11917. The additional hours are cumulative per student. A student whose family language is not Dutch and whose mother did not finish secondary education gives the school 0.29116 + 0.26710 additional teaching hours. The SES-teaching hours a school receives are meant to be

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38 The language the student speaks at home is not the instruction language, where the student speaks with no member of the family or, in a family of three people, with at most one family member in the instruction language.
used to limit the impact of the socio-economic status on the outcomes of the students.

*Additional teaching hours according to the scales*

Every school where the average number of students per full-time teacher is higher than 18.5 receives additional teaching hours to stay below this student-teacher ratio.

To be entitled to additional teaching hours the result of the $\frac{24 \times A}{B}$ division should be higher than 18.5, where $A$ is the number of regular students in school on the counting day and $B$ is the sum of the teaching hours according to the scales of the school and the SES-teaching hours for the school, both for the current school year. The result of this division equals the number of students per full-time teacher. The number of additional teaching hours is the difference between $C$ and $B$ rounded up, where $C$ is $\frac{(24 \times A}{B)} / 18.5$. These additional hours make sure the student/teacher ratio almost equals 18.5 in primary schools, for which this number would be higher without the correction mechanism.

*Complementary teaching hours*

On top of the basic framework, there are complementary teaching hours. These hours are subsidized or financed with regard to religion, ethics, and culture on the one hand and for non-Dutch-speaking newcomers on the other hand.

For courses in acknowledged religions and ethics, two teaching hours per group of students are financed on top of the basic framework. In subsidized free schools that provide neither religion nor ethics, two hours of cultural education are financed. The number of courses and of teaching hours for the most followed course is determined (Appendix C “Calculation of the most followed course religion, ethics or cultural education”; Vlaamse Overheid, 2005). After the distribution of the teaching hours for the most followed courses, those for the less followed courses are calculated. The number of complementary hours per student group contains as many teaching hours as the most followed course. Starting from 10 students, a lesser followed course can be split up into multiples of 5 students when the corresponding student group of the most followed course also splits up.

To be entitled to the complementary teaching hours for non-Dutch-speaking newcomers the school needs to organize a plan of action for each individual newcomer. This plan of action has to provide both study elements and study evolution. They also need to have an adequate number of newcomers. For schools with only one location the school needs at least 4 non-Dutch-speaking newcomers. For all other schools the minimum is set...
at 6 newcomers. When the number of newcomers is counted at the school community level, a minimum of 12 newcomers is needed. When this number of newcomers is met, the school receives 2 additional teaching hours and 1.5 additional hours per newcomer (Vlaamse Overheid, 2006).

**Supplementary teaching hours**

A final component of the basic framework consists of the supplementary teaching hours for a voluntary merger and the supplementary teaching hours for temporary home education. When a voluntary merger takes place, a school is entitled to supplementary teaching hours in order to spread the potential negative effects of the merger over time. The number of supplementary teaching hours depends on the following elements:

- The teaching hours package based on the regulations assuming the original structure of the school remains unchanged and the teaching hours package is based on the new structure after the fusion.
- The difference between the two packages is weighted based on the year (100 percent in the year of the merger, 75 percent one year later, 50 percent 2 years later and 25 percent three years after the merger) and this number of supplementary teaching hours is awarded to the school.

These hours can, however, only be used to acquire temporary personnel.

In certain circumstances students are entitled to temporary home education. The student is entitled to this only when the nature of the condition is severe, the parents request home education and one of the locations of the school is more than 10 kilometers away. When all of these conditions are met 4 supplementary teaching hours per week per student are financed or subsidized (Vlaamse Overheid, 1997).

**Special pedagogic assignments (SPA)**

Up to 3 percent of the teaching hours package awarded can be reserved for pedagogic assignments. This maximum can be exceeded as long as the local committee regarding working conditions grants permission.

The teaching hours that can be used for these special pedagogic assignments are called SPA hours (BPT in Dutch) and are aimed at optimizing the pedagogic-didactic organization. An example is assigning certain coordination assignments to personnel.

**Point envelope**

‘Point envelopes’ allow schools to hire employees as support and staff members. The three offices that can be filled by using these points are care
coordinator, ICT-coordinator and administrative employee. On top of the three-point envelopes corresponding to these offices, there is one additional envelope to support the school community.

The point envelopes for care and ICT are calculated per school based on the number of students. While every school receives a point envelope for ICT, a school can use the points only if it is part of a school community. A total point envelope is distributed over all students. In 2016 this yielded a point value of 0.03969 per student. Schools that are in a school community can use these points to acquire ICT-coordinators. For the care point envelope, there is no such condition and points are distributed based on the number of students (see Appendix “Puntenenveloppe zorgbeleid”; Vlaamse Overheid, 2005).

The point envelope for administrative services is also based on a 0.1543 point value per student in community education and a 0.1745 point value per student in subsidized education, with a minimum of 9 points per school.

On top of these point envelopes, the school board is also entitled to a stimulus envelope to support the operational expenses. This point envelope is free to spend over all three of the previously mentioned domains and separate functions to support the school community. Schools are also allowed to give up to 10 percent of their ICT and administrative support points to the school board (Vlaamse Overheid, 2005).

The points from the point envelopes can be converted into the following positions: chief coordinator of the school community and/or staff members of the school community. Points assigned to a school for the care envelope can be used only to appoint care coordinators. The same is true for ICT coordinators from the ICT point envelope and administrative employees from the administrative support envelope.

The price of a position is expressed in a point weight. Depending on the position and educational level of the applicant, the point value varies for a full-time position. The number of hours for which he or she is appointed influences the number of points needed (see Appendix “Het puntengewicht van een betrekking” for details; Vlaamse Overheid, 2005).

Replacement units
Replacement units are additional teaching hours that can be used only to cover short absences of employees for which there are no alternative compensation measures. Short absences are those absences for which no other replacement can be financed or subsidized under another regulation. These replacement units are only awarded when there is no replacement for 10-day absences, pregnancy leave etc. The replacement units can be used to appoint temporary personnel in order to replace absent employees. Replacement units can only
be used when combined at the level of a cooperation platform in which there is a covenant.

The number of replacement units is equal to the replacement coefficient $X$, the total number of teaching hours of the school in the previous school year. In 2015-2016 the replacement coefficient was set at 56.73054954. The total number of teaching hours is then given as the sum of all teaching hours of the basic framework. Appointing an employee with these replacement units is done as follows: $X \times \text{number of appointed days} / 7 = Y$, where $X$ is the assignment on a weekly basis of the staff being replaced, expressed in 10,000th’s and $Y$ the needed replacement units. To appoint someone in a full-time assignment this is always approximately 1.429 units per day (Vlaamse Overheid, 2005).

*The School Principal funding*

Every school receives funding for the office of principal, regardless of size. In schools with fewer than 180 students, the principal also has to teach between 4 and 14 hours depending on the school size. The principal has a teaching assignment of 14 teaching hours in schools with fewer than 20 students, 10 teaching hours in schools with between 20 and 129 students and 4 teaching hours in schools with 130 to 179 students. For schools with more than 180 students the principal is free of a teaching assignment.

In the Brussels Capital Region, these teaching assignments for school principals are different. It is 14 teaching hours in schools with fewer than 20 students, 10 teaching hours in schools with between 20 and 69 students and 4 teaching hours in schools with 70 to 99 students. Here, principals of schools with more than 100 students do not receive a teaching assignment. Depending on the respective point envelopes, the teaching assignment can be converted into an ICT or care assignment or the principal can fulfill a staff membership position in the school community. In schools formed out of a voluntary fusion, funding can also be provided for the position of assistant principal when several conditions are met. This person too has to fulfill a teaching assignment in certain conditions 39 (Vlaamse Overheid, 2005).

*Operations budgets*

The financing of operations is based on objective differences, student characteristics and school characteristics (Groenez, Juchtmans, Smet, & Stevens, 2015).

39 More information can be found in the circular “Personeelsformatie scholen in het gewoon basisonderwijs.”
**Objective differences**
The objective differences are based on the principles of neutrality and world-view. As only Communal Education (GO!) is constitutionally obliged to provide neutral education, it is entitled to compensation. This compensation is set at 3 percent of the indexed distributable means for students of these schools. Comparably, as only communal (GO!) and officially subsidized education (OGO) are obliged to provide multiple world-view orienting courses, these schools receive additional funding. The objective difference for world-view was set at 4.5 percent of the indexed distributable means of these schools. The quantification of the compensation for these objective differences was based on a consulting report regarding the income and expenditure of Flemish schools (Deloitte & Touche, 2001).

The ratios for neutrality of 3 percent and of ethics courses of 4.5 percent are used to calculate the amount of money that school boards that are entitled to these funds receive per student. The total amount per student for neutral education is equal to:

\[
\text{indexed distributable means} \times 0.03 / (\text{the total number of students} + \text{the number of students per objective difference} \times 0.03)
\]

in the case of neutral education and in cases of ethics courses 0.045 replaces 0.03, otherwise the formula stays the same (AGODI, 2016; Vlaamse Overheid, 1998).

**Student characteristics**
The second element that decides the operations budget of primary school boards is the composition of student characteristics in these schools. The four indicators to measure the student characteristics are educational level of the mother, educational grant, mother tongue and neighborhood. The goal of these characteristics is to map the social environment in which the students grew up. Every year a percentage of the educational budget for primary education is set aside to compensate for student characteristics. As of 2016 this percentage will rise from 14.5625 to 15.5 in 2020. This budget is then for primary education equally distributed across the four indicators. Afterwards the budget per indicator is divided by the number of relevant students. The values of the different characteristics are then summed up at the school level. One remark is that there is a correction when schools have a very large number of students scoring on a certain indicator. The additional financing is calculated for a maximum of the mean percentage of students scoring on a characteristic increased with two standard deviations.

A student can have multiple student characteristics. In this case, the school board receives the sum of the generated amounts.
School characteristics
The third element to decide the operations budget is school characteristics. In primary education, this is the only difference between mainstream and special needs education. The point value per primary school student is set to 8.40.

Point envelope ICT
Another source of income is the financing of ICT operations. These are based on the weighted number of students (1.25 times the number of students) and multiplied by a budgetary coefficient of 0.7163. A school with 200 students would as such receive $200 \times 1.25 \times 0.7163 = 179.08$ EUR. These resources can only be used for logistical and material support of ICT coordination.

Calculation of allocations
After computing the points for each and approving the final budget, the school boards receive allocations proportionally according to their points.

An example of a primary school board budget in Flanders
In Flanders, the school board receives the funding, and then distributes it to the schools it governs. Therefore, in this box, we present an example of the budget of a Flemish provincial school board (OGO). The calculation follows the funding formula described above. In this example, we take a primary school with 180 students. To make the example more interesting, we assume that 20 students come from a non-Dutch-speaking family, 10 receive educational grants and 5 come from the travelling population (such as Roma people).

The total allocation is composed of staff and operating budget.

Staff formation
The staff funding consists of principal funding, teaching staff and point envelopes. Since the school has 180 students, it receives a fully funded principal without a teaching assignment.

The funding of teaching staff is determined as $175 \times 1 + 5 \times 1.5 = 182.5$ teaching hours. The 5 students are the Roma students that are weighted by 1.5. According to the table from Appendix 2 of the Basic Education Law (http://data-onderwijs.vlaanderen.be/documenten/bestand.ashx?nr=5100), this weighted number of students generates 236 teaching hours.

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40 For nursery schools (2.5 to 6 years), the point value is 6.
hours. And then a coefficient of 0.9716 is applied, yielding the final number of teaching hours: 229. By diving this number of teaching hours, we receive 9.5 full-time equivalent positions.

Furthermore, the school board would receive some complementary teaching hours based on the religion of its students. This is determined by paragraph 3.2.1.3 in the circular on Staff Formation in Mainstream Primary Schools (http://data-onderwijs.vlaanderen.be/edulex/document.aspx?docid=13615#3-2-1-3). Assuming that the majority of students would opt for non-confessional ethics (about 100 students), 60 for Christianity and 20 Muslim, the school board would get 12 complementary hours and approximately 4 and 2 hours for Christian and Muslim teaching complementary hours.

Lastly, the school board would receive $180 \times 1.25 \times 0.03969 = 8.93$ points for ICT and $180 \times 0.01543 = 27.77$ points for administration. The exact specification of who can be hired based on these points is given in the same circular at paragraph 1.4.1.3 (see http://data-onderwijs.vlaanderen.be/edulex/document.aspx?docid=13641#1-4-1-3).

**Operating budget**

The school board receives funding for objective difference, student characteristics, school characteristics and point envelope for ICT.

Since community schools are required to teach religiously neutral education, they are entitled to compensation for objective differences. The funding per student is, consequently, in the end increased by 4.5 percent. In our case, this would be approximately $(116,234.22+3,694.1+161.17) \times 0.045 = 5,404.02$ EUR.

The additional funding based on student characteristics is calculated as 15 percent of the total budget for primary schools, divided by 4 and then distributed equally among the 4 categories (low educational level of the mother, receiver of a school grant, non-Dutch home language and living in a poor neighborhood). In 2017, the funding per non-Dutch home language was 128.66 EUR and the funding per student receiving educational grants was 112.09 EUR. So it is $128.66 \times 20 = 2,573.20$ EUR for non-Dutch home language students and $112.09 \times 10 = 1,120.90$ EUR for students receiving educational grants. In total, the student characteristics funding was 3,694.1 EUR.

Since we assume a primary school board, the points for school characteristics are computed as follows $180 \times 8 = 1,440$ points. In 2017, one point was equivalent to 80.72 EUR, thus, the total funding for our school board would be 116,234.22 EUR (equivalent to 645.75 EUR per student).
And, lastly, the school board receives funds for ICT operating budgets. These are calculated as $180 \times 1.25 \times 0.7163 = 161.17$ EUR and can only be used for logistic and material support of ICT coordination.

<table>
<thead>
<tr>
<th>Area</th>
<th>Allocations in positions, hours, points and euros</th>
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</thead>
<tbody>
<tr>
<td>Staff information</td>
<td></td>
</tr>
<tr>
<td>1. School principal</td>
<td>1 position without teaching obligations</td>
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<tr>
<td>2. Teaching staff</td>
<td>9.5 full-time eq. positions</td>
</tr>
<tr>
<td>3. Complementary teaching hours</td>
<td>18 teaching hours</td>
</tr>
<tr>
<td>4. Point envelope</td>
<td>8.93 points for ICT + 27.77 points for administration</td>
</tr>
<tr>
<td>Operating budgets</td>
<td></td>
</tr>
<tr>
<td>1. School characteristic</td>
<td>116,234.22 EUR</td>
</tr>
<tr>
<td>2. Objective differences</td>
<td>Approximately 5,404.02 EUR</td>
</tr>
<tr>
<td>3. Student characteristic</td>
<td>3,694.1 EUR</td>
</tr>
<tr>
<td>4. ICT operating budget</td>
<td>161.17 EUR</td>
</tr>
</tbody>
</table>

Table 12: Allocations to a Flemish community school board; source: Authors.

The funding for this model school board is summarized in Table 12. For staff formation, it would receive funding for a principal, 9.5 full-time equivalent positions for teaching staff, 18 teaching hours for teaching religion, 8.93 points for ICT and 27.77 points for administration. The funding from the points (such as for school characteristics) is calculated proportionally according to the points that school boards receive from the overall remaining budget for all school boards (i.e. if there were 2 school boards with 100 and 200 points, respectively, the first would receive 1/3 of the remaining budget and the second one 2/3). For operating budgets, it would receive 135,493.51 EUR which mostly comes from the funding for school characteristics.

The school boards then usually simply split the total budget (after putting some part aside as a reserve) according to the number of students in each school (if a school board manages more than one school). Note that these decisions are in the hands of school principals and can differ significantly across school boards.

**Secondary schools**

Like that for primary schools, the funding for secondary schools consists of funding for staff and operations budgets.
**Staff funding**
Staff funding for secondary schools is mainly based on the number of students and point envelopes.

**Teaching hours**
In secondary education, the basic framework for staff funding can be used to appoint teachers, physical education teachers and teachers for ideological courses. The conversion from the basic framework funding to financed or subsidized full-time jobs of teachers or physical education teachers and teachers for ideological courses is different from the conversion used for primary schools. There are 3 conversion rates depending on the year of secondary education – specifically, the conversion is done by dividing the teaching hours by 22 (for years 1-2 of secondary), 21 (for years 3-4), and 20 hours (for years 5-6).41 The quotient thus obtained then represents the number of funded full-time jobs.

**Secular courses**
The number of teacher hours a school receives is based on the number of weekly teacher hours per student. This individual number of teacher hours is calculated based on certain coefficients depending on field of study, type and level of education (see Appendix “The types of education classes” and Appendix “Overview of the coefficients for teaching hours per student”; Vlaamse Overheid, 1998). The coefficients are largest for a first bracket of students. As the number of students increases, these students are placed in a higher bracket. The marginal coefficient diminishes per bracket. In a school with 80 students in the second and third cycles of general secondary education the first 25 students have a coefficient of 1.90. The second bracket of 26-50 students receives a coefficient of 1.70 and for students 51-81 a coefficient of 1.60 is set. The result of this method is then corrected by multiplication with a coefficient of 0.9657. The resulting teacher hours are then rounded.

For certain schools, other, so-called minimal packages regulations are in place. The assignment of these minimal packages is done based on articles regarding rationalization norms as set out in the “Codex Secundair Onderwijs”. For these schools the coefficients are replaced by a minimal package. This adaptation is possible only for schools that meet the following criteria such as – The replacement scheme provides a more advantageous result for the school than the standard calculation based on the coefficients.

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41 The exceptions such as teaching practical classes in vocational education may involve up to 30 hours.
- The number of teacher hours to which the school is entitled according to the minimum-package scheme divided by the number of tenable teacher hours at 100 percent is greater than or equal to 15 percent.
- The number of teacher hours granted via the coefficient regulation divided by the number of teacher hours to which the school is entitled according to the minimum package scheme is less than or equal to 85 percent.

For general and technical secondary education with a component for professional sports, students with a professional athlete statute A are not taken into account for the coefficient ruling, but 2.9 teacher hours are granted to the school per student. Pupils with a top sport status of B are counted as regular pupils. There are also exceptions for other athlete and gardening schools. For instance, for pupils with a top-level sports certificate B and A, a flat-rate package of 20 teacher hours is awarded to the school per academic year in a maximum of one of the two forms of education (ASO or TSO) if this is more advantageous than the result of the coefficient calculation. These teacher hours can only be used for the organization of top sports. A separate structure was also designed for land and horticultural schools. Depending on the number of pupils, they can claim 29, 58 or 87 teaching hours. The personnel who are appointed from here are responsible for the operation and maintenance of the cultures, the greenhouses and the livestock and giving demonstrations during practical lessons. The number of teacher hours obtained with this calculation is multiplied by the application rate for minimum packages of 98.57%. This result is then rounded.

*Religion, non-confessional morals, cultural ethics and own culture and religion*

There are also hours allocated to teaching religion, non-confessional morals, cultural ethics and own culture and religion (for details, see http://data-onderwijs.vlaanderen.be/edulex/document.aspx?docid=12997 Section 3.2.2). These are allocated using so-called slitting norms which are applied at the level of individual learning cycles and depend on the curriculum. In the first year of the A stream and the second year of the first cycle of secondary

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42 The so-called B stream is intended for students who have not obtained a certificate of primary education, have a learning deficiency or are less suitable for predominantly theoretical education. After one year in the B stream, such students can transfer to the A stream
43 Here, a cycle means 2 years of education and there are 3 cycles in secondary schools (6 years in total).
education, the norms are: 26 students for 2 classes, 51 for 3 classes, 76 for 4 classes etc. (Vlaamse Overheid, 1998). The standards assume fewer students per class in the B stream or vocational training.

To determine the number of classes in non-confessional morals and religion in the official schools and the number of classes for these courses and cultural ethics and own culture and religion in subsidized free non-confessional education the distribution is 10 students for 2 classes, 21 for 3 classes, 28 for 4 classes, etc. at 7 students per class.

The number of classes is then multiplied by the weekly teaching hours for the corresponding courses. Next the calculated number of teacher hours is multiplied by a coefficient of 0.98. These hours need to be used for the corresponding courses. They can be used both for teaching hours and non-teaching hours, with regard to the course.

**Special pedagogic assignments**
Up to 3% of the total usable teacher hours can be reserved for special pedagogic assignments. These cannot be: teacher hours for full-time vocational secondary education on a modular system and teacher hours for athletics schools (Vlaamse Overheid, 2014).

**Plage hours**
‘Plage hours’ are teaching hours that a teacher performs above the minimum and below the maximum of a full-time position. These numbers are specified for all positions in education (Vlaamse Overheid, 1998). Outside the financed and subsidized hours, teachers cannot be asked to teach additional hours. Only one plage hour can be assigned. Staff members can only be awarded plage hours when these hours are necessary for organizational reasons and when they are organized in a transparent and equal way.

Schools belonging to a school community can organize a maximum of 1.3 percent of the sum of the teaching hour packages within the community as plage hours. To facilitate the reduction of plage hours, 20,000 hours are distributed across all school communities, proportional to their share in the total teaching hour package. For schools that do not belong to a school community on top of the 3% rule there is a rule that the percentage of plage hours cannot be higher than that of the 2001-2002 school year.

**Transfer teaching hours**
Teaching hours can be transferred to the next school year or to another school. To transfer to the next school year there is a maximum of 2% of the number of usable teacher hours. Teacher hours that are the result of conversions of
points cannot be counted for this calculation. The transferred hours can only be used in the next school year. There is no limit on the number of hours that can be transferred to other schools (Vlaamse Overheid, 1998).

**Long-term illness**
When students are ill for a longer period home education can be provided. During the long-term illness the government provides 4 supplementary hours per student per week.

**School communities**
Schools that do not belong to a school community receive an increase of the calculated teaching hours, including usage percentages, of 1%. The goal of these means is to reduce the number of organizable plage hours and to reduce pressure of work.

Schools that are part of a school community enjoy a beneficial calculation of the point envelopes and the staff of these schools can be used in a broader sense. Members of staff and supporting personnel can be put to work for the totality of the school community. Supporting personnel can be used for assignments for other schools in the same community.

**Welcoming education**
Welcoming education for non-Dutch-speaking newcomers consists of a welcoming year and support, counseling and the follow-up of these newcomers. Also building expertise related to former non-Dutch-speaking newcomers in regular secondary education is a part of this educational type. As these forms of counseling and support are expensive, additional specific teacher hours are awarded. These hours are awarded to the school community. When a school does not belong to a community it receives the hours itself.

Non-Dutch-speaking newcomers are those children between 12 and 18 years old that have stayed in Belgium for at most 1 year without interruption, that do not have Dutch as their home language and do not know the language well enough to follow classes. Finally, these students may not have been registered in a school where Dutch is the teaching language for more than 9 months.

A specific teaching hours package is provided for welcoming education. These hours cannot be used for any purpose other than welcoming education. Every school with welcoming education receives 2.5 teacher hours per regular non-Dutch-speaking newcomer in the welcoming year. On top of these hours, the schools receive an additional 0.9 teacher hours
for non-Dutch-speaking newcomers in the previous year. These hours can only be used to guide, support and follow up former welcomed students in regular education. For calculation purposes the point weight of a newcomer equals 16.

*Equal educational opportunity means-GOK*

As an extension to the package of teacher hours, extra teacher hours are also provided for equal educational opportunities and disadvantaged students. The GOK decree or the decree for equal educational chances bundled together all the initiatives regarding this subject. The goal of this policy is to reduce educational backlogs of disadvantaged native and foreign students. In order to meet this goal, this target group should receive additional teacher hours, support and guidance (Blaton, 2008). Just as with the SES means in primary education, the target students are discovered by several indicators. In order to benefit from the program and receive extra teacher hours a school needs a minimum of 10% weighted disadvantaged students in the first cycle and a minimum of 25% weighted disadvantaged students in the second and third cycles.

There are 5 equal opportunities indicators specified in the decree. To each of these indicators a weight, expressed in points, is assigned. Below are the 5 indicators with their respective point-values. The indicator school grant has 2 point values, one for students that only indicate this indicator and one (potentially together with non-Dutch home speakers) for those that indicate at least one other as well.

1. Parents belong to the traveling population (Roma, circus etc.) This indicator has a weight coefficient of 0.8 points.
2. The mother does not have a degree of secondary education. This indicator has a weight coefficient of 0.6 points.
3. The student is temporarily or permanently accommodated admitted outside the family. This indicator has a value of 0.8 points.
4. The family receives one or more school grants. If this is the only indicator checked the point value is 0.4. This weight is however corrected as the number of students that meet this requirement is multiplied by 0.4417. This brings the real point value to 0.17668. When the student also qualifies for another indicator the weight is set at 0.18 points.
5. The language the student speaks at home is not Dutch. This indicator has a weight coefficient of 0.2 points. For students that meet multiple indicators the weights are cumulative up to a maximum of 1.2 points per student.

The weight coefficient of 0.4417 for school grants also counts toward the count of weighted disadvantaged students. All other indicators are weighted as one
in this regard. This calculation happens at the school level. Afterwards the points generated in the first cycle are added up and multiplied by 1.5 when the school is in the Brussels Capital Region or if the school has more than 55% disadvantaged students. If the school meets both criteria the multiplication happens twice. The total number of points is multiplied by 0.2916 teacher hours.

The point values of students in the second and third grades are also summarized. This value is then multiplied by 1.5 when the school is in the Brussels Capital Region or if the school has more than 55% disadvantaged students. If the school meets both criteria the multiplication happens twice. The total number of points is multiplied by 0.1225 teacher hours.

A school receives the sum of these teacher hour students only if the result over all cycles yields 6 extra teacher hours or more. The calculation happens every 3 years (GOK period) and during this period the additional hours remain the same. The extra teacher hours can be used across cycles as long as they aim to improve equal educational outcomes.

The School Principal funding
A full-time principal’s position is assigned to a school with at least 83 regular students on the counting day. For schools that organize only a first (years 1 to 2) or a first and second cycle (years 1 to 4), a minimum of 120 students is required for eligibility for this full-time position. When the number of students is lower, the principal is also assigned some teaching. This assignment consists of a half-time teaching assignment, minus four teaching hours (Vlaamse Overheid, 1998).

Global point envelope
Next to the teacher hours package, there is also a global point envelope. This point envelope provides a school board with means to hire supporting staff and staff members (with the exception of a principal) at the school level. This envelope also tries to provide a policy with regard to task and function differentiation. Below we show the calculations of these points. The points can then be used to appoint staff members, supporting staff and teaching staff within the area of task and function differentiation. Employees can also be promoted to a higher pay scale in a supporting position and made class free. For schools that are part of a school community, this community receives the point envelope. The community then divides the points according to its own calculations based on agreed upon criteria. Schools that do not belong to a community receive the funds directly. For all points mentioned below a weight coefficient of 96.57% is in place.
Global point envelope awarded to the school community

1 Each secondary school receives 120 points if it has at least 600 regular students. Schools also receive 120 points for every additional 600 enrolled students.

2 Each secondary school receives 120 points if it has at least 300 special needs students. Schools also receive 120 points for every additional 600 enrolled special needs students.

3 Additional points are awarded for schools with practical courses: 120 points when 7 full-time teachers taught practical courses in the previous year and are teaching at least 6 in the next. An additional multiple of 120 points is awarded if the number of teachers for practical courses is 15 and 14 (240 points), 19 and 18 (360 points), 22 and 21 (480 points), 29 and 28 (600 points), 31 and 30 respectively (720 points), 33 and 32 (840 points), 36 and 35 (960 points), 43 and 41 (1080 points), and so on for each multiple of 7 and 6.

4 120 points are awarded to each special needs secondary school if the total number of weekly teaching hours organized as vocational training or practical courses in that school is at least 210. An additional 120 points are awarded per multiple of 210 weekly teaching hours organized as this type of course.

5 School communities can aggregate teaching hours/positions to reach the minimum demanded in point 3.

6 Additional points to be used for supporting staff are the following:
   - Students entitled to additional teacher hours GOK funding multiplied by 0.2971.
   - Other students multiplied by 0.2851.
   - Weekly teacher hours for schools that are entitled to GOK funding multiplied by 0.3025.
   - Other school teacher hours multiplied by 0.2902.
   - 82 points are awarded to each extraordinary school and on top of that schools receive additional points depending on students’ weight coefficients.\(^{44}\)

7 Points awarded for function and task differentiation.
   - The number of mainstream students is multiplied by 0.02316074.
   - Weekly package teaching hours are multiplied by 0.02364658.
   - The number of special needs students is multiplied by 0.07666553.

8 Additional points are awarded based on the number of regular pupils of all schools in the community combined: 120 points if the number of

students is between 900 and 3,999, 180 points if between 4,000 and 6,499. Then 60 additional points for each group of 1,500 additional students with a maximum of 420 points from 11,000 pupils.

120 points for part-time vocational education centers.

Global point envelope awarded to schools in full-time secondary education that do not belong to school communities

1. The same as for schools belonging to communities (see point 1) above.
2. The same as for schools belonging to communities (see point 2) above.
3. Points used to hire the supporting staff point envelope
   - The number of students entitled to additional teaching hours within GOK funding is multiplied by 0.2857.
   - The number of other students (not entitled to GOK-funding) is multiplied by 0.2741.
   - The weekly teaching hours for schools that are entitled to GOK funding are multiplied by 0.2651.
   - The other school teaching hours are multiplied by 0.2544.

4. Points awarded for function and task differentiation.
   - The number of regular students is multiplied by 0.02316074.
   - The weekly package teaching hours is multiplied by 0.01970700.

5. 120 points are for part-time vocational education centers (Vlaamse Overheid, 2009).

Operations budgets
The financing of operations for secondary schools is based on the same elements as for primary education – i.e. objective differences, student characteristics and school characteristics (Groenez, Juchtmans, Smet, & Stevens, 2015).

The calculation of funding based on objective differences (the first element) is the same as for primary education, so we will not describe it again.

Student characteristics
As for primary schools, the second element that decides the operations budget of secondary school boards is the student characteristics in these schools. The student characteristics are measured by the same 4 indicators (educational level of the mother, educational grant, mother tongue and neighborhood). For secondary schools, the percentage set aside to compensate for student characteristics increases on an annual base from 10.5625% in 2016 to 11% in 2019. This budget is for secondary education then equally distributed across the four indicators. The rest of the calculation copies the calculation for primary schools.
School characteristics
The third element that influences the operating funds is the so-called school characteristics. These school characteristics are the educational level, educational type and the students’ area of study. In mainstream secondary education only level (cycle) and field of study are relevant. After setting aside money for the objective differences and the budget for student characteristics the remainder of the original budget for secondary education is distributed according to these school characteristics. Each of these characteristics has a weighting coefficient and a point value. For students in the first cycle and students in the second and third cycles of general secondary education, the point value is set at 16. For students in technical and vocational education in the second and third cycles, the point value of 18 or 22 is applied depending on the field of study. For students in the second or third cycle of ballet and podium arts the point value of 20 is used, and for visual arts students a weight of 18 is applied. Finally, nursing students receive a value of 20 points.

For instance, a school with 20 general secondary education students in the second cycle and 30 students doing ballet receives:

$$20 \times 16 + 30 \times 20 = 920 \text{ points.}$$

The budget for school characteristics is then divided by the sum of the point values of all students. This quotient determines the amount a school receives per point.

Point envelope ICT
Another source of income is the financing of ICT operations. These are based on the weighted number of students (the weighting coefficients differ for different tracks) and multiplied by a budgetary coefficient of 0.7163.

<table>
<thead>
<tr>
<th>Type of track</th>
<th>Coefficient</th>
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<tbody>
<tr>
<td>The reception class for non-dutch-speaking newcomers in secondary education,</td>
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<tr>
<td>The B stream$^{45}$ of the first grade of full-time secondary education,</td>
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<tr>
<td>The pupils of the second, third and fourth years of vocational secondary</td>
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<td>Nursing,</td>
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<tr>
<td>Part-time vocational secondary education,</td>
<td></td>
</tr>
<tr>
<td>Part-time secondary sea-fishing education and special secondary education.</td>
<td></td>
</tr>
</tbody>
</table>

45 The so-called B stream is intended for students who have not obtained a certificate of primary education, have a learning deficiency or are less suitable for predominantly theoretical education. After one year in the B stream, such students can transfer to the A stream.
Thus, a school with 200 students in general secondary education and the A stream of the first grade of full-time secondary education would receive $200 \times 1 \times 0.7163 = 143.26$ EUR. These resources can only be used for logistical and material support of ICT coordination.

**Calculation of allocations**

After computing the points for each and approving the final budget, the school boards receive allocations proportionally according to their points.

**An example of a secondary school board budget in Flanders**

In Flanders, the school board receives the funding and then distributes it to the schools it governs. Therefore, in this box, we present an example of the budget of a Flemish community school board in 2014/15 (the system of calculation has not changed). The example is based on Nusche et al. (2015). In this example, we take a secondary school with 296 students consisting of 46 2nd cycle ASO students, 43 3rd cycle ASO students, 36 2nd cycle TSO students, 36 3rd cycle TSO students, 69 2nd cycle BSO students, and 66 3rd cycle BSO students.

The total allocation is composed of staff and operating budget. We will not discuss the operating budget in detail as it is very similar to the one for primary schools.

**Staff formation**

The staff funding consists mostly of principal and teaching staff funding. Since the school has 296 students, it receives a fully funded principal without a teaching assignment.

The funding of teaching staff is determined as (see Appendices “The types of education classes”)

1. 2nd cycle ASO 46 students: 83.2 hours
   a. According to scales $25 \times 1.9 + 21 \times 1.7 = 83.2$
2. 3rd cycle ASO 43 students: 78.1 hours
   a. According to scales $25 \times 1.9 + 18 \times 1.7 = 78.1$
3. 2nd cycle TSO 36 students: $15.8 + 78.9 = 94.7$ hours (but the minimum package is 156 hours)
a. According to scales $25 \times 0.5 + 11 \times 0.3 = 15.8$

b. Teaching according to groups $11 \times 2.05 + 12 \times 2.15 + 13 \times 2.35 = 78.9$

4. 3rd cycle TSO 36 students: $15.8 + 78.9 = 94.8$ hours (but the minimum package is 156 hours)
   a. According to scales $25 \times 0.5 + 11 \times 0.3 = 15.8$
   b. Teaching according to groups $14 \times 2.05 + 7 \times 2.15 + 15 \times 2.35 = 79$

5. 2nd cycle BSO 69 students: 219.45 hours
   a. According to scales $25 \times 0.6 + 44 \times 0.3 = 28.2$
   b. Teaching according to groups $17 \times 2.45 + 18 \times 2.55 + 34 \times 3.05 = 191.25$

6. 3rd cycle BSO 66 students: 201.9 hours
   a. According to scales $25 \times 0.6 + 41 \times 0.3 = 27.3$
   b. Teaching according to groups $17 \times 2.45 + 21 \times 2.55 + 18 \times 3.05 = 174.6$

This gives a total of 894.65 hours (including minimum package)

Furthermore, the school board would receive some complementary teaching hours based on religion and non-confessional ethics. These are determined as follows (taken from Nusche et al., 2015).

<table>
<thead>
<tr>
<th>Study year</th>
<th>Norm</th>
<th>RC</th>
<th>Prot</th>
<th>J</th>
<th>Isl</th>
<th>Ort</th>
<th>Ang</th>
<th>Ncz</th>
<th>Ecr</th>
<th>CB</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 1, Stage 2, ASO</td>
<td>27</td>
<td>2</td>
<td>2</td>
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<td>2</td>
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<td>0</td>
<td>2</td>
<td>0</td>
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<td>8</td>
</tr>
<tr>
<td>Year 2, Stage 2, ASO</td>
<td>27</td>
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<td>2</td>
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<td>2</td>
<td>0</td>
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<td>2</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Year 1, Stage 2, BSO</td>
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<td>2</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Year 2, Stage 2, BSO</td>
<td>27</td>
<td>2</td>
<td>0</td>
<td>0</td>
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<td>0</td>
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<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Year 1, Stage 2, TSO</td>
<td>27</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>6</td>
<td></td>
</tr>
<tr>
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<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>6</td>
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<tr>
<td>Year 1, Stage 3, ASO</td>
<td>27</td>
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<td>0</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Year 2, Stage 3, ASO</td>
<td>27</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>6</td>
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<td>4</td>
</tr>
<tr>
<td>Year 2, Stage 3, BSO</td>
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<td>0</td>
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<td>6</td>
</tr>
<tr>
<td>Year 3, Stage 3, BSO</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Year 1, Stage 3, TSO</td>
<td>27</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
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<td>16</td>
<td>0</td>
<td>0</td>
<td>26</td>
<td>0</td>
<td>0</td>
<td>70</td>
<td></td>
</tr>
</tbody>
</table>

Where RC: Roman Catholic; Pro: Protestant; J: Jewish; Isl: Islamic; Ort: Orthodox; Ang: Anglican; Ncz: Non-confessional ethics; Ecr: Éthique et culture religieuse (non-recognised option); CB: Cultural awareness (non-recognised option). In total, the school will obtain 70 hours.

As mentioned above, the teaching hours obtained are multiplied by application rates and rounded:

- General teaching hours $582.65 \times 0.9657 = 563$ hours
- Minimum package hours $312 \times 0.9857 = 308$ hours
- Teaching hours for religion $70 \times 0.98 = 69$ hours
Lastly, the school board would receive points for ICT (note that here the weighting coefficient differs). These points are given as

$$(161 \times 1 + 135 \times 1.25 + 234 \times 1.25) \times 0.03969 = 25 \text{ points}$$

So in total, the school receives 871 teaching hours, 69 teaching hours for religion and non-confessional ethics and 25 points for ICT coordination.

The school board receives funding for objective difference, student characteristics, school characteristics and point envelope for ICT.

Since community schools are required to teach religiously neutral education, they are entitled to compensation for objective differences. The funding per student is, consequently, in the end increased by 4.5 percent. In our case, this would be approximately $(116,234.22 + 3,694.1 + 161.17) \times 0.045 = 5,404.02 \text{ EUR}.$

Further, as an operating budget, the school board receives funding for objective difference, student characteristics, school characteristics and point envelope for ICT. The calculation has the same structure as for primary schools.

**Special needs education**

The only difference between primary mainstream and special needs education is in the funding based on school characteristics, which is one of the elements of the operations budget. As mentioned above for mainstream primary education, the point value per student is set at $8.46$ For special needs students integrated in primary schools, we summarize the additional points that schools get in Table 13.

<table>
<thead>
<tr>
<th>Type</th>
<th>Additional Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integrated education – Partial and permanent integration</td>
<td>1.1</td>
</tr>
<tr>
<td>Integrated education – Full and permanent integration of normally gifted students with a certificate of special education type 3 or 9</td>
<td>4.4</td>
</tr>
<tr>
<td>Integrated education – Full and permanent integration of normally gifted students with a certificate of special education type 4 or 7</td>
<td>5.5</td>
</tr>
</tbody>
</table>

Table 13: Additional points for specials students integrated in mainstream education; source: Vlaamse Overheid (1998).

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46 For nursery schools (2.5 to 6 years), the point value is 6.
Special needs students’ funding

In Flanders, there are two systems of schooling for special needs students – students within mainstream education and students in special schools. These two groups are also funded separately.

The first group of schools receive funding based on the rules described above. And since school characteristics (including a share of special needs students) is one of the determinants of schools’ funding, special needs hours within mainstream education are allocated to pupils who need extra support because they have fallen behind in development or learning. There is also a small group of about 100 special needs students enrolled in mainstream schools within the inclusive education project (ION). Those are children with a moderate or severe intellectual disability who receive supplementary teaching periods and also an integration allowance (European Commission/EACEA/Eurydice, 2017). According to the European Agency for Special Needs and Inclusive Education (2017), however, the funding for special needs students in mainstream education in only a fraction of that for those in special schools, which creates a financial barrier to the integration of such students. This situation should improve with the new rules coming in in the 2017/2018 academic year.

From that year on, mainstream schools receive support in working with students with special educational needs from the special needs schools. The support will be provided from a support network where schools for ordinary and extraordinary education will combine the expertise of teachers from both types of schools. This support network will replace the GON and ION integration programs.

According to the new rules, there will be two models of support in primary and secondary education. First is support for mainstream schools with students classified as having type 2 (moderate to severe mental handicap), type 4 (physical handicap), type 6 (visual handicap) or type 7 (auditory handicap). Such mainstream schools with special needs students will be provided with support from special schools of relevant types. The special schools that have already established such networks will continue to cooperate. Second, it is the model of support for mainstream schools with students classified as having type 3 (emotional or behavioral disorder), type 7 (speech or language handicap) and type 9 (severe learning disabilities). Networks of special schools to support student with these types of disabilities will be formed and they will be focused on mild mental handicaps or autism without mental handicap (types 1 and 8), speech or language disorder (3 and 7) and severe learning difficulties (9).

The funding for cooperation within the first model is generated by students with disability type 2, 4, 6 or 7 as defined in the Basic Education Act or the Secondary Education Code, and students with the same type of disability who fall under the transitional measure in the M decree (former GON students). In 2017/2018, special schools will receive in total 14,567.5 guidance units (teaching or other hours). In 2018/2019, a package of 14,804 units will be adjusted with the evolution of the number of such special needs students in mainstream education schools. One of the distinct features of the new system is that the government will no longer determine a number of hours of guidance per week per student according to the type of disability. This will be done by the schools and teachers on their own. The allocated guidance units can be transformed into extra hours, extra classes and schools can set up the position of teaching staff or paramedical, medical, social, psychological and orthopedagogical staff (including for instance speech therapists, physiotherapists, occupational therapists, child welfare officers, nurses, medical doctors, social workers etc.).

Regarding the funding of cooperation within the second model, there is a transition period of three academic years (from 2017/2018 to 2019/2020) in order to adjust to the new system from GON and ION. Starting from 2020/2021, the allocation will be calculated based on the number of pupils in mainstream schools in a support network (with a weight of 70 percent in the calculation) and on the average number of students with special needs during the last 6 school years in the mainstream schools within a network (with a weight of 30 percent). Currently until 2019-2020, no permanent staff can be hired within this system.

As can be seen, this system will distribute a total allocation which is set in advance rather than compute per student numbers at first and then calculate the total allocation based on the number of students.

**Network of special schools**

A large proportion of special needs students are still enrolled in separate special needs schools. Since the funding of special education in special schools follows different rules, we will discuss the funding of such schools separately. The allocation, like that for mainstream schools, consists of funding for staff and operation budgets. The funding for staff covers the principal’s salary, teaching staff, paramedic, medical, social, psychological and orthopedagogical staff, points and replacement. In this book, we will discuss mostly the funding for staff as it is the main difference from the mainstream schools’ funding.
Principal’s salary
In each special school, a principal is funded or partially funded. In small special schools, a principal is required to teach 14 lessons if they have fewer than 20 students and 8 lessons if they have 20 to 39 students. Otherwise, a school principal’s full-time position is funded. In the case of a merger a deputy director can also be funded (Vlaamse Overheid, 2005).

Teaching staff
Teaching staff are funded based on the number of hours needed in a school. There are three types of lessons: (i) teaching time according to the scale; (ii) additional lessons (for neutrality and religion, permanent education at home, integrated education (GON), the inclusive education project (ION), for the integration of Dutch non-native speakers, for the provision of an equal education opportunity policy etc.; and (iii) additional teaching times (in the case of a voluntary merger, temporary home education or in the event of aberrations).

Teaching time according to the scale is based on the number of students enrolled. The allocations per student differ with respect to the type of special education a student attends. For instance, a school with 10 students would get 32 teaching hours if the students’ special needs were of type 1 and 8, 47 hours if they were of types 2, 3, 4, 5 and 9, and 56 for those of types 6 and 7. The number of teaching hours is added up across types and multiplied by a rate of 0.945, then the number is reduced by possible hours of instruction by a school principal and a deputy principal. The remaining hours are allocated to the teaching staff. In order to get the number of full-time teachers to be hired, the remaining hours are divided by the number of hours that a teacher can teach per week (usually 24). Furthermore, some share of the teaching hours according to the scale is used for the most frequent religion in a school, non-confessional doctrine or culture.

Additional lessons are allocated in order to provide extra lessons for courses in other (less often practiced) recognized religions or non-confessional doctrine, lessons for permanent education at home, and extra lessons for the integration of non-native speakers in the Dutch language. The additional lessons in Dutch are targeted at primary schools located on the linguistic borders and the borders with the municipalities of the Brussels-Capital Region. Schools with fewer than 10 percent of students in primary and lower secondary education are not entitled to the additional

lessons. Schools with 10 to 25 percent of primary and lower secondary students get 6 additional lessons. Those with 25 to 40 percent receive 6 additional lessons plus $0.315 \times$ number of students above 25 percent of the total student number. Schools with 40 percent or more of primary and lower secondary students get 6 additional lessons plus $0.4 \times$ number of students above 25 percent of the total student number. The additional lessons awarded are used to establish positions of teachers or special physical education teachers. Additional lessons may also be awarded to a principal or a deputy director.

The allocations per student differ with respect to the type of special education (one of the nine groups) they attend. Each of the nine types of special education at the level of basic education has its own coefficient. The coefficient is most favorable for children with types 6 and 7 – a visual or auditory disability. As of the 2009/2010 school year, special schools offering education types 1 and/or 3 receive additional resources (teaching hours, guidance and support), depending on the number of pupils who meet the equal educational opportunities indicator of ‘mother’s level of education’.

Additional teaching times are provided in a voluntary merger of two schools. One of those schools is allowed to receive the difference between the funding that would be allocated to the separate schools minus the funding that a merged school would receive in the first year. This additional teaching gradually decreases over time to 0 after 4 years from the merger.

**Paramedic, medical, social, psychological and orthopedagogical staff**

As in the case of teaching staff, the number of funded posts is determined by the number of hours assumed to be needed for students of a school. There are three types of these hours: (i) hours according to the target numbers; (ii) additional hours for integrated students (such as GON, ION; will in the future be replaced by a different system, see above); and (iii) additional hours in the event of aberrations.

Hours according to the target numbers are calculated as the sum of the product: students per type $\times$ target number. Target numbers per type are summarized in Table 14. The funds from this allocation can be used to hire psychologists, doctors, nurses, speech therapists, physiotherapists, social workers etc. The number of full-time posts should be taken from the hours worked per week. This is assumed to be 40 for a doctor, psychologist or orthopedagogist; 32 for a physiotherapist, occupational therapist, childcare worker, nurse and social worker and 30 for a speech therapist.
Regarding additional hours in the event of aberrations, the Flemish government might grant additional reading hours for teaching staff and/or additional hours for paramedical, medical, social, psychological and orthopedagogical staff at the request of a school board of a primary education school due to special circumstances. These additional hours cannot be used for hiring new permanent employees.

**Point envelopes**

As in primary and secondary education, schools receive certain point envelopes used to calculate funding for care coordinators, ICT coordinators, and administrative employees. These are computed per student and they generally do not differ for different types of disability.

For instance, each school receives a minimum of 9 points for administrative employees. In addition, each school is entitled to a number of additional points. Schools also receive ICT point calculated as the number of students $\times 1.25 \times 0.03969$.

Replacement units are additional teaching hours that can be used only to cover short absences of employees for which there are no alternative compensation measures. They are calculated similarly as in mainstream education.

**Operations budgets**

School boards are entitled to operations budgets for the operation, equipment and major maintenance of their schools, for working on the rational use of energy in their schools and to provide free equipment mentioned in Article 27 of the Primary Education Act (which includes textbooks, scripts, workbooks and magazines, photocopies, software, ICT material etc.) (Vlaamse Overheid, 1997).
As for mainstream education, for the purposes of calculating operations budgets, student characteristics and school characteristics apply. Student characteristics are determined by mother’s level of education, whether a student obtains a school allowance, whether the language the student speaks in the family differs from the language of instruction, and whether a pupil has his place of residence in a neighborhood with a high percentage of students at least two years behind in schooling at the age of 15.

There are 7 types of school characteristics with respect to what type of education they provide. These types are school boards organizing pre-primary education (type 1), school boards organizing primary education (type 2), school boards organizing special kindergartens with the exception of type 4 special education (type 3), school boards organizing special kindergartens of type 4 (type 4), school boards organizing special lower education with the exception of type 4 special education (type 5), school boards organizing primary special education of type 4 (type 6), school boards of primary education supervising one or more pupils in integrated primary education (type 7).

The operations budget per school is then calculated using a per capita formula partly based on school characteristics and student characteristics.

An example of the budget of a school with special needs students in Flanders

In Flanders, the school board receives the funding, and then distributes it to the schools it governs. Therefore, in this box we present an example of the budget of a Flemish provincial school board (OGO). The calculation follows the funding formula described above. We take a primary school with 180 students, of whom 10 are special needs students with a certificate of special education type 9 (severe learning disabilities). To make the example more interesting, we assume that 20 students come from non-Dutch-speaking families, 10 receive educational grants and 5 come from the traveling population (such as the Roma people).

The total allocation is composed of staff and operating budget.

**Staff formation**

The staff funding consists of principal funding, teaching staff and point envelopes. Since the school has 180 students, it receives a fully funded principal without a teaching assignment.
The funding of teaching staff is determined as $175 \times 1 + 5 \times 1.5 = 182.5$ weighted students. The 5 students are the Roma students that are weighted by 1.5. According to the table from Appendix 2 of the Basic Education Law (http://data-onderwijs.vlaanderen.be/documenten/bestand.ashx?nr=5100), this weighted number of students generates 236 teaching hours. And then a coefficient of 0.9716 is applied, yielding the final number of teaching hours, 229. By dividing this by the number of teaching hours per teacher (24), we receive 9.5 full-time equivalent positions.

Furthermore, the school board would receive some complementary teaching hours based on the religion of its students. This is determined by paragraph 3.2.1.3 of the circular on Staff Formation in Mainstream Primary Schools (http://data-onderwijs.vlaanderen.be/edulex/document.aspx?docid=13641#1-4-1-3). Assuming that the majority of students would opt for non-confessional ethics (about 100 students), 60 for Christianity and 20 Muslim, the school board would get 12 complementary hours and approximately 4 and 2 complementary hours for Christian and Muslim teaching.

Lastly, the school board would receive $180 \times 1.25 \times 0.03969 = 8.93$ points for ICT and $180 \times 0.1543 = 27.77$ points for administration. The exact specification of who can be hired based on these points is given in the same circular paragraph 1.4.1.3 (see http://data-onderwijs.vlaanderen.be/edulex/document.aspx?docid=13641#1-4-1-3).

Operating budget
The school board receives funding for objective difference, student characteristics, school characteristics and point envelope for ICT.

Since community schools are required to teach religiously neutral education, they are entitled to compensation for objective differences. The funding per students is, consequently, in the end increased by 4.5 percent. In our case, this would be $(116,234.22+3,694.1+161.17) \times 0.045 = 5,404.02$ EUR.

The additional funding based on student characteristics is calculated as 15 percent of the total budget for primary schools, divided by 4 and then distributed equally among the 4 categories (low educational level of the mother, receiver of a school grant, non-Dutch home language and living in a poor neighborhood). In 2017, the funding per non-Dutch home language was 128.66 EUR and the funding per student receiving educational grants was 112.09 EUR. So it is $128.66 \times 20 = 2,573.20$ EUR for non-Dutch home language students and $112.09 \times 10 = 1,120.90$ EUR for students receiving educational grants. In total, the student characteristics funding was 3,694.1 EUR.
Since we assume a primary school board, the points for school characteristics are computed as follows $170 \times 8 + 10 \times (8 + 4.4) = 1,484$ points, where 4.4 is additional funding per special needs student with a certificate of type 9 (see ; this is the only part of the funding system for mainstream schools which differs for special needs students integrated in such schools). In 2017, one point was equivalent to 80.72 EUR, thus the total funding for our school board would be 119,788.48 EUR (equivalent of 665.50 EUR per student for this particular school board).

For 10 special needs schools, the school board receives additional funding for staff formation (for details, see https://pincette.vsko.be/meta/properties/dc-identifier/Bes-20161116-1). The per student supplement for such special needs students was in 2016/2017 set to 248.43 EUR so the school board would receive additional funding of 2,484.30 EUR.

And, lastly, the school board receives funds for ICT operating budgets. These are calculated as $180 \times 1.25 \times 0.7163 = 161.17$ EUR and can only be used for logistic and material support of the ICT coordination.

<table>
<thead>
<tr>
<th>Area</th>
<th>Allocations in points of EUR</th>
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<tbody>
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<td>Staff information</td>
<td></td>
</tr>
<tr>
<td>– School principal</td>
<td>1 position without teaching obligations</td>
</tr>
<tr>
<td>– Teaching staff</td>
<td>9.5 full-time eq. positions</td>
</tr>
<tr>
<td>– Complementary teaching hours</td>
<td>18 teaching hours</td>
</tr>
<tr>
<td>– Point envelope</td>
<td>8.93 points for ICT + 27.77 points for administration</td>
</tr>
<tr>
<td>Operating budgets</td>
<td></td>
</tr>
<tr>
<td>– School characteristics</td>
<td>129 207.72 EUR</td>
</tr>
<tr>
<td>– Objective differences</td>
<td>Additional 4.5 % of total funding 5,563.97 EUR</td>
</tr>
<tr>
<td>– Student characteristics</td>
<td>3,694.1 EUR</td>
</tr>
<tr>
<td>– ICT operating budget</td>
<td>161.17 EUR</td>
</tr>
</tbody>
</table>

Table 15: Allocations to a Flemish community school board; source: Authors.

The funding for this model school board is summarized in Table 15. For staff formation, it would receive funding for a principal, 9.5 full-time equivalent positions for teaching staff, 18 teaching hours for teaching religion, 8.93 points for ICT and 27.77 points for administration. The funding from the points (such as for school characteristics) is calculated proportionally according to the points that school boards receive from the overall remaining budget for all school boards (i.e. if there were 2 school boards with 100 and 200 points, respectively, the first would receive 1/3 of the remaining budget and the second 2/3). For operating budgets, it
would receive 129,207.72 EUR which mostly comes from the funding for school characteristics.

The school boards then usually simply split the total budget (after putting some part aside as a reserve) according to the number of students in each school (if a school board manages more than one school).

**Summary of the Flemish education funding system**

The education funding system in Flanders is more rigorous compared to the other regions and countries in this study and is determined mostly based on per student funding. It also takes into account the socio-economic status of students and allocates funds that are directed to various types of spending such as ICT, but cannot be spent otherwise.

The funds are allocated to school boards and not to strictly demographically determined districts or municipalities. Furthermore, the school boards do not enjoy that much flexibility in choosing how they spend the allocated funds, which is also in contrast to the practice in the other regions and countries studied, where school districts or municipalities receive lump-sum allocation and they choose on their own what to do with it.

Regarding the funding of special schools, there are two distinct systems. Mainstream schools receive additional funding as part of the operations budgets where special needs students co-determine school characteristics that are used to calculate the allocations. The number of integrated students in mainstream education is limited and the lowest among the EU countries; however, the system will change and the number of integrated students should increase as there will be provided and funded special support from so-called support networks for special needs students within mainstream schools.

Separate special schools are funded differently. They receive funding for the teaching time based on the number of students enrolled and with respect to the 9 types of special education. Moreover, they are entitled to special funding for paramedic, medical, social, psychological and orthopedagogical staff which is also mainly determined by the number of students and differs for different types of special needs education.

Below, we summarize some strengths and weaknesses of the Flemish funding formula. Furthermore, Figure 8 presents the main components of total allocation to Flemish school boards.
<table>
<thead>
<tr>
<th>STRENGTHS</th>
<th>WEAKNESSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Equitable formula that supports low-income students, students with immigrant backgrounds as well as students with various religious beliefs; 2. System of voting with the feet in which resources follow the students creates a positive pressure on the quality; 3. A sophisticated system that attempts to take into account various characteristics of school districts and students; 4. A developed separate funding of special schools that takes into account their special expenditure needs.</td>
<td>1. Very complicated funding formula with various components; 2. Complicated system to organize special needs education; 3. Incentive to organize education in small schools; 4. Little incentive for cooperation between education providers; 5. Few resources for infrastructure; 6. No compensation for rural schools; 7. The formula provides little support for inclusive education.</td>
</tr>
</tbody>
</table>

4.5 Massachusetts

The Massachusetts funding formula covers K12 education so it is the same for primary, secondary and special education. The formula uses so-called

49 In this overview, we do not cover federal funding which constitutes about 5% of the total funding for schools in Massachusetts (MassBudget.org, 2010). The federal funding comes from two sources: Title I (as part of formerly No Child Left Behind and now Every Student Succeeds) and IDEA (Innovative Diversity Efforts Awards) project-based grants.
enrolment foundation which is a count of the number of students for whom a school district is responsible (including students from other districts that attend education in the school district). The enrollment foundation is then multiplied by different cost rates assigned according to 12 discrete categories (Massachusetts Department of Elementary and Secondary Education, 2017a):

- regular education pre-kindergarten
- special education pre-kindergarten
- regular or special education half-day kindergarten
- regular or special education full-day kindergarten
- regular or special education elementary (grades 1-5)
- regular or special education junior high/middle (grades 6-8)
- regular or special education senior high (grades 9-13)
- limited English pre-kindergarten
- limited English half-day kindergarten
- limited English (grades 1-12)
- vocational education (grades 9-12)
- post-secondary and post-graduate vocational education (grade 13)

These categories are determined as types of education and the time/resources requirements of the students in those types, and they cover all primary, secondary and special needs education. Still, for the sake of consistency, we split the actual calculation of the part on primary and secondary education. Before we do so let us describe the general mechanisms behind the formula.

**The mechanism behind the formula**

Unlike the other funding formulas analyzed in this book, Massachusetts, instead of weighting an overall foundation amount based on the number of students in particular categories, uses a formula that weights the costs of individual resources.50 Therefore, the per pupil costs associated with teachers, benefits, materials, professional development, etc. (known as “functions”) are not constant from student to student. Instead, each input has a different cost for every category of students. Districts are funded for the line-item costs associated with the make-up of their particular student bodies. Above and beyond these allocations, districts also receive flat amounts (rather than weighted

50 The formula used in Massachusetts is in this aspect also different from those used in different US states.
amounts) for students in other categories, such as low-income students (called the local contribution which is computed from the wealth and income taxes) and students in certain types of special education placements.

Massachusetts incorporates the funding of special needs education into its general equalization funding formula (known as “Chapter 70 Aid”), and by assigning greater values to those “functions” (teachers, materials etc.) in which students with disabilities need additional resources. The state uses a census model that assumes constant numbers of students with disabilities rather than counting actual enrolments of students with special needs. Notably, special education is the only part of the formula that uses this census model. Massachusetts also uses an excess cost grant to reimburse districts’ catastrophic special education expenditures (Connecticut School of Finance, 2016).

The calculation of allocations

The Massachusetts funding allocation to primary and secondary schools can be calculated in three steps that are as follows:
1. Calculation of foundation budget
2. Calculation of required local contribution
3. Filling the gap with Chapter 70 education aid

We describe these steps in detail below. It should be noted that this is a minimum that municipalities have to contribute to their primary school districts.51 A municipality can, similarly as in e.g. Finland, decide to contribute more to the school districts.

Foundation budget calculation for primary schools
In the following text, we distinguish between elementary and junior high/middle students. Both groups attend primary education; however, the funding differs. The Massachusetts funding formula for primary schools uses so-called foundation enrolment which is a count of the number of primary education students for whom a school district is responsible on October 1 (including students from other districts that attend primary schools52 in Massachusetts).

In order to calculate the foundation budget, the enrolment foundation is multiplied by different cost rates assigned according to 12 discrete categories

51 In reality, this calculation also includes secondary schools. However, since the main aim is to describe primary education funding, we omit secondary schools even though the mechanisms are very similar.
52 We consider elementary and junior high/middle schools as primary education (grades 1-8).
(9 base components and 3 incremental costs above the base categories for special education and economically disadvantaged students; Massachusetts Department of Elementary and Secondary Education, 2017a). The categories most relevant for primary education are:
– regular or special education elementary (grades 1-5)
– regular or special education junior high/middle (grades 6-8)

The categories are determined as types of education and time/resources requirements of the students in those types. Unlike the other funding formulas in this study, Massachusetts, instead of weighting an overall foundation amount based on the number of students in particular categories, uses a formula that weights the costs of individual resources. 53

Therefore, the per pupil costs associated with teachers, benefits, materials, professional development, etc. (known as “functions”) are not constant from student to student. Instead, each input has a different cost for every category of primary education student. Districts are funded for the line-item costs associated with the make-up of their particular student bodies.

In Table 16, we summarize these cost rates relevant for primary education in Massachusetts in 2017/18. The coefficient of 81.7 percent of the state-wide average expenditure – that is repeatedly used in the calculation of the cost rates – was chosen since this factor generated the same state-wide funding as would have been generated by the old formula.

<table>
<thead>
<tr>
<th></th>
<th>Elementary</th>
<th>Junior high/middle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administration</td>
<td>81.7 percent of 2003/04 state average expenditure per pupil for administration, factored up by inflation.</td>
<td>$498</td>
</tr>
<tr>
<td>Instructional Leadership</td>
<td>81.7 percent of FY04 state average expenditure per pupil for instructional leadership, factored up by inflation.</td>
<td>$680</td>
</tr>
<tr>
<td>Classroom And Specialist Teachers</td>
<td>Based on average salary of $38,000 in 2003/04, factored up by inflation to $67,885 per teacher, and assumed class sizes of 22 for elementary, 25 for junior high/middle.</td>
<td>$3,048</td>
</tr>
</tbody>
</table>

53 The formula used in Massachusetts is in this aspect also different from those used in different US states.
<table>
<thead>
<tr>
<th>Category</th>
<th>Elementary</th>
<th>Junior high/middle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other Teaching Services</td>
<td>81.7 percent of the FY04 state average expenditure per pupil for other teaching services, factored up by inflation. Adjusted by the coefficients 1.25 for elementary and 0.9 for junior high/middle.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$781</td>
<td>$563</td>
</tr>
<tr>
<td>Professional Development</td>
<td>3 percent of the salary of teachers and support staff, factored up by inflation.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$121</td>
<td>$131</td>
</tr>
<tr>
<td>Instructional Equipment And Technology</td>
<td>Statutory per pupil amounts factored up by inflation.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$441</td>
<td></td>
</tr>
<tr>
<td>Guidance And Psychological</td>
<td>81.7 percent of FY04 state average expenditure per pupil for guidance and psychological, factored up by inflation and adjusted by the coefficients 0.75 for elementary and 1.0 for junior high/middle.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$222</td>
<td>$295</td>
</tr>
<tr>
<td>Pupil Services</td>
<td>Combined statutory per pupil rates: $50 for health staff, $50 for athletics, and $25 other activities at elementary and $35 at junior high/middle.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$132</td>
<td>$216</td>
</tr>
<tr>
<td>Operations And Maintenance</td>
<td>Combined statutory assumptions for custodial salaries (0.1 × the number of foundation teaching and support staff, at a salary of $25,000); maintenance ($3,300 × the number of foundation teaching and support staff); and extraordinary maintenance ($2,200 × the number of foundation teaching and support staff), factored up by inflation.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$846</td>
<td>$918</td>
</tr>
<tr>
<td>Special Education Tuition</td>
<td>Statutory assumption for special education tuition rate of $13,500 per pupil, factored up by inflation.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$23,853</td>
<td></td>
</tr>
</tbody>
</table>

Table 16: Costs rates for primary education in Massachusetts, amounts are per pupil in 2017/18; source: http://www.doe.mass.edu/finance/chapter70/chapter-cal-rates.xlsx.
An example of a primary school district budget in Massachusetts

In this box, we present an example of the budget of a school district in Massachusetts. The presented budget follows the real budgets published on the website of the Massachusetts Department of Elementary and Secondary Education (http://www.doe.mass.edu/finance/statistics/ppx12-16.html). In this example, we take the district of North Brookfield that runs one primary and one secondary school.

There were 682.1 full-time equivalent students enrolled in this district in 2016/2017.

The districts receive money in 10 areas, as seen in Table 17. In Column 2, we show the per student allocation in the respective areas. The sum of all areas is 13,492.73 EUR which is the average per student allocation that the district received in 2016/2017. The total funding is then simply given as the per student amount multiplied by the number of students (682.1). This yields the total allocation of $9,203,391.13.

<table>
<thead>
<tr>
<th>Area</th>
<th>Amount per student in U.S. dollars</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administration</td>
<td>738.39</td>
</tr>
<tr>
<td>Instructional leadership</td>
<td>823.83</td>
</tr>
<tr>
<td>Teachers</td>
<td>4,779.62</td>
</tr>
<tr>
<td>Other teaching services</td>
<td>929.65</td>
</tr>
<tr>
<td>Professional development</td>
<td>160.11</td>
</tr>
<tr>
<td>Instructional materials, equipment and technology</td>
<td>606.51</td>
</tr>
<tr>
<td>Guidance counseling and testing</td>
<td>411.32</td>
</tr>
<tr>
<td>Pupil services</td>
<td>1,407.28</td>
</tr>
<tr>
<td>Operations and maintenance</td>
<td>1,232.11</td>
</tr>
<tr>
<td>Insurance, retirement programs and others</td>
<td>2,782.90</td>
</tr>
<tr>
<td>Total</td>
<td>13,492.73</td>
</tr>
<tr>
<td>Total per district</td>
<td>9,203,391.13</td>
</tr>
</tbody>
</table>

Table 17: Overview of pupil expenditures by major functional categories in North Brookfield; source: Massachusetts Department of Elementary and Secondary Education (2016).

The district can then decide on the exact funding for each school. A simple version is that it redistributes the allocation into two schools on a per student basis with regard to the cost rates as it was calculated on the state level.
Above and beyond these allocations, primary education districts also receive flat amounts (rather than weighted amounts) for students in other categories, such as low-income students (called the local contribution which is computed from the wealth and income taxes) and students in certain types of special education placements (for details see the sub-chapter on special needs education below). Low-income students are identified based on participation in state-administered programs such as the Supplemental Nutrition Assistance Program (SNAP); Transitional Assistance for Families with Dependent Children (TAFDC); Department of Children and Families’ (DCF) foster care program; or MassHealth (Medicaid) up to 133% of the federal poverty level (FPL). For instance, the district of Marshfield received approximately $4,000 per low-income pupil in 2017/18 (this calculation is also done using the abovementioned cost rates and differs district by district).

Foundation budget calculation for secondary schools
The Massachusetts funding formula for secondary schools uses so-called foundation enrolment which is a count of the number of secondary education students for whom a school district is responsible on October 1 (including students from other districts that attend secondary schools in Massachusetts). The mechanism is identical to the one used for primary schools; the difference is in the cost rates that are used in the calculation.

Thus to calculate the foundation budget the enrolment foundation is multiplied by different cost rates assigned according to 13 discrete categories (10 base components and 3 incremental costs above the base categories for special education and economically disadvantaged students; Massachusetts Department of Elementary and Secondary Education, 2017a). The categories most relevant for secondary education are:

– regular or special education senior high (grades 9-13)
– vocational education (grades 9-12)

In Table 18, we summarize these cost rates relevant for secondary education in Massachusetts from 2017/18. The coefficient of 81.7 percent of the statewide average expenditure – that is repeatedly used in the calculation of the cost rates – was chosen since this factor generated the same statewide funding as would have been generated by the old formula.

54 Students in special education for life-skills and similar programs beyond the compulsory K-12 curriculum in Massachusetts are considered to be students in grade 13.
<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administration</td>
<td>81.7 percent of 2003/04 state average expenditure per pupil for administration, factored up by inflation.</td>
<td>$498</td>
</tr>
<tr>
<td>Instructional leadership</td>
<td>81.7 percent of FY04 state average expenditure per pupil for instructional leadership, factored up by inflation.</td>
<td>$680</td>
</tr>
<tr>
<td>Classroom and specialist teachers</td>
<td>Based on average salary of $38,000 in 2003/04, factored up by inflation to $67,885 per teacher, and assumed class sizes of 17 students.</td>
<td>$3,944</td>
</tr>
<tr>
<td>Other teaching services</td>
<td>81.7 percent of the FY04 state average expenditure per pupil for other teaching services, factored up by inflation. Adjusted by the coefficient 0.75 for secondary schools.</td>
<td>$468</td>
</tr>
<tr>
<td>Professional development</td>
<td>3 percent of the salary of teachers and support staff, factored up by inflation.</td>
<td>$127</td>
</tr>
<tr>
<td>Instructional equipment and technology</td>
<td>Statutory per pupil amounts factored up by inflation.</td>
<td>$706</td>
</tr>
<tr>
<td>Guidance and psychological</td>
<td>81.7 percent of FY04 state average expenditure per pupil for guidance and psychological help, factored up by inflation and adjusted by the coefficient 1.25 for secondary schools.</td>
<td>$370</td>
</tr>
<tr>
<td>Pupil services</td>
<td>Combined statutory per pupil rates: $38 for health staff, $200 for athletics, and $45 other activities.</td>
<td>$499</td>
</tr>
<tr>
<td>Operations and maintenance</td>
<td>Combined statutory assumptions for custodial salaries ($0.1 \times$ the number of foundation teaching and support staff, at a salary of $25,000$); maintenance ($3,300 \times$ the number of foundation teaching and support staff); and extraordinary maintenance ($2,200 \times$ the number of foundation teaching and support staff), factored up by inflation.</td>
<td>$890</td>
</tr>
<tr>
<td>Employee benefits and fixed charges</td>
<td>Combined statutory assumption for salary benefits ($4,320 \times$ the number of foundation or all staff, adjusted by the wage adjustment factor + $468 \times$ the same number of staff, not adjusted by the wage adjustment factor), factored up by inflation. An additional amount was added in 2017/18 in order to provide funding for the implementation of the 2015 recommendations of the Foundation Budget Review Commission.</td>
<td>$796</td>
</tr>
<tr>
<td>Special education tuition</td>
<td>Statutory assumption for special education tuition rate of $13,500 per pupil, factored up by inflation.</td>
<td>$23,853</td>
</tr>
</tbody>
</table>

Table 18: Costs rates for secondary education in Massachusetts, amounts are per pupil in 2017/18; source: http://www.doe.mass.edu/finance/chapter70/chapter-cal-rates.xlsx.
As well as primary school districts, secondary school districts also receive flat amounts (rather than weighted amounts) for students in other categories, such as low-income students (called the local contribution which is computed from the wealth and income taxes) and students in certain types of special education placements (for details see the sub-chapter on special needs education below). For instance, the district of Marshfield received approximately $4,000 per low-income pupil in 2017/18 (this calculation is also done using the abovementioned cost rates and differs district by district).

**Wage Factor**

As in British Columbia, there is also a wage adjustment factor put in place in Massachusetts. The mechanism is the same for primary and secondary schools. The rationale behind this factor is that it is more costly to attract school teachers and other staff in areas with higher average salaries. There were 23 labor market areas established in Massachusetts. The latest available average wage data (including all industries, both private and public) from the state’s Department of Employment are used to calculate the city’s and labor market area’s wage factor in each of these areas.

A weighted average of the labor market area’s wage factor (80 percent) and the city’s factor (20 percent) is used to determine a district’s wage factor. The weighted wage factor is then divided by three to obtain the wage adjustment factor. This district-specific wage adjustment factor is then applied to the eight salary-related functional categories in the foundation budget – i.e. the funding for the salary-related cost categories differs across districts.

Since 2004, only those districts with above-average wages have been affected – i.e. districts’ budgets are not reduced in low to average income areas. In 2017/18, only 110 cities in 3 labor market areas were affected.

**Inflation**

Foundation budget rates are adjusted each year by a statutorily defined inflationary factor. It affects all districts in the same way. The inflationary factor is calculated as the ratio of the current year’s third-quarter inflation index to the prior year’s third-quarter index.

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55 By wage factor we simply mean the share of the average and the area’s or city’s average.
Required local contribution calculation

After the foundation budget is established, it is estimated how much a municipality in which the school district is located can contribute from local revenues to the schools. This is done by assuming uniform contributions by municipalities equal to

\[ 0.003 \times \text{municipality's total property values} + 0.014 \times \text{income earned by residents of the municipality} \]

Thus, the required local contribution is basically determined by the local tax revenue, assuming a constant willingness to fund the operation of its schools across municipalities.

Filling the gap with Chapter 70 education aid

The transfers under Chapter 70 from the state to municipalities that co-fund the school districts are then given as the difference between the foundation budget and the required local contribution which ensures that every district can produce funds at least at the level given by the foundation budget.

It should be noted that municipalities can add more funds than the foundation budget. These extra local contributions differ significantly across cities. In Figure 9, we show a comparison of two sample districts and their extra local contributions (MassBudget.org, 2010). In this example, you can see that despite a higher foundation budget in the district of Lynn (which is mostly the consequence of a large share of low-income and limited English students), the final per student contribution is higher in Newton. Newton decided to transfer higher extra local contributions to schools and, thus, the total actual budget is much higher.

An example of a secondary school district budget in Massachusetts

In this box, we present an example of the budget of a school district in Massachusetts. The presented budget follows the real budgets published on the website of the Massachusetts Department of Elementary and Secondary Education (http://www.doe.mass.edu/finance/statistics/ppx12-16.html). In this example, we take the district of North Brookfield that runs one primary and one secondary school. So this calculation shows funding for both primary and secondary schools as they are both part of the K-12 framework.
There were 682.1 full-time equivalent students enrolled in this district in 2016/2017.

The districts receive money in 10 areas, as seen in Table 17. In Column 2, we show the per student allocation in the respective areas. The sum of all areas is 13,492.73 EUR which is the average per student allocation that the district received in 2016/2017. The total funding is then simply given as the per student amount multiplied by the number of students (682.1). This yields the total allocation of $9,203,391.13.

The district can then decide on the exact funding for each school. A simple version is that it redistributes the allocation into two schools on a per student basis with regard to the cost rates as calculated on the state level.

![Comparison of two districts](image)

Figure 9: Comparison of schools per pupil spending in 2010 in two sample districts, source: MassBudget.org (2010).

**Effective funding per student**

By applying the above-described methodology for special education, the effective funding per full-time student equivalent in 2016 is as follows (Connecticut School of Finance, 2016):

- **In-District Placement** (assumed 3.75 percent of non-vocational, 4.75 percent of vocational): 25,332 USD
- **Out-of-District Placement** (assumed one percent of foundation enrollment): 26,461 USD

These numbers are higher than in other U.S. states, but it is necessary to keep in mind that it assumes a relatively low percentage of students with special
needs and the amount is calculated per full-time equivalent student, not an individual student level. Figure 10 shows a comparison of budget rates per different student types included in the Chapter 70 Aid formula.

![Funding per student chart](image)

**Figure 10: Comparison of Massachusetts’ foundation budgets rates in 2016; source: Connecticut School of Finance (2016).**

**Funding outside the main formula**

Apart from the funding determined by the Chapter 70 Aid, the state also funds a portion of the spending on “high-needs” special education students. The program for these students is called the Special Education Circuit Breaker and it started in 2004. It reimburses a portion of local spending on special needs students above a threshold. The formula for this kind of allocation changes every year depending on the state’s funds that are available and the claim level. The threshold is given as four times the average foundation budget per pupil as calculated by the Chapter 70 Aid. The state is expected to pay 75 percent of the spending above this threshold, subject to the available funds. Between 2011 and 2014, the reimbursement rate averaged 73 percent.

In addition to the program, there is also the “extraordinary relief program” (funded up to 5 million USD) that was created to assist school districts with a significant increase in spending on special needs education. The criterion for eligibility is that a district experienced a 25 percent or greater increase in special education spending in the prior funding year.
Summary of the education funding in Massachusetts

The funding formula in the state of Massachusetts uses the so-called enrolment foundation which is a count of the number of students for whom a school district is responsible. The enrolment foundation is then multiplied by different cost rates (i.e. different cost rates for different components such as administration or classroom teachers, and also for different categories/types such as regular elementary education or regular junior high education). Figure 11 shows the main components that are taken into account in calculating these cost rates.

![Diagram of the main components of total allocation to school districts in Massachusetts](image)

Figure 11: Simplified diagram of the main components of total allocation to school districts in Massachusetts; source: Authors.

Furthermore, to account for most of special needs students, the formula in the state of Massachusetts uses a census model that assumes constant numbers of students with disabilities rather than counting actual enrolments of students. Notably, special education is the only part of the formula that uses this census model because of previous experience with big increases in a number of special needs students (and consequently also in spending on special needs students) over time. On top of that, the state also provides funding for so-called “high-needs” special education students. The funding is expected to pay 75 percent of the cost above the threshold given as four times the average foundation budget per pupil as calculated by the Chapter 70 Aid.
The obvious disadvantage of this system is that it might discriminate against districts with a large share of disabilities. However, this is partly solved by the local contribution, which is calculated based on wealth and income tax, which special education is subject to. Thus, this local contribution indirectly targets special needs students.

This funding formula is very predictable, which makes budgeting of the districts and schools easier. Moreover, it disincentivizes over-identification of students with disabilities.

Below, we summarize some strengths and weaknesses of the funding formula of Massachusetts.

<table>
<thead>
<tr>
<th>STRENGTHS</th>
<th>WEAKNESSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Consistent and very predictable for school districts as well as for the state,</td>
<td>1. Cognitive/real injustice for districts with higher occurrence of special needs students than assumed by the formula,</td>
</tr>
<tr>
<td>2. The formula promotes equity as a target local contribution uses local property and income wealth which special education funding is subject to (consequently lower-wealth districts receive more state aid),</td>
<td>2. Difficult state control over education spending as there is virtually no reporting requirements in place,</td>
</tr>
<tr>
<td>3. The formula controls costs for the state as the number of special needs students is fixed, which disincentivizes the over-identification,</td>
<td>3. The increments for districts with high concentrations of low-income students seem to be insufficient at the moment.56</td>
</tr>
<tr>
<td>4. Flexibility for the districts and motivation to efficiency as the spending is given transparently and there are no specific spending or reporting requirements,</td>
<td></td>
</tr>
<tr>
<td>5. The excess cost grant (Special Education Circuit Breaker) limits the possibility of financial difficulties for districts with a higher occurrence of special needs students (that is not assumed by the formula).</td>
<td></td>
</tr>
</tbody>
</table>