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The equity aspect within the framework of the assessment of the quality of Higher Education: Developing indicators to identify students with a higher risk of failure at university with a view to improving equality of chances of success.

El elemento de la equidad dentro del marco para la evaluación de la calidad en la Educación Superior: Desarrollando indicadores para identificar alumnado con elevado riesgo de fracaso universitario, una mirada a la mejora de la igualdad de oportunidades de éxito.

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Abstract

Since 2004, the quality of Higher Education in French-speaking Belgium is assessed by the *Agency for Quality Assurance in Higher Education* (AEQES). Towards this end, each establishment whose academic programmes are reviewed is required to undertake a self-assessment on the basis of a framework listing the aspects to be taken into account. Following an update in 2013, this framework now includes an aspect that formerly did not receive special attention: equity. By introducing

Resumen

Desde 2004, la calidad de la Educación Superior en la Bélgica francófona es evaluada por la *Agency for Quality Assurance in Higher Education* (AEQES). Con este fin, los programas académicos propuestos por las facultades deben ser autoevaluados sobre un marco de criterios establecidos por dicha autoridad, encargada de su evaluación. Tras una actualización en 2013, este marco incorpora un aspecto que no había sido contemplado en la versión

this aspect in its reference framework, AEQES points to the need for universities not only to turn out graduates with relevant skills but also to ensure that all students enjoy equal opportunities to gain a qualification. However, no target group is identified in the framework, so that each establishment must decide on its own which students or groups of students should receive special attention. Against this background, a joint study by three French-speaking Belgian universities (Demeuse et al., 2013) aims to provide guidance for these assessments. The study makes it possible to identify the most “vulnerable” students by testing indicators of relevance within the framework of differentiated financing for higher education in French-speaking Belgium. The authors first of all define the concepts “quality” and “equity”, and then move on to present indicators for identifying students with a higher risk of academic failure in higher education. An analysis of the performance of university undergraduates – in terms of success or failure - makes it possible to quantify the impact of different variables.

Key words: Equity, Quality, Evaluation, Higher Education.

anterior: la equidad. Con la introducción de este aspecto, la AEQES apunta la necesidad de que las universidades no solo formen a graduados sobre la base de alcanzar las competencias, sino también han de asegurar que todo el alumnado disfrute de las mismas oportunidades de aprendizaje. Sin embargo, este marco no identifica a ningún grupo-objetivo, por lo que cada facultad debe decidir por sí misma qué alumno/a o grupo de alumnado estaría en condiciones de recibir la atención especial que precisa. En este contexto, se presenta un estudio de conjunto sobre tres universidades de habla francesa de Bélgica (Demeuse et al., 2013), cuyo objetivo es proporcionar orientaciones para estas evaluaciones. El estudio permite identificar al alumnado más vulnerable, considerando indicadores de relevancia dentro del marco de la financiación diferenciada para la Educación Superior en la Bélgica francófona. Los autores en primer lugar definen los conceptos de calidad y equidad, y luego los indicadores actuales para la identificación del alumnado con un mayor riesgo de fracaso escolar en la Educación Superior. Mediante un análisis del rendimiento del alumnado universitario - en términos de éxito o fracaso - para cuantificar el impacto de las diferentes variables.

Palabras clave: Equidad, Calidad, Evaluación, Educación superior.

Quality of higher education in French-speaking Belgium

Assessing the quality of higher education has been a key concern in Europe for over 15 years now, as underscored by the Council of Europe's 1998 recommendation calling on the Member States to create "*transparent quality assessment systems*" (AEQES¹, 2010, p. 3).

One year later, the Brussels-Wallonia Federation pledged its support to the Bologna declaration, thereby becoming committed to help create an integrated European higher education area. Signed by 29 ministers for higher education, the declaration aimed at achieving various objectives involving structural changes to the European university system: the adoption of a system of clear and comparable qualifications, based on two main cycles and a system of study credits; promoting the mobility of students, teachers, researchers and administrative staff; promoting the European dimension in higher education, particularly as regards the elaboration of study programmes and inter-establishment cooperation, and, lastly, promoting European cooperation in quality assurance (AEQES, 2010).

For this last purpose, the Agency for Quality Assurance in Higher Education (AEQES) was created in the Wallonia-Brussels Federation in 2002. The Agency started operating in 2004 (Fallon, 2010) and was reorganised pursuant to a decree in 2008 on the basis of the experience built up during the early years. The Agency is "*responsible for helping to improve the quality of higher education*" (AEQES, 2010, p. 7). It is assigned six tasks:

“undertake an assessment of higher education by identifying good practices, shortcomings and the issues to be addressed;

take charge of 10-year planning and applying assessment procedures;

promote cooperation between all the components of higher education in order to improve the quality at the level of each establishment;

make proposals to political decision-makers about improving the quality of higher education;

define and plan on a multiannual basis the assessments to be carried out;

represent the French-speaking Community in dealings with national and international authorities as regards the assessment of the quality of higher education.” (AEQES, 2010, p. 7)

Although the tasks assigned to AEQES concern both assessment and standard setting (Fallon, 2012), AEQES is not an accreditation agency. In the Wallonia-Brussels Federation, "*no university establishment, for example, is regarded a priori as better than another one*" (Fallon, 2012, p. 60) and "*the legislative authorities have adopted a clear position on not wanting the Agency to be entitled to rank establishments*" (AEQES, 2012, p. 5).

Quality assessment by AEQES

For the purpose of assessing higher education programmes, AEQES has developed a three-phase process involving an internal assessment, an external assessment and a follow-up to the first two phases.

During the first phase, the assessed institution is required to prepare a self-assessment report on the basis of a reference framework. This assessment seeks to “create awareness of the strengths and weaknesses of the establishment” and “focus on the programme’s tasks and objectives, on the extent of their relevance and effectiveness” (AEQES, 2010, p. 9). The assessment requires active participation of all relevant parties, i.e. all the stakeholders and beneficiaries: teachers, students, researchers, supervisors, employers, graduates, administrative and technical staff, management, experts, etc.

The second phase involves a visit to the establishment by a committee of independent experts. The committee studies the self-assessment report and undertakes successive interviews with the stakeholders and beneficiaries, then hands in its own report examining the strengths, weaknesses, opportunities and threats, and the main observations and recommendations made to the establishment under review. Complemented by comments from the establishment’s academic authorities, this preliminary report is then worked up into the final summary report, which is published on the AEQES website.

In addition to producing a final report for each establishment, the committee of experts also draws up an “evaluation of the current situation featuring a contextualised presentation of the education offer in French-speaking Belgium and the opportunities it leads to” (AEQES, 2010, p. 12), used by AEQES as a basis for a transversal analysis of the quality of higher education programmes (for all the institutions that provide them).

Lastly, the third phase of the assessment process is focused on follow-up: a plan is drawn up for each establishment under review for acting upon the recommendations.

The concept of “quality” of higher education in the Wallonia-Brussels Federation

The term “quality” as applied to higher education has been defined in different ways (AEQES, 2012; Gorga, 2012). Van Damme (2004, referred to by Dejean, 2010) identifies four approaches: the “excellence standards” approach, the “fitness for purpose” approach (Martin & Stella, 2007, quoted by AEQES, 2012), the “customer satisfaction” approach, and the “basic standards” approach.

In the case of the excellence standards approach, quality corresponds to a high level of difficulty for students and may be flanked by stringent selection processes. “A high quality establishment is one setting a very high threshold and, for example, selecting as many of its students as possible in order to increase the quality of the qualifications it delivers”, according to Dejean (2010, p. 29). The second approach, the fitness for purpose approach, identifies quality as “achieving the objectives set, under the premise that these objectives have proved their worth” (AEQES, 2012, p. 5). Towards this end, “a programme is deemed to be of high quality when there consistency between its various components (including the course contents) and its objectives (which come first)” (Dejean, 2010, p. 29). The third approach highlighted by Van Damme is “customer satisfaction”, with students being the “customers” in this specific case. The final approach, the “basic standards” approach, is based on meeting standards shared by all establishments. These basic standards are what an establishment must achieve at minimum, as in the case of accreditation procedures.

In addition to these four definitions of quality there is the one by Bouchard and Plante (2002), which swings between the aforementioned first and fourth approaches.

These Quebec authors state that *“overall quality must be regarded as an ideal that may be moved towards without ever fully reaching it. In a way, one could say that quality appears much more like an itinerary than a home base.”* (p. 219).

AEQES clearly identifies the concept of quality on which the activities it undertakes is based. AEQES believes that assessment requires an analysis of the specific framework and cannot be reduced to merely checking whether standards are met. Thus, the Agency *“leans towards a concept of quality that fosters adaptation to the targeted objective”* (AEQES, 2012, p. 5). This definition is in keeping with the way quality is regarded by ENQA (European Network for Quality Assurance in Higher Education), which focuses on the effectiveness of the measures taken so that students may succeed – rather than on the outcome itself, i.e. students’ success: *“quality in higher education is a description of the effectiveness of all efforts undertaken to ensure that students may benefit as much as possible from the education opportunities on offer and meet the requirements for obtaining the qualifications they desire”* (CNE, 2004 referred to by Dejean, 2010, p. 23).

Assessment criteria

As mentioned earlier, the internal assessment process carried out by higher education establishments must be based on the framework provided by AEQES. Until 2014, the framework did not propose clear assessment indicators or criteria but rather a list of points to be considered during the assessment (Fallon, 2012). A new framework was elaborated to overcome this shortcoming. Tested since 2013 and put into practice since 2014, the new framework comprises five parts, corresponding to as many global assessment criteria:

- the formulation, implementation and updating of a quality support policy;
- the development and implementation of a policy for ensuring the relevance of the programme;
- the development and implementation of a policy for ensuring the programme’s internal consistency;
- the development and implementation of a policy for ensuring the programme’s effectiveness and its equity;
- the analysis of the programme and the elaboration of an action plan for the continuous improvement of the establishment.

Each one of the assessment criteria is broken down into various aspects clarified through *“a non-exhaustive list of questions it is advisable to ask in order to analyse the quality of a study programme”* (AEQES, 2012, p. 9).

Apart from clarifying the assessment criteria, the new framework includes an aspect that was not previously taken into account: equity. According to AEQES, this aspect concerns *“those measures included in the programme with a view to offering students, irrespective of their previous schooling career and their personal, social or economic situation, the opportunity to attain, update and develop, throughout their lives, the learning outcomes and occupational skills required to ensure their employability and to foster their personal fulfilment, further learning, active citizenship, and intercultural dialogue.”* (AEQES, 2012, p. 30).

The new framework extends beyond a simple list of items to be addressed,

spelling out that the programme's equity has to be considered in terms of intake, follow-up and support for students, and that establishments must guarantee equity through the implementation of differentiated education processes and measures to help students who are experiencing difficulties. However, no target group or standard to be achieved is identified. As in the case of the previous framework: *"the spirit intended by the legislative authority is more to lend support to an approach based on continuous improvement of quality than to check compliance with minimum criteria"* (Fallon, 2012, p. 67).

Equity in Higher Education²

Equality and equity: clarifying the terminology

Equality and inequality (ies)

According to Hutmacher, Cochrane and Bottani (2001), in the strictest sense of the term equality refers to "an equivalence between two or more terms, assessed on a scale of values" (leading to the need to measure the degree of similarity or identity of the terms), "or preference criteria" (p. 7) (where reference is made to an external factor, in light of which equality may be present or absent). In the domain of education, mention is made more readily of inequalities, particularly in the sociological literature, which has long criticised the inequalities of students with respect to schooling. Inequality characterizes a difference, a disparity or a divide between individuals. In the domain of education, the divide is most often expressed in terms of advantages or disadvantages as regards material and/or symbolic resources, such as wealth, social recognition, prestige, authority, power, or influence. The term inequality is often used to describe a difference that is considered unfair.

The terms "equalities" and "inequalities" are open to significant differences of interpretation. As the OECD notes disapprovingly (Istance, 1997), they are often used as general terms rather than to designate a specific situation. The term "equality" can moreover refer to a very radical concept, associated with egalitarianism. This is generally not the case, however: it is most often used to underscore the contrast with the "liberal" terminology, where the focus is on freedom. In any event, these meanings imply a moral judgement about what is fair or not, so that the concept of inequality incorporates an inherent moral value. In this paper we will prefer the more restrictive approach to equality, concerning the *"comparative identity of several factors"* (Istance, 1997, p. 124).

Equity

Inequality is not uncommon in our societies. It is in particular a key aspect of the academic environment of students, teachers and parents: it is obvious that not all members of society are equal in material and symbolic terms, and hence students are not in point of fact all equal. However, as our contemporary societies acknowledge that equality is one of the most significant values (Swanson & King, 1991), a characteristic of inequality is that it requires to be justified, particularly in the field of education (Hutmacher et al., 2001). Unequal access, resources, and outcomes must therefore be justified, thereby implying principles and criteria to judge the fairness or unfairness of these inequalities. It is here that the concept of equity comes in.

Equality and equity are therefore two distinct concepts, although inextricably linked: the existence of inequalities raises the question of equity, i.e. of the fairness

of certain inequalities (Hutmacher et al., 2001). Equality applies to “objective” and measurable advantages or disadvantages. Equity raises a standard-setting and ethical question: what is a fair allocation or acquisition of resources, advantages or disadvantages? This raises the question of whether all inequalities are unfair or according to which criteria and principles inequalities may be regarded as unfair. For an inequality to be regarded as unfair, first of all it must be shown that it can be suppressed, but also that it is sufficiently unfair to justify its suppression (Meuret, 2002). As Demeuse and Baye (2005) underscore, the definition of fairness may vary from one society to another and from one period of time to another: what was regarded as fair in Athenian society is not exactly the same as in our contemporary democratic societies.

In practice, the term equity is often used as a synonym for the term equality. According to some observers (Istance, 1997), equity refers to a more open, less demanding, more neutral, more politically acceptable concept than the term equality. According to others, its literal meaning of *“moral justice of which laws are an imperfect expression; the spirit of justice to guide practical action and interpretation, fairness”* (Istance, 1997, p. 122) defines a concept extending beyond the evaluation of equality or difference, to include judgements about justice in general, taking account of all that is relevant in such an evaluation. In this spirit, the concept is akin to comparing the *“imperfections of worldly arrangements”* (OCDE, 1997, p. 122) with the principles that should guide us to act on such imperfections. The “radical” character or otherwise of the concept of equity ultimately depends on the interpretation of justice associated with it. Let us anyway retain that the concept of equity is connected to a judgement on the fairness of a situation, unlike the concept of equality.

In the domain of education: equality of what?

What terms to equalise?

In the field of education, we cannot be content with a vague or blindly egalitarian approach, so the question *“equality of what?”* needs to be addressed. The concept of “equal opportunities” is of little help as it is not very precise about the terms to be equalised and may refer to different realities. Drawing their inspiration from Grisay (1984), Demeuse, Crahay and Monseur (2001) propose to distinguish various types of equality on the basis of the terms to be equalised. They make a distinction between:

- equality of access (equality of opportunity) referring to a situation where all individuals or groups of individuals have the same opportunities to gain access to a specific level of the education system;
- equality of means (equality in terms of the learning environment or of treatment), referring to a situation where all students benefit from equivalent learning conditions;
- equality of achievement (equality in terms of outcomes or results), where all students at the same level of expertise master the skills assigned as objectives of the education system;
- lastly, equality of realization (equality in terms of the use of outcomes), which refers to a situation where, upon leaving the education system, individuals have the same opportunities to make use of the skills they have acquired.

This classification allows one to see that the concept of “equal opportunities” may fit in with each of these four levels. It also demonstrates the close connection between the concepts of equality and of equity in the education environment. Depending on the terms to be equalised, a definition of those inequalities regarded as fair will be needed. For instance if it is considered that justice is to be found in an equality of students’ basic achievements, then it follows that unequal treatment is fair – precisely because it aims to equalise achievements.

Equality and equity

Demeuse and Baye (2005, p. 167) show the connections between equality and equity in an education system: *“an equitable system is one focused on a certain type of equality, at the risk of allowing, towards this end, certain inequalities to be regarded as fair”*. Several levels of equity in education systems may be identified, determined by the inequalities that are regarded as fair or not (Demeuse, Crahay & Monseur, 2001).

Equality	Admitted inequalities	Denounced inequalities
Equality of access or opportunity	Unequal results, demonstrably proportional to aptitudes at the start. The existence of courses of unequal value. Inequality of treatment.	The fact that merit is not the sole criteria for access to elite courses. Sociocultural biases affecting guidance tests. Imperfections in official evaluations to the point that at the same rank, one student will succeed and another fail.
Equality of treatment	The existence of talent, potential or natural aptitude. Unequal results, demonstrating that students could benefit from learning conditions of equivalent quality.	Unequal quality of instruction, unequal goal management. Ghetto schools, tracking, courses that explicitly and implicitly engender unequal quality of instruction.
Equality of achievement and academic success	Differences in results beyond essential skills.	The ideology of talent. Negative discrimination (by class level, courses, church and ghetto skills), i.e., all situations where the unequal quality of learning amplifies original inequalities.
Equality of social actualization (social output)	Different kind of results according to personal preferences but with the same social value.	The existence of a standard of excellence.

Table 1. Levels of educational equity (Demeuse, Crahay & Monseur, 2001, p. 71, adapted from Grisay, 1984, p. 7)

The distinction between various levels of equity underlines the importance not only of being precise about the terms to be equalised in the context of education but also about the inequalities allowed for each type of equality sought. Nevertheless, focusing on a specific level effectively limits the focus on other levels (EGREES, 2005). For example, desiring equal treatment for students irrespective of their original social backgrounds

means being criticised by those desiring equality of achievement, who consider that it is fair for some students to receive compensatory action, e.g. better learning conditions, because they are at a social disadvantage and less likely to succeed at the outset.

The kinds of equalities that AEQES has in mind in its conception of equity are equality of achievement and equality of access. Whatever their background, all students should enjoy access to the higher education system and be able to succeed in it. Universities should ensure that each student has equal opportunities to gain a qualification. Towards this end, support systems are required for those students with a higher risk of failure or dropping out.

Promoting equity within the university environment: the funding issue

Public funding of universities in the Brussels-Wallonia Federation is essentially based on the number of grant-eligible students, weighted according to study areas and levels. Since 1998, education establishments have been funded under a “sealed envelope” arrangement whereby universities receive *“an overall allocation, which is linked to the cost of living index but unaffected by changes in the overall number of students”* (Lambert, 2013, p. 81). This system regularly comes under attack owing to its untoward effects (Fallon, 2012; Lambert, 2013). Apart from intensifying the level of competition between establishments, one of the unintended consequences of the “sealed envelope” system is the following: the steady increase in the size of the student population is automatically matched by a decrease in the amount allocated per student and hence by the deterioration of the staff-student ratio (Demeuse *et al.*, 2013, Lambert, 2013). These conditions make it difficult to develop specific measures for lending support to the most “vulnerable” students according to the AEQES recommendation. A debate on the higher education funding system has hence been launched. Through a call for proposals, the government has invited research teams to define a basis for differentiating the funding of establishments with a view to ensure equal opportunities for access and success.

An inter-university team was selected and undertook a three-phase research project. To start with, an examination was made of the arrangements for the public funding of higher education establishments in the Brussels-Wallonia Federation. During the second part of the research the focus was on funding procedures and practices applied abroad for democratising higher education and their potential as a source of inspiration for a differentiated higher education establishment funding policy. Lastly, the third stage was concentrated on testing out relevant indicators for differentiated higher education funding in the Brussels-Wallonia Federation, and on identifying ways of distributing additional resources through the analysis of differences in the target populations within higher education establishments.

The remainder of this article is focused on the third phase of the research and, more specifically, on investigating certain characteristics of students that affect their chances of success at university. The authors first of all discuss the indicators found in the literature for identifying students with a higher risk of academic failure in higher education. The chosen indicators are then studied and discussed.

Consideration of indicators for identifying students with a higher risk of academic failure in higher education

A review of the education research findings focused on students' access and success in higher education in the Brussels-Wallonia Federation or in similar education systems allowed the identification of *input* factors (Scheerens, 2000) affecting students' university careers. In particular, indicators relevant to students' school careers and to their social and economic background.

Indicators linked to students' earlier school careers and affecting their success in higher education include the kind of secondary education the student was enrolled in and whether the student has fallen behind (because of grade retention) during compulsory schooling.

As of the third year of ordinary French-speaking Belgian secondary schooling (grade 9), education is divided into two streams: the transition stream and the qualification stream. The transition stream aims to prepare students to continue studying at higher education level, while providing the possibility to enter the workforce. Conversely, the qualification stream aims to prepare students to enter the workforce, via a qualification certificate, nonetheless also allowing them the possibility to continue studying at higher education level (French-speaking Community of Belgium, 1984). Each of the two education streams is divided into three types. The transition stream comprises general education, technical education, and arts education, while the qualification stream covers technical, arts, and vocational education.

Dupont and Lafontaine (2011) show that in French-speaking Belgium the stream attended by a student during the final years of secondary education is the factor "*that has the biggest impact on students' study options all else being equal*" (p. 471). Other research conducted in Belgium shows that students completing general education have higher chances of success than others (Droesbeke, 2008; Droesbeke, Hecquet, & Wattelar, 2001). Various French studies have also highlighted the great impact of the stream attended in secondary school on the chances of success in higher education (Felouzis, 2000; Lemaire, 2004; Gury, 2007; Morlaix & Suchaut, 2012). According to Nicourd, Samuel and Vilter (2011), all else being equal, it is the variable that has the most significant implications on the educational path. Students who attended technical or vocational education (versus general education) are less likely to go on to higher education and when they do, they are more likely to fail or drop out than their fellow students.

Although the importance of the impact of falling behind during school on success in higher education is subject to debate, all research studies on this subject indicate a negative impact (Beaupère & Boudesseul, 2009 referred to by Morlaix & Suchaut, 2012; Droesbeke, 2008; Droesbeke *et al.*, 2001; Gury, 2007; Nicourd, Samuel & Vilter, 2011; Lemaire, 2004). Repeating secondary school years affects the chances of access and success in higher education. On the access front, researchers show that being older than their peers, students who have fallen behind are less likely to opt for long studies, preferring shorter non-university higher education courses (Lemaire, 2004). As for success, Gury (2007) claims that all else being equal, a student who had to repeat a year in secondary school is three times more likely to drop out of university without a qualification than a student who had a trouble-free compulsory schooling career. On the other hand, Lemaire (2004) claims that repeating a year during compulsory schooling

has an effect on success only if there was a second occurrence. The author says a student has to repeat two years prior to going on to higher education before the chances of obtaining a qualification are affected.

To study the effect of the social and economic background on success, research studies have suggested using the qualification or professions of the parents as a basis. Even though the findings vary, depending on the type of study undertaken by students (university or otherwise, long or short type) and the chosen study area, all studies draw the same conclusion: the chances of gaining a higher education qualification are higher for a student who has at least one parent who completed higher education and/or has a management-type profession (De Kerchove & Lambert, 1996; Felouzis, 2000; Lemaire, 2004; Gury, 2007; De Kerchove & Lambert 2001; Dupriez, Monseur & Van Campenhoudt, 2009; Prouteau, 2009; Nicourd, Samuel & Vilter, 2011; Morlaix & Suchaut, 2012; Vermandele, Dupriez, Maroy & Van Campenhoudt, 2012). Given the same age, course of study and option, a student whose parents obtained higher education qualifications, particularly at university level, has *“more chances of succeeding the first year of university”* (Vermandele *et al.*, 2012, p. 24).

Method

For the purpose of investigating the impact of various indicators on student success, data about students' schooling careers and socio-economic background were collected at three of the six universities in the Wallonia-Brussels Federation³.

The data on the type of education undertaken by students during their secondary school and how old they were when they left the compulsory education system could be collected for all three universities, allowing for easy observation of the impact of the schooling career. The same is not true of the students' socio-economic background, however: higher education establishments do not collect this information on a systematic basis. Consequently, other indicators were deployed to capture the students' socio-economic backgrounds: the grant holder status and the socio-economic index category of the secondary school of origin.

Holding a study grant is a direct and individual measurement of the income available to the student (or to the person on whom the student is dependent). A grant-aided student receives financial assistance managed by the Ministry of the Brussels-Wallonia Federation's Student Grant and Loan Department. This assistance is granted to students who have low incomes or are dependent on people with low incomes.

The socio-economic index for the secondary school of origin is an indirect measurement combining a socio-economic indicator and a school career indicator. Developed by an inter-university team on the basis of the district of residence of the students attending a school (Demeuse & Monseur, 1999), this index is used to differentiate the funding of schools providing compulsory education according to their student population (Friant *et al.* 2012).

Each student enrolled in the compulsory education system organised or subsidized by the Wallonia-Brussels Federation is assigned the socio-economic indicator (SIE) for the statistical sector applicable to the student's place of residence. Each school is then assigned a socio-economic index corresponding to the average SIE for all students enrolled in the school.

The socio-economic index assigned to each school is used to rank pre-primary and primary schools on the one hand and secondary schools on the other hand. In both cases, schools are ranked in ascending order, starting with the one assigned the lowest average socio-economic index and finishing with the one with the highest average socio-economic index. Next, they are assigned to 20 categories, each covering 5% of the population (Demeuse, Demierbe and Friant, 2010). On this basis, the schools covered entirely or partly by the categories numbered 1 to 5, i.e. those which are the most disadvantaged according to the ranking system, qualify for differentiated support. They receive an additional allocation of human and financial resources for at least five years (Demeuse *et al.* 2010).

Within the framework of this study, each higher education student is assigned the average socio-economic index for the school attended by the student during his/her final year of secondary education.

In a first phase, the four indicators under consideration were considered one by one via an analysis of the success rates of students in different groups enrolled in the first three academic years (BA1, BA2, BA3). Next a logistic regression model was used to investigate the effect of each of the variables on the success of BA1 students, controlling for the other variables. This method "*is used for studies designed to check if independent variables can predict a dichotomous dependent variable*" (Desjardins, 2005, p. 35).

The three universities that provided the data under consideration in this article offer different types of education. One provides education geared more to the human and social sciences and mostly limited to undergraduate programmes. Another one focuses more on the exact sciences. The third one offers courses in each area of study to a greater or lesser degree. Per study area, the composition of the student population and the success rates can be quite different, particularly in the first year of university. Consequently, the differences between universities in success rates do not necessarily suggest a *university effect* applicable to student success but may rather be caused by differences in the educational offer.

Findings

Table 2 shows student success rates according to the type of education they undertook during the last two years of secondary education in the case of students coming from general education (G), technical education in the transition stream (TT) and technical education in the qualification stream (TQ). Students from vocational education are not included because they account for only a very small percentage of students.

Study year	Success rate								
	University 1			University 2			University 3		
	G	TT	TQ	G	TT	TQ	G	TT	TQ
BA1	46%	19%	13%	42%	20%	12%	57%	31%	16%
BA2	71%	62%	33%	76%	60%	40%	74%	68%	62%
BA3	84%	73%	50%	78%	65%	73%	84%	90%	79%

Table 2. Students' success rates according to the type of education undertaken in secondary school for each of the first three years of university (BA1 to BA3)

(Note: the success rates shown in italics are calculated on the basis of less than 25 students)

Irrespective of the university, it is seen that during the first year of study (BA1), students who completed general education have better success rates than those coming from technical education in the transition stream. In two of the three universities, the success rate is twice as high in the first group. As regards students coming from technical education in the qualification stream, they are even less likely to achieve success in the first year of study. Their success rate is 1.6 to 1.9 times lower than for students coming from technical education in the transition stream.

Consequently, whereas transition stream technical education is supposed to prepare students to continue studying, it can be seen that very few students do so successfully. In the case of qualification stream education, its primary mission is to prepare students to enter the workforce. But it is also supposed to allow students the possibility to gain (successful) access to higher education, an aim that is obviously not achieved.

The gap between success rates according to the stream chosen in secondary education narrows in the second (BA2) and third (BA3) years. For students coming from technical education, the challenge therefore is to pass the first two years of the bachelor programme. Once this stage has been reached, the type of secondary education followed is no longer a factor that weighs heavily on student success.

Table 3 shows the success rates for the same students as those in Table 2, according to whether they are lagging behind or not as they come out of secondary school.

Study year	Success rate					
	University 1		University 2		University 3	
	Lagging behind	On time	Lagging behind	On time	Lagging behind	On time
BA1	18%	46%	23%	54%	34%	61%
BA2	58%	77%	54%	75%	57%	77%
BA3	67%	78%	73%	88%	76%	83%

Table 3. Success rate according to whether students are lagging behind or not as they come out of secondary school, for each of the first three university years (BA1 to BA3)

An analysis of the success rate in the first three years of university confirms the negative effect that grade repetition has on success at university, because, irrespective of the study year, the success rates of students who came out from secondary school “on time” are higher than those of students lagging behind. During the first year of university (BA1), the success rate for students on time is almost 2.5 times higher than for the others. The impact of grade repetition during secondary education is more significant at the start, given that by the third year the gaps between the success rates of the two groups are narrower.

Table 4 shows student success rates according to their grant holder status.

Study year	Success rate					
	University 1		University 2		University 3	
	Grant holder	Non-grant holder	Grant holder	Non-grant holder	Grant holder	Non-grant holder
BA1	32%	41%	28%	43%	46%	57%
BA2	75%	73%	66%	70%	70%	74%
BA3	80%	76%	75%	86%	82%	81%

Table 4 - Success rate according to grant holder status for each of the first three years at university (BA1 to BA3)

In all three universities, a higher success rate is observed for students without grants during the first year of study (BA1). In the case of the second (BA2) and third years (BA3), the findings differ according to the university. For example, in university 1 grant holders succeed slightly better than the others. In universities 2 and 3, students not enjoying grant holder status continue to be the ones succeeding the most but the gap between the two groups has narrowed. It should be noted that the grant system in French-speaking Belgium exerts a pressure to succeed on students as their continuing entitlement to a study grant is dependent on failing no more than once during the bachelor degree programme. Financial assistance is cut off in case of two failures. Hence success rates may be affected by a higher dropout rate among grant holders.

Table 5 shows student success rates according to the socio-economic index (SEI) category of the secondary school where the student obtained his/her upper secondary education certificate.

Study year	Success rate											
	University 1				University 2				University 3			
	1-5	6-10	11-15	16-20	1-5	6-10	11-15	16-20	1-5	6-10	11-15	16-20
BA1	20%	33%	41%	55%	16%	35%	42%	46%	42%	58%	57%	62%
BA2	55%	72%	72%	73%	61%	74%	75%	76%	70%	75%	75%	74%
BA3	67%	67%	90%	88%	69%	76%	79%	79%	83%	83%	85%	82%

Table 5 - Success rate according to the SEI category of the secondary school of origin for each of the first three years at university (BA1 to BA3)

During the first two years of university (BA1 and BA2), with two exceptions, the more the school of origin is of a high SEI category group, the more students are likely to succeed. The gap in success rate is particularly noticeable in the case of students from schools where the average SEI is low (1-5). In the first year of study (BA1), the gap between the success rates of extreme groups is between 20 and 35 percentage points depending on the universities. In two of the three universities the gap in success rates, although it narrows, can be observed up to the third year of study (BA3).

The analysis of success rates according to students' characteristics shows that the stream attended in secondary school, the fact of lagging behind at the end of secondary schooling or not, the status of being grant-aided or not, and the socio-economic index for the secondary school of origin are all variables affecting student success during the first three years at university. Moreover, it is not uncommon that students have several

of the characteristics identified as standing in the way of success. For instance, schools providing vocational education tend to enrol more students living in districts with a low socio-economic index as well as more students who are lagging behind. Lastly, students with this type of profile are more likely to be grant holders than students coming from the general education stream. Consequently, a simple examination of success rates is not sufficient to isolate the effect of each variable by controlling the other variables.

To isolate the effect of each of the four variables, a logistic regression method was used. This method is used to study how various factors affect a dichotomous dependent variable. In our case the dependent variable is the outcome the student achieves at the end of the year (success or failure).

Table 6 shows the percentage of correctly predicted outcomes (success or failure) at the end of the year for BA1 students, by successively adding each of the variables investigated.

	Correct prediction percentage		
	University 1	University 2	University 3
Baseline	57%	59%	51%
Lagging behind before going to university	63%	66%	63%
Secondary education qualification stream	63%	67%	65%
Disadvantaged secondary school (categories 1-5)	64%	69%	65%
Grant holder	64%	69%	65%

Table 6 – Percentage of correctly predicted failure via the addition of variables

Taking no variables into account and presupposing that all first-year students fail, the model's baseline shows that between 51% and 59% correct predictions are obtained. When the variable "lagging behind" is factored in, the percentage of correct predictions shifts to between 63 and 66%, such that if it is assumed students leaving secondary education lagging behind by at least one year fail, the correct prediction score is 63 to 66%. Adding the stream, socio-economic index and grant holder status variables leads to a slight increase in the probability of correctly predicting students' end-of-year outcomes.

Table 7 shows the coefficients of the *logit* linear equation for three universities⁴. An analysis of this data shows to what extent each of the variables taken individually affects students' careers and, consequently, to identify the most relevant indicators to take into account for the purpose of enacting measures to ensure equal chances of success.

	University 1			University 2			University 3		
		Sig.	Exp (B)		Sig.	Exp (B)		Sig.	Exp (B)
Repeating at least a year before going to university	74.6	0.00	0.28	0.00	0.36	68.7	0.00	0.29	
Secondary education qualification stream	10.9	0.00	0.34	11.9	0.00	0.46	18.1	0.00	0.45
Disadvantaged secondary school (categories 1-5)	17.6	0.00	0.41	21.5	0.00	0.45	4.8	0.03	0.69
Grant holder	1.6	0.21	0.81	14.5	0.00	0.73	9.5	0.00	0.67
Constant	21.4	0.00	1.55	0.00	1.91	0.6	0.42	0.86	

Table 7 - Coefficients of the logit-linear equation

Except for the grant holder status in university 1, all the regression coefficients are significant ($p < 0.05$). In other words, there is some justification for taking into account all four tested indicators to identify students requiring special attention, as each of the variables included in the model has an impact on the success of students enrolled in BA1, even when the other variables are kept under control.

An analysis of the odds ratios ($Exp(B)$) makes it possible to quantify the negative effect on students' outcomes during the first year of university of repeating a year in the compulsory education system, of coming from the secondary education qualification stream, of having attended a secondary school characterized by socio-economic disadvantages, and of having grant holder status.

Depending on the university the student attends, a student who left the secondary education system lagging behind by at least one year multiplies the success odds ratio by a value of 0.28 to 0.36⁹. The impact of grade retention on the chance of success during the first year of university is thus quite significant.

Coming from the qualification stream of secondary education also has a strong negative impact on student's end-of-year outcomes: the success odds ratio for students coming from this stream is multiplied by 0.34 in university 1, 0.45 in university 3, and 0.46 in university 2.

Likewise as regards the socio-economic index for the secondary school of origin: the success odds ratio is multiplied by a value of between 0.41 and 0.69 for students leaving a secondary school with a disadvantaged student population.

Lastly, in two of the three universities being a grant holder is linked with less chances of success, although the negative impact is smaller than for the other three variables. The success odds ratio for students holding grants is multiplied by 0.73 in university 2 and 0.67 in university 3.

Conclusion

As a result of its endorsement of the Bologna declaration in 1999, the Brussels-Wallonia Federation is committed to the creation of an integrated European higher education area, with particular attention to promoting European cooperation in quality assurance (AEQES, 2010). This is why it was decided in 2002, to set up the Agency for Quality Assurance in Higher Education.

Operational since 2004, AEQES is tasked with enhancing the quality of higher education in the Brussels-Wallonia Federation through the assessment of study programmes. Towards this end, the Agency has developed a three-phase assessment process involving an internal assessment undertaken by the assessed institution on the basis of a framework, an external assessment carried out by an independent committee of experts, and a process of follow-up on the first two phases.

As the framework that was originally developed was seen to have shortcomings, a new framework was rolled out in 2013. In addition to making the aspects to be assessed more explicit, the aspect of equity – which was not the subject of special attention in the first framework – was made one of the five key criteria to be assessed. Although AEQES provides a definition of what it means by equity, it does not provide guidance on the characteristics for identifying students that need special attention if they are to enjoy

equal opportunities of gaining access to a qualification. Moreover, the inclusion of the equity aspect in the framework implies that universities are expected to create a support system for students more at risk of failure or dropping out, even though the financial situation is such that the staff-student ratio is deteriorating year after year.

Against this background, inter-university research conducted in the Brussels-Wallonia Federation (Demeuse *et al.*, 2013), seeking to find out the basis for differentiating the funding of higher education institutes in order to ensure equal chances of access and success, becomes highly relevant.

An analysis of success rates according to student characteristics allows the researchers to conclude that the choice of secondary education stream, the fact of lagging behind at the end of secondary school or not, the fact of being grant-aided or not, and the socio-economic index of the secondary school of origin are variables that have an impact on student success rates during the first three years at university.

A logistic regression model for investigating the impact of each variable while controlling for the others, shows that these four indicators are all relevant for the purpose of identifying students requiring special attention. Each of the variables included in the model has an impact on the success of students in the first year of university (BA1), also when controlling for the other variables.

Higher education in the Brussels-Wallonia Federation is expected to provide each student with equal chances of success whatever his/her origin. The research findings show that this is not the case and currently⁶, no steps are being taken with a view to offering to higher education establishments the possibility of providing compensatory measures aiming to support students with a higher risk of failure. On the contrary, universities face a systematic reduction of the level of funding per student based on a “sealed envelope” funding system and a concurrent increase in student population.

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¹ <http://www.aeqes.be/>

² In this section, points 3.1 and 3.2 are based mainly on (Friant, 2013, pp. 137-141).

³ In the light of the schedules for completing the study, the inter-university team focused the most comprehensive analyses, those covered by this article, on the three establishments to which its members belong, mainly because of the need to recode certain items of items or to work on data covering several years.

⁴ For ease of reference not all the information is featured in Table 7. The comprehensive tables including all the linear equation statistics for each of the universities, are shown in annex.

⁵ Which means the success rates for these students compared with the rates for other students are divided by roughly 3 or 4.

⁶ Up until 2006, universities taking in student grantees were not even provided with compensation for the lower enrolment fees allowed for these students. The more grantees a university accepted the more its resources were reduced. This compensation has now been set up.

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Annex

Table 8 - Coefficients of the logit-linear equation for university 1

	B	S.E.	Wald	df	Sig.	Exp(B)
Repeating at least a year before going on to university	-1.27	0.15	74.56	1		0.28
Secondary education qualification stream	-1.09	0.33	10.86	1		0.34
Disadvantaged secondary school (categories 1-5)	-0.89	0.21	17.61	1		0.41
Grant holder	-0.22	0.17	1.55	1		0.81
Constant	0.44	0.09	21.37	1		1.55

Table 9 - Coefficients of the logit-linear equation for university 2

	B	S.E.	Wald	df	Sig.	Exp(B)
Repeating at least a year before going on to university	-1,01	0,10	112,06	1	0,00	0,36
Secondary education qualification stream	-0,79	0,23	11,89	1	0,00	0,46
Disadvantaged secondary school (categories 1-5)	-0,81	0,18	21,50	1	0,00	0,45
Grant holder	-0,32	0,08	14,51	1	0,00	0,73
Constant	0,65	0,05	187,67	1	0,00	1,91

Table 10 - Coefficients of the logit-linear equation for university 3

	B	S.E.	Wald	df	Sig.	Exp(B)
Repeating at least a year before going on to university	-1,23	0,15	68,71	1		0,29
Secondary education qualification stream	-0,81	0,19	18,13	1		0,45
Disadvantaged secondary school (categories 1-5)	-0,37	0,17	4,84	1		0,69
Grant holder	-0,40	0,13	9,48	1		0,67
Constant	-0,15	0,19	0,64	1		0,86

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