Public Subsidies to Dutch schools:
The Effect of Additional Funding on Cognitive Achievement and Selection of Secondary School of Disadvantaged Students

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This document represents part of the author's study programme while at the Institute of Social Studies. The views stated therein are those of the author and not necessarily those of the Institute.

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Contents

List of Tables

List of Figures

List of Acronyms

BBL	Apprenticeship-based track of MBO (secondary)
BOL	School-based track of MBO
CBS	National Bureau of Statistics (Centraal Bureau voor de Statistiek)
CITO	Central Institute for Test Development (Centraal Instituut voor Toetsontwikkeling)
COOL	Cohort Survey School Careers (Cohort Onderzoek Onderwijsloopbanen)
HAVO	Senior general secondary education (Hoger Algemeen Voortgezet Onderwijs)
HBO	Higher professional education (Hoger beroeps onderwijs)
KNAW	The Royal Netherlands Academy of Arts and Sciences (Koninklijke Nederlandse Akademie van Wetenschappen)
LWOO	Extra learning support in VMBO
MAVO	Junior general secondary education (Middelbaar Algemeen Voortgezet Onderwijs)
MBO	Secondary vocational education (Middelbaar Beroepsonderwijs)
NOW	The Netherlands Organisation for Scientific Research (De Nederlandse Organisatie voor Wetenschappelijk Onderzoek)
OECD	Organization for Economic Co-operation and Development
PIRLS	Progress in International Reading Literacy Study
PISA	Program for International Student Assessment
PO	Primary Education (Primair onderwijs)
PRIMA	Primary Education and Special Education Cohort Studies (Primair onderwijs en special onderwijs cohortonderzoeken)
SES	Social Economic Status
TALIS	Teaching and Learning International Survey
TIMSS	Trends in International Mathematics and Science Study
UNESCO	United Nations Education, Scientific, and Cultural Organization
VMBO	Pre-vocational education (Voorbereidend Middelbaar Beroepsonderwijs)
VO	Secondary Education (Voortgezet onderwijs)
VWO	Pre-university education (Voorbereidend Wetenschappelijk Onderwijs)
WF	Weighting Factor - Subsidy to Disadvantaged Students
WO	University education (Wetenschappelijk onderwijs)

Abstract

This research paper analyses the validity of the current Dutch subsidy program to disadvantaged students, in relation to learning attainment and transition to the secondary level of education, using the Cohort Survey School Careers database (COOL5-18).

In the Dutch education system, students have two options to transit from primary to secondary level: academic or vocational level. This decision is conditional upon the score of the CITO test. Additionally, each school is legally obliged to issue the advice on the type of secondary education that students may attend. Teacher's advice and CITO test results determine the track that a student follows.

The analysis presented in this paper suggests that, after controlling for ability and family background, the probability of being a beneficiary of the subsidy program has no statistically significant impact on educational achievement or on the probability of transiting to a higher academic level. Furthermore, variations in the level of the subsidy (0.3 and 1.2 based on parent's level of education) have no bearing on the effect. In contrast, those who attend schools with a lower concentration of students from an immigrant background or low socioeconomic status have better educational outcomes and are more likely to move to academic secondary education.

Relevance to Development Studies

Investments in the sector of education report considerable positive impacts in other areas, as one of the sources of strength country's economy. Public subsidies to students as a resource for economic growth are a vital component in the national educational policy in European countries. However, indicators related to educational issues, as social-economic background, represent technical hitches to establish critical factors involved in these dynamics.

Nevertheless, the social impact of public subsidies to education also compensates differences between schools or students, with the purpose of guarantees equal opportunities for all. A more integrated vision of the social, economic and cultural projects could represent an essential improve in the poverty alleviation of vulnerable populations.

The relevance of this research is to identify possible alternatives to implement similar programs in different contexts, with the objective of creating strategies to improve not just the quality but also the equity in education.

The Dutch education scheme, being one of the most advanced and inclusive school systems in the world, continuously implements reforms regarding not just quality but also equity. These experiences, including their successes and challenges, are a valuable resource for policy-makers in the less developed countries.

Keywords

Subsidies, Disadvantaged students, Education Policies, Dutch Education System.

Chapter 1
Introduction

The purpose of this research paper is to analyse the validity of the current Dutch subsidy program addressed to disadvantaged students. The paper analyses the relation between the subsidy and two outcomes - learning achievement and transition to the secondary level of education-, using the Cohort Survey School Careers database COOL5-18 (from now on COOL).

The educational subsidy system in the Netherlands was reformed in 2006, with the aim to increase cognitive achievements of less advantaged pupils. The current subsidy system targets students based on parental educational level, by a scheme of weights to assign extra funds. Children with one parent with a low education level receive a weighting factor of 0.3, and when both parents have a low education degree, the weighting factor is 1.2. In other words, each Dutch student has a basic financial assignation, and disadvantaged students receive extra funds according to the weighting factor. Following the principle of equity, schools receive this extra funds to compensate less advantaged students, with the aim of increase the possibility to complete the learning process successfully, according to their skills.

Since investments in education report a high and positive impact in other areas, the underperformance of the most vulnerable students is an issue of numerous educational policies of countries. With the purpose of guaranteeing equal opportunities for all, public subsidies attempt to compensate for the weak performance of students. In this regard, parent's level of education is one of the indicators most commonly used to determine if a student is at risk of dropping out the school, given its high level of predictability. Further indicators of vulnerability include background, income and size of student's family, as well as indicators related to pupil's characteristics like learning's difficulties and behaviour's problems.

Relate to subsidy programs, in general, have shown positive effects on education outcomes (Afridi 2011, Lefebvre et al. 2011, Weinraub et al., 2005 as cited in Vandenbroeck 2010, Mundial 2006). The most remarkable results are in educational systems with the largest gaps between students[1]. Less advantaged students can receive extra benefits from the governments indirectly, like improvements in school infrastructure, teaching resources or reducing the number of learners per classroom, and directly, such as an increase in the number of

[1] The World Development Report 2007 presented different successful cases: Evidence from Rural India daily free meal program showed a significant impact on improving the daily participation rates of children in lower grades. In Kenya, a program that combines lower educational subsidy with measures to combat the AIDS epidemic produced dramatic gains, increasing the incentive to invest in education but also from saving lives. Mexico's Oportunidades program provides an incentive by giving transfers to households if young females stay in school. The Bangladesh Female Secondary Stipend Assistance Program (FSSAP) transfers the subsidy directly to girls, ages 11–14, dependent on them staying unmarried and performing well enough to pass in school.

hours of private tutoring or remedial courses. Nonetheless, benefits of subsidy programs in developed countries tend to have quite moderate impacts.

In the last decade, there has been a change in the focus of policy makers. In 2004, the UNESCO report remarked that focus mostly on quantified targets (such as universal primary education) does not reduce the enormous gap. The report mention that the disparity "prevails between the numbers graduating from schools and those among them who can master a minimum set of cognitive skills" (UNESCO 2004: 23).

Furthermore, recent subsidy programs seem less focused on financial benefits and more oriented towards non-economic profitability. The subsidies are destined not only to improve institution's infrastructure or learning materials but also to expand individual's capabilities. As a consequence, new instruments are developed to identify and assist disadvantaged students, for instance, allocating additional resources for pupils with learning disabilities, at risk to drop out the school.

The debate on contemporary education also aims to achieve a balance between quality and equity. For the achievement of relevant education, it is required to review the objectives of the curriculum and at the same time the policy framework to support these changes. While the main objective of the education system is to increase the number of graduates successfully, it is also important the quality of education and whether it is worthwhile for the individual.

In the Netherlands, all students have access to the resources required to complete their studies successfully. However, even though disadvantaged students receive additional financial support, there are some persistent gaps in learner's achievements, for example between Dutch students, and students with an immigrant background. Consequently, a significant proportion of students with an immigrant background does not transit to the tertiary level.

The Dutch government implement reforms regarding equity, to keep the level as the one of the most successful and inclusive school systems in the world[2]. These experiences, including their achievements and challenges, are an important resource for policy-makers in the least developed countries. Although, academic studies suggest that the Dutch system could be focused mostly on the effects of subsidies on students with foreign background, instead of the system as a whole.

One way of measuring Dutch students' achievement at the national level is the CITO Test. Students at the last grade of primary school (eighth grade) take this annual test, which contains questions about language, mathematics and information processing[3]. The test is voluntary for schools, and about of 85% of

[2] To illustrate this point: the government expenditure on education institutions as a percentage of GDP and the share of private funding, both of them were higher than the OECD average for 2012. Similarly, the 15-year-old students performing above Level 2 in mathematics was higher than the average (OECD 201; PISA 2012).

[3] The test consists of 200 questions, 100 questions on language, math 60 questions and 40 questions about information processing. The standard score of CITO test is based

Dutch students present it. Besides, students who are in special education track do not take this exam[4].

The test results are a key part of the Dutch education system. Teachers use student's results of the CITO tests as a supplementary reference in advising them to transit to the most appropriate level of secondary education (academic or vocational). Secondary schools often use CITO results as a threshold for pupil's enrolment in the most advanced types of secondary education ('Key Figures 2007-2011'2012: 38). Likewise, the education inspectorate, entity in charge of judge schools' quality, uses CITO scores as a reference to supervise the school's performance.

Recent studies showed that the influence of extra funding to disadvantaged Dutch students could have a minor impact on student's performance (El Allaoui 2013a, Leuven et al. 2007). The central education system identifies the beneficiaries, but the schools receive the extra financial resources and have autonomy to use it. As Leuven et al. (2007) mention, schools report positive outcomes from the extra-fund scheme for schools in general but not for the targeted students. In the end, there is a high probability that the expected impact of the policy on disadvantaged students is diminishing by other factors as administrative decisions of school's board.

The present analysis relies on a database called the Cohort Survey School Careers - COOL5-18 (from here COOL), from 2007, 2010, and 2013. The selected data includes information about students from the group 8, who took the CITO test, have the advice of their teacher, as well individual and family characteristics.

The paper argues that some of the principles used to classify disadvantaged students must be updated. Children of parents with low educational level tend to get lower scores than children of parents with higher education. However, using this criterion as a single indicator of disadvantaged circumstance denies the role of other attributes such as household income, the colloquial language used with family and friends, behaviour, attitude and other skills.

The results show that there are no significant differences in the probability of having a higher score on CITO test between students with a weighting factor of 0.3 and 1.2. Analysis over the years confirms this tendency. On another hand, the results show that there is a persistent gap in the scores results among Dutch students and students with an immigrant background.

In conclusion, the validity of the Dutch subsidy program, based on the results of the comparison of the achievements of students with and without subsidy, seems to have already reached its limit. Alternative extra financing strategies may have a greater impact on the development of skills and abilities of students.

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on a transformation of the number of correct answers for language, arithmetic / mathematics, study skills and world. The score is on a scale from 501 to 550, where 536 is considered the minimum score suggested to transit to secondary academic level.

[4] *Special primary education* is meant for students for whom tests results have shown that a special remedial approach is the indicated for them ('Key Figures 2009-2013'2014: 40)

The relevance of this issue is the possibility to identify alternative approaches to classifying students as disadvantaged, to design strategies that fit better to improve less advantaged students' cognitive achievement.

This research paper is organized as follows: Chapter 2 provides a brief review of previous studies. Chapter 3 describes the context the Dutch education system of subsidies. Chapter 4 and 5 present the data and the methodology. Chapter 6 show the results and Chapter 7 concludes.

Chapter 2
Literature Review - Public Subsidies[5]

Investments in the education system, targeting the most vulnerable students, look for the guarantee to them access to equal opportunities. Therefore, public subsidies attempting to compensate student's weaknesses, apply interventions adapted to the particular context. In the case of the Netherlands, students are guaranteed the right access to education and to the resources needed to complete their studies successfully. However, despite that disadvantaged students receive additional financial support, there is a persistent gap in students' achievement between the group of the most advantaged and the group of the least favoured.

In general, it is recognized that to be judged as an effective public and private schools should yield positive returns in the labour market (Evans 1995, Nicaise et al. 2000, Lefebvre et al. 2011). There are a large number of indicators to measure the effectiveness of an education system, from students' academic achievement to the degree of employability of students who obtain a vocational degree. But full inclusion remains a challenge, despite evidence showing growing evidence of the economic benefits (McGregor et al., (1998) as cited in Labon 1999).

In analysing the impact of educational subsidies, the importance of promoting growth policies that take into account the distribution of human capital has a new meaning. Currently, the design of policies at the macro level is at a different stage, and no longer focuses only on the shortcomings of schools. The novel focus is more personalized and more integral to try to obtain greater achievements.

In the last decade, there has been a theoretical shift regarding interventions in education, oriented to improve students and schools' achievements[6]. However, this transition also highlights that in some cases, schools tend to reinforce existing children' inequalities (OECD 2012a). As a consequence, policymakers are exploring different alternatives to mitigate potential negative impacts. Hence, educational terminology has evolved into a more inclusive concept, and the design of public educational policies seems to go beyond the economic framework.

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[5] The elaboration of this chapter is partially based on the paper submitted to the course *Child and Youth Studies in Development Context* (term 2): Peña, A.C., "Public Subsidies to Disadvantaged Students and Schools: Literature Review", April 2015. * Paragraph marked are taken literally.

[6] For example, education policy in Poland has been marked by a structural reform and the curriculum and examination reform. The educational reform provides for changes in the structure of the education system by reorganizing the school network; changing the curriculum; introducing of a new central examination system with independent student assessments; and offering new incentives for teachers, among others (OECD 2013: 81).

In this line of thought, the OECD report (2012) expresses the need to give more relevance to the social inclusion: an extra dimension is required for analyses related to education subsidies. Recognizing the different conceptions that support educational policies aimed at social inclusion of disadvantaged children - which in turn generates a multitude of educational approaches - the term "best practices" should be used with caution. Although education institutions selected for those analyses meet the definition of disadvantaged schools, the environment, and the political-economic conditions are not comparable with similar institutions in other countries (Leuven et al. 2007).

Moreover, underlying principles of extra funds to compensate disadvantages differ across countries. In general, it is recognized that education is an additional value, and its main purpose is to develop the skills of children to continue their studies or join a job. Highly-skilled students have a comparative advantage not only in the school but also after graduated because they can perform more complex jobs with higher productivity (Dur and Teulings 2003).*

The concept of public subsidies has evolved to reflect changeover in society. In this regard, it has been essential for policy makers to identify barriers and success factors to help disadvantaged children. During the 1970's decade have been incorporated some elements of psychology and sociology to the economic analysis the phenomenon of students at risk or disadvantaged students. Hence, educational policies began a process of transformation to maximize the opportunities for students.

Theories have sought to explain the differences in student's achievement. Over the last decades, some attributes have become more relevant than others, creating a categorization of factors. For example, the Human Development concept and capabilities' approach by Sen (1980) meant a major shift in several areas: policy choices should create the necessary conditions so that people have the opportunity to have a fully human life (Nussbaum 2011).

Changes in medical and psychiatric diagnoses are also reflected in the outcome assessment systems. New concepts are used to describe the skills and attitudes of students: it is no longer about disabilities and social problems, but opportunities and behaviour. In past decades, students are classified simply as problematic, encompassing many concepts. In more recent times, the behaviour problems are more accurate and diagnosed in time, which facilitates the task of supporting and monitoring.

Policymakers aim to channel public funds to schools and pupils with more adverse circumstances with the purpose of creating equal access to the opportunities. Main mechanisms that justify these subsidies is the creation of a more competitive system with more choices for parents that can raise the quality of all schools (Labon 1999).

Similarly, the main goal of allocation of financial resources is to generate educational opportunities aimed at students with different skills and abilities, to perform the tasks and roles that society demands (Luyten et al. 2011). The combination of qualification, selection and allocation perspectives creates a scheme that involves all levels of the education system. In the same way, the efficiency of allocation of economic resources prevails over other aspects. The subsidy rate

is determined to take into account not only costs but political benefits. Jimenez (1986) mentions that publicly subsidized education are destined to the group that could show more improvements. This approach gives priority to supporting children with the biggest potential productive capacity.

An important finding from the literature review is the existence of limited references about recent cases of public subsidies in developing countries, at the primary level. Most of the studies are related to the rates of return on investment in education, especially for tertiary education in developed countries. The main discussion is about how to measure the impact of subsidies and how to increase it. There are not new references to the contemporary concept of disadvantaged children: researchers are still taking references from other knowledge areas such as medicine and economy.*

Critiques to the public subsidies to disadvantaged schools are not new. In 1964, Wilkerson (1964) claimed that "special educational planning for socially disadvantaged children and youth is concerned with effecting changes; prevailing practices are assumed to be inadequate." Although it is certain that traditional education system is more focused on maximizing benefits of schools rather than of individuals, there can be no doubt that studies in development context are changing the perception of children.

The current international scheme of indicators, built in the mid-20th century, have been transformed with contemporary references, and consequently, educational strategies have added critical factors. Indicators associated with the outputs reflect the results of the educational system, like academic's achievements, among all hierarchical levels involved (Luyten et al. 2011). An example of this transformation is the active participation of parents in the educational process as well as the role of teachers.

Subsidies programs began to focus on the background of children's families at the beginning of the 1990s. A new set of public policies goals was proposed, including concepts like 'high-quality' and a strong emphasis on 'appropriate preschool programs' to reinforce children's development. As Magnuson (2004: 116) notes, the call to broaden public support for early childhood care programs, to promote equal access to opportunities for high-quality education, was an important milestone on this period.

Frequently, governments select not just pupils with disadvantaged characteristics to distribute additional financial resources, but also schools with the highest performance because the allocation of resources aims to maximized benefits. Jimenez (1986) suggest that this selection sometimes tends to be regressive because mainly it is expected that children from higher socio-economic levels perform better on tests than those in the poorest groups since parents they are more likely to promote the study and can spend more in books and extra academic activities. Besides, children from low socioeconomic levels are more likely to fail the exams and repeat years because of substantial deficiencies in cognitive and academic skills. These deficiencies persisted in later school years and families usually cannot afford the additional costs given the economic constraints (Stipek and Ryan, as cited in Magnuson et al. 2004: 117, Kemnitz 1999).

The implementation of subsidies programs are more extended, but like other primary services the population is poorly targeted (Mehra et al. 1999: 15). Results of studies highlight the need to include new dimensions in the design of public subsidy policies. A focus just on the economic point of view hides some social factors that also influence the academic achievement of children. Dur et al. (2003: 2) argues that if the main goal of the subsidy system is to create equal opportunities for all students, targeting less advantaged students is the best strategy. Despite the impartial process of selection to subsided disadvantaged schools, innate abilities play for outstanding students. The effect of this choice is that "disadvantaged schools tend to reinforce students' socio-economic inequalities […] since they do not mitigate the negative impact of the students' disadvantaged background on education attainment", and sometimes the system can re(produce) them (Vandenbroeck 2010).*

The Mincerian earnings function economic method, from 1974, is still used as a reference to calculate returns on investment in education. This function involves "earnings as the dependent variable, and years of schooling and potential years of labour market experience" (Psacharopoulos 1994: 1325). The Mincer function explains in economic terms the relationship between the level of education and the returns to education. The effect of this method is reflected in the public policies around the world: increase access to education, especially primary education in order to increase earnings.*

The influence of this new paradigms also reached international institutions. The World Bank that have been created a consensus about definitions that allowed the supervision of education globally. An extra effect was that recommendations from institutions like the Organization for Economic Co-operation and Development (hereinafter OECD) becomes more technical, focused on new and more detailed indicators to increase countries' prosperity, including disadvantaged student's achievements.

Recommendations of the OECD report (2012) suggests promoting school leadership, strengthen learning environments, create policies designed to support high-quality teachers, and encourage the active participation of parents. This approach aims to shift practices focused mainly on the reduction of rates of schooling failure. Reducing rates of failure pay off for both society and individuals, and at the same time contribute to economic growth and social development. In these type of education systems, the majority of students have the opportunity to attain high-level attainments, regardless of their own personal and socio-economic circumstances.

The education systems of OECD's countries have served as a reference for the construction of new policies aimed to maximize the benefits of education. Public policies are designed taking into account the particular contexts of each country system.

Likewise, a wide range of possibilities related to the measurement of achievement has been developed. In tandem with technological progress, proficiency tests provide information, and individual results are compared with the overall group performance to monitor and apply counteractive solutions.

A critical point in the design of educational policies is how groups and indicators are chosen to measure their performance. Learning processes are dynamic and innate characteristics of individuals make it difficult to measure outcomes. An extended strategy is early childhood interventions, given the increasing returns to investments. Likewise, it is considered that the interventions in primary have a greater impact than those in the upper levels (Carneiro et al., (2003) as cited by (Ferreira and Walton 2005: 133).

As Jimenez (Jimenez 1986: 124) claims that not all forms of educational investment' have the same level of productivity and refers to the case of developing countries. This distinction highlights the importance of the context, and differences of children across countries. Social rates of return are significantly dissimilar not only across levels of education but also across urban and rural cities.

Specific strategies are used to increase the potential gains of a competitive system. Governments invest additional resources in schools using different approaches. For example, evidence from Canada[7] shows a positive impact on achievement in mathematics by reason of public subsidies to private schools. In this paper, Lefebvre (Lefebvre et al. 2011) presents evidence that attendance at non-religious subsidized, private schools have a positive impact on mathematics performance.

Most education policies aim to subsidize the primary level of school since this level has higher rates of return as compared to the secondary level. However, the criteria to select the objectives and financial resources' amount, impact the stakeholders and the expected outcomes in a different ways. Following Mehra (1999), in some African countries the distribution of resources is not even. In some cases, the amount of the grants varied widely, but enrolment rates were high for all, including the poorest groups, with fewer subsidies: the population in the poorest quintile (mostly black) received the lowest subsidies per capita (1999: 14).

In the same way, a considerable number of public subsidies programs aim to compensate inadequate access to credit. However, as Speciale (2012) suggest, educational policies may be elitist because could increase the gap between advanced and less advanced students. This situation is particularly detrimental in the less developed countries, where the socio-economic gaps are structural, and the impact of subsidies is greater. According to Hanushek, some studies on the effect of the financial resources show that spending per student show a reduced significant and positive impact, and even some investigations suggest that the addition of resources could undermine student achievement.

Given this background, Bovenberg and Jacobs (2005) suggest that an optimal system of subsidies to education should not only fix distortions of redistributive policies (Hanushek 2010) but ensure efficient accumulation of human capital. Furthermore, they argue that "the combination of taxes and subsidies allows

[7] This paper provides specific evidence that students benefit from attend private schools. The size of the effect on the score on a math test are similar to the effects estimated for American Catholic schools.

the government to extract rents from ability with smaller distortions on human capital formation." According to some studies on the effect of the financial resources show that spending per student show a reduced significant and positive impact, and even a few of them suggest that the addition of resources could undermine student achievement.

Another issue derived from the intensive interventions to increase the rate of schooling is related to the rates of unemployment of youth. After finished the secondary or tertiary level of education, youth could be overqualified for some jobs. This concept of "surplus schooling is defined as the number of years completed minus years of schooling required by the job" (Psacharopoulos 1994: 1334).*

To establish trends and to improve school performance, policy-makers have created a series of instruments of evaluation to account for the results of the students and compare them in the international context. In 1995, the International Association for the Evaluation of Educational Achievement (from now on IEA) launched a ground-breaking test called Trends in International Mathematics and Science Study (from here TIMSS), for students in grade 3 and 4 of primary level and 7 and 8 of secondary level.

This experience led to the creation of more specialized tests such as the Programme for International Student Assessment (hereinafter PISA)[8] at 2000 and the standardized test to students of primary level Progress in International Reading Literacy Study (PIRLS) at 2001.

PISA tests emerged a joint initiative of the OECD member countries through a program for international student assessment. The target population is students of 15 years, regardless of their educational level, considering that at this age, students could transit from primary to secondary education or the job market. With results of PISA is obtained information to diagnostics and reviewing existing education policies.

The importance of the PISA tests is that it is international assessment tool of the performance for many education systems around the world. To this extent, the national scheme's goals and curriculum aimed at obtaining better results on PISA tests. Because of this, there is a strong relationship with the subsidies programms used to allocate additional resources for disadvantaged children. For example, a usual policy approach is to invest additional resources specifically in the areas of mathematics, science and reading[9] at primary school level, with the aim that students will improve PISA scores when they take the

[8] The programme PISA was created on the basis the International Socio-Economic Index of Occupational Status (ISEI); the highest level of education of the student's parents, converted into years of schooling; the PISA index of family wealth; the PISA index of home educational resources; and the PISA index of possessions related to "classical" culture in the family home. (OECD et al. 2002).

[9] These three areas are the reference for learning processes and are the common element in all Western educational systems. The PISA test had a special focus on mathematics. A subgroup of 44 countries and economies with about 85 000 students also took part in an optional computer-based assessment of problem solving (OECD 2012c).

test (Lefebvre et al. 2011: 93). The universalization of expected educational accomplishments in accordance with the level of schooling, has allowed to adapt the strategies of some countries to achieve better results in increasingly shorter times[10].

One of the main components of the measurement results is associated with basic skills. In this regard, the international benchmark is the PISA tests that measure mastery of these skills in young people aged 15 years. The results for the Netherlands showed a slight increase in the proportion of students who scored low between 2003 and 2009 (OECD 2012a). Moreover, the percentage of students with excellent results remained stable for the same period. Regarding the rates of early school, the early leavers have declined at the same time has increased the number of graduates of higher education.

The OECD points out that despite the great progress in the Netherlands, thanks to its efficient educational system, the government needs to incorporate social elements in the policies of educational subsidies. Some reports suggest that there is a persistent gap in relation to disadvantaged people unrelated to their skills, but with his family and social environment. The report of the OECD (*Equity and Quality in Education: Supporting Disadvantaged Students and Schools.* 2012) for the Netherlands, claim that in order to have a fair educational system, personal or social conditions (including family history) should not be an obstacle to achieving educational potential. This perspective also contemplates the goal of inclusion, or in other words, that all students "achieve at least a basic minimum level of skills".

The ex-post evaluations show that if segregation was made on account of the disadvantages, whether economic or by skills, it conditioned the individual - and the school- to develop in the periphery of the system. Once students are identified as disadvantaged, the label becomes permanent. This situation increases the disadvantage, despite the additional resources received by the school. According to with the OECD (2012), "the way education systems are designed can exacerbate initial inequities and have a negative impact on student motivation and engagement, eventually leading to dropout. Making education systems more equitable benefits disadvantaged students without hindering other students' progress."

With the wide broadcasting of achievement's' results, different actors have become more involved in the design of educational policies. In the case of the Netherlands, the CITO test is used to measures national results in the areas of the Dutch language, English, numeracy and mathematics, and world orientation (history, geography, science and social awareness, and citizenship).

In the report Equity and Quality in Education (2012b), the OECD recommended policy options for the Netherlands. According to this report, still exists a significant difference between schools in 15-year-old students' performance.

[10] Singapore and Korea are the highest-performing countries in problem solving, with mean scores of 562 points and 561 points, respectively. The Netherlands (511 points) score above the OECD average, but below the former group of countries. Among OECD countries, the lowest-performing country, Chile, has an average score of 448 (OECD 2012c: 53)

The report suggests that despite the efforts of the government to bring equal opportunities to the students, schools are selecting students based on their academic ability.

Most literature on the effects of subsidies in the Netherlands reference to specific interventions, which is applied into selected areas or schools, like effects in teacher retention and hiring rates (El Allaoui 2013b), school reforms in Amsterdam (Leuven et al. 2007). The Dutch subsidy system, in general, shows positive results, but the effect on the individual level is still under discussion, given the diminishing marginal effect.

Chapter 3
Dutch Education System

The school system in the Netherlands is based on the autonomy of schools, which receive government resources equally, regardless of type. The system is designed to achieve a high quality education for all students. On this regard, the subsidy system has been aimed at two targets: disadvantaged students, and schools with a high proportion of students from low socio-economic status or immigrant background.

Reformed in 2006, the new extra-funding policy focuses on disadvantaged students to compensate specifically for weaknesses related to the low educational level of parents. Through a system of weights, schools aim to improve less advantaged student's achievement[11]. Schools can autonomously invest the additional resources received per each disadvantaged student that is enrolled in the school.

However, the results of CITO test and PISA test show a persistent gap between the group of native students and pupils with an immigrant background. This gap in student's achievement is not necessarily associated with student status at a disadvantaged.

Education Scheme in the Netherlands

The education system in the Netherlands has achieved high standards in quality with outstanding achievements in international test scores results. Principally, flexibility and availability of financial resources confer qualities above the average of developed countries[12]. For the analysis of the Dutch education system, it is necessary to consider its particularities that do not allow easy comparisons with other education systems. Based on freedom of religion and belief, with an active participation of parents and community, the Dutch education policy for students with a migrant background aims to improve education for disadvantaged students (Akkerman 2011).

The education scheme is characterized by having wide coverage, with multiple learning options for students, regardless of their socio-economic status or ethnicity. Thanks to a continuous and strong investment policy, spending on education has enabled schools to have an adequate infrastructure and sufficient

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[11] The current system includes two categories of subsidies: weighting factor of 0.3 (for pupils whose parents have no more than lower education training/ prevocational qualifications); and weighting factor of 1.2 (for pupils who have one parent with only a primary education and one parent with no more than lower education training).

[12] Since 2009, total public expenditure as a percentage of GDP has located close to 5.70 percent. Statistics Netherlands. Accessed 28 September 2015 < http://www.cbs.nl/nl-NL/menu/home/default.htm>.

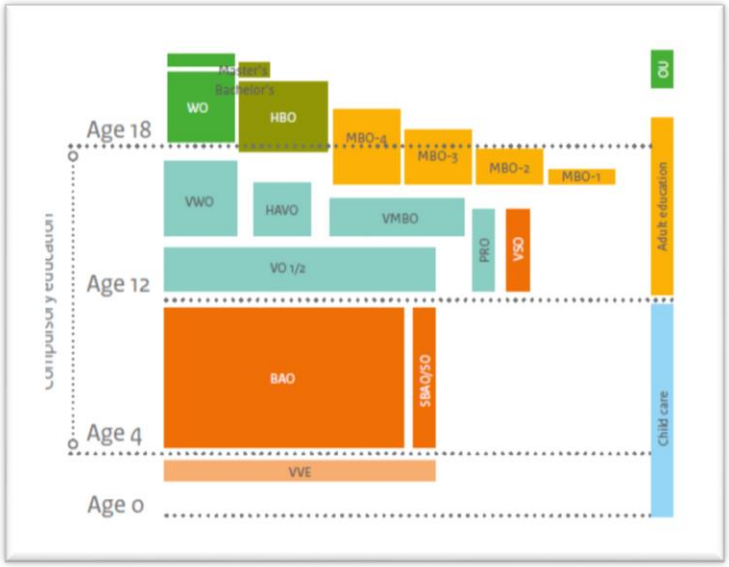
administrative staff[13]. The constant monitoring of academic results has meant that the percentage of schools with weak performance has steadily decreased[14].

In a complex and balanced scheme between government goals and autonomy of schools, the allocation and distribution of resources are efficient and well-timed. With a coverage of 100% for elementary schools, it promotes the parental involvement in decisions related to the operation of schools. Public schools receive from the government equal public funding, grants for operating and staff costs, according to the number of students. Schools with students from disadvantaged socio-economic backgrounds receive additional funding. Other sources of financing include voluntary contributions from parents or companies, especially in private schools (OECD 2015). As a result, there are barely any variances in terms of quality, between public and private schools (Hartog et al. 1999).

Dutch schools have autonomy to design the curricula and select the type and teaching models. Schools are under the supervision of the Education Inspectorate, which reviews financial aspects as profitability, solvency, and liquidity, as well as the academic performance of students. Government interventions are reduced and only presented in a few cases.

The educational scheme comprises a school-based level and two work-based vocational training programmes levels: Childcare, Adult Education, and Open University.

Figure 3.1. Dutch School System[15]



[13] According with the OECD, the national spending on educational institutions as a percentage of GDP rise from 5.7 in 2008, to 6.2 in 2012. ('Key Figures 2009-2013'2014: 23). This level is above the average of the OECD countries.
[14] According to the Inspectorate's assessment, the percentage of weak primary schools decreased from 3.8% in 2011 to 2.0% in 2013 ('Key Figures 2009-2013'2014: 9).
[15] 'Key Figures 2009-2013'(2014) . Netherlands: Dutch Ministry of Education, Culture and Science.

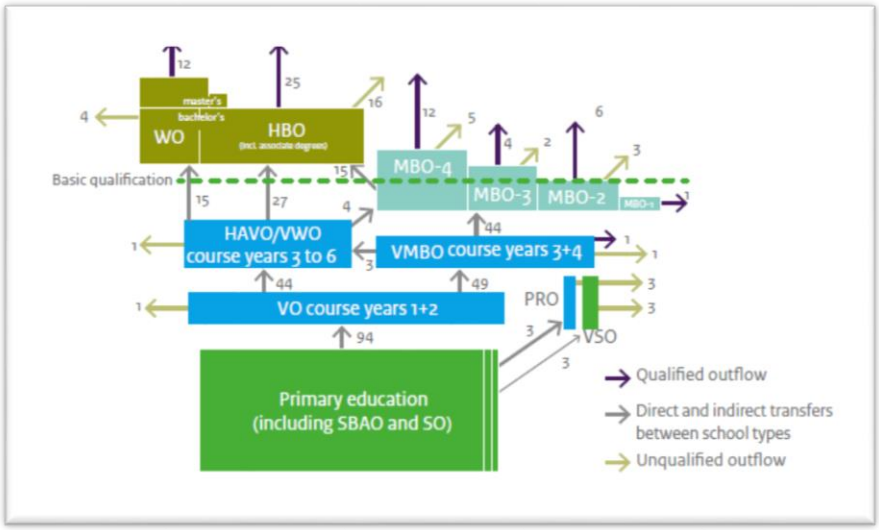
Figure 3.1 shows the general scheme of the Dutch Education System, including the expected age of transitions between the different levels.

The primary level includes: (i) Pre-school and early childhood education (VVE) focused on children of 2.5 – 5 years old at risk of develop an educational disadvantage; (ii) Basic primary education (BAO) for children of 4-12 years old; (iii) and an additional level focused on children that require compensatory education, called special primary education (SBAO).

The transition between primary and secondary education is a core milestone in measuring the impact of policies on equity and aid to disadvantaged students. Regarding the choice of secondary school to continue the learning process, the persistence trend is a higher proportion of pupils with an immigrant background advised to follow the vocational program.

Figure 3.2 illustrates the expected transitions in the Dutch education System for 2012. According to the Minister of Culture ('Key Figures 2009-2013'2014), after finishing the elementary school, around 94 of each 100 students transit to the secondary education: 44% students to the HAVO/VWO level and 49% to the VMBO level. Then, students who successfully complete secondary education can move to the vocational, professional higher education or to the master's level. At the end, 12% of students enrolled at the primary school earn a WO diploma; 25% earn an HBO diploma; and 22% a basic qualification in MBO or an MBO diploma at level 2 or higher.

Figure 3.2. Movements in Dutch education. Cohort of pupils leaving primary education, 2012 (In percentages)[16]



[16] 'Key Figures 2009-2013'(2014) . Netherlands: Dutch Ministry of Education, Culture and Science.

After finishing the primary school, students can transit to the secondary school, based on the results of the CITO test and the advice of the teacher[17]. This CITO test is taken by the students in the last year of primary school and is used, in conjunction with the advice from the teachers, to recommend the pattern to transit to the secondary school scheme.

The results of the CITO test have a great impact on Dutch society because it involves many stakeholders. If CITO test scores of students enrolled in a particular school are low, the school enters an evaluation period. With the advice and monitoring of an appointed inspector required changes are initiated to raise the level of student performance. In case the school remains weak in the next period, the inspector has the power to withdraw the operating license and relocate students in other schools. As well, the results of the CITO test are a key element for the advice of teachers about high school options for students.

Above all, the structure of the education system aims at achieving a high rate of success, meaning that a high percentage of students enrolled to obtain a studies' diploma[18]. The educational goals are closely linked to the labour needs of the country and it is intended that students are prepared to fill the future vacancies.

The Dutch system of extra funds includes subsidies for school fees, student grants and loans. The purpose is to compensate the students and their parents for expenses incurred on materials, transportation, and registration, among the others. The outputs of the Dutch education system show high rates of enrolment, retention, conclusion, and learning. The educational system aims to address the needs of society, one of the key development of a country social functions. In the case of subsidy programs, it seeks to improve the results of school achievement of students most disadvantaged, thus achieving an improvement in overall system performance.

Likewise, students with disabilities receive subsidies that allow them to participate in the regular education. The government also subsidizes preschool and child care centres. The transport service companies receive tax benefits and subsidies[19].

The final school's budget, including the extra funding for disadvantaged students, is spent autonomously by the school's authorities. Schools may use this extra subsidy for any number of purposes, such as class size reduction or extra pupil tutorials. The Dutch system makes a distinction between special education, focused on students that have special needs (handicaps, disorders or illness) and

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[17] The CITO test is not a pass or fail test. The scale of the test is a guide for their transition to secondary school. Students who score lowest, are aimed at the vocational school. Nevertheless, the purpose of the system is not that all students transiting the academic level, but achieving a balance among students who travel to either system (vocational or academic), to fill the future vacancies in the labour market.

[18] In 2013, the expected success rate in secondary education (VO) was 85 per cent; in intermediate vocational education (MBO) was 73 per cent; in professional higher education (HBO) was 69 per cent; and in academic higher education (WO) was 76 per cent ('Key Figures 2009-2013'2014: 14).

[19] CBS website. Accessed 28 September 2015 <http://statline.cbs.nl/ >.

students with disadvantages (parents' level of education). To calculate the financial contribution to schools, each pupil has a weighting factor. This specific subsidy system is the focus of the present analyses.

Subsidies to Disadvantaged Students

The Netherlands is characterized by a high percentage of the migrant population, especially from countries like Morocco and Turkey. Previous education policies were aimed to have a higher level of integration with the native population. To compensate differences among students, in 1984 was conceived the Dutch subsidy program based on a weighting factor. In its initial phase, the subsidy policy was focused into allocating extra financial resources to schools with a high proportion of disadvantaged students, considering three main criteria: student's country of birth, education level of parents and parental occupation. Consequently, disadvantaged schools received supplementary financial resources according to the weight of each criterion to reduce the impact of these factors on the educational achievement of students.

Since then, the program has been reviewed and adjusted to respond to demographic changes so as to government goals. Following the recommendations of the OECD and the results of PISA, educational policies have been focused primarily on preventing and combating dropout and offset the disadvantages of students, especially those related to socioeconomic and cultural factors.

Given that the first years of study are crucial for children's development, all the factors related to the socioeconomic characteristics have an important impact on the learning process of the student. Initial conditions determine if the pupil needs extra support. The category of "disadvantaged" is assigned when the student is admitted into the school if one or both parents have a low level of education. However, that also could imply that even though disadvantaged student' parents obtain later a secondary degree, the student will be considered on disadvantage permanently hence individual tracking demand extra time and financial resources that not always are available for the teachers and administrative staff.

As an indicator of vulnerability, the selection of the disadvantaged students is based on the concept of education as a production process Hanushek, E. (2010) 'Education Production Functions: Developed Country Evidence'. Following this approach, the output becomes in an essential component of the education policy design. Reviewing different aspects of performance (student learning), achievements (highest educational level attained) and impact (long-term benefits to society), is possible to increase the quality of the educational system as a whole. In point of fact, student's performance is one of the most used indicators to measure the quality of the outputs.

In relation to the parents, there are some main aspects to consider: parents' school choice could be influenced by their social background, and they tend to select schools with similar characteristics. In the Dutch case, despite the different strategies implemented, there remains a segregation of schools based on the origin of the parents (native/non-native). Likewise, it influenced by the fact that

there is a high proportion of immigrants in certain neighbourhoods, and, therefore, this ratio is reflected in school's population (preference of unique culture schools over multicultural schools). Similarly, the level education of parents is a critical factor in the education selection. Parents with a high level of education seem to choose a school using information about the quality. This aspect is particularly relevant in the Dutch context. Since the system provides a similar level of quality across all schools, aspects related to parents' level of education could have a higher weight.

Regarding students, the Dutch government has implemented a series of policies that have been reinforced system on all dimensions. The concept of disadvantaged has evolved in tandem with the development of new theories and instruments. In the Dutch case, despite the changes implemented, the group of students with an immigrant background still scoring below the levels of native students, especially in language. However, compared with other OECD countries these values are close to the average (OECD, P. (2012c) 'Results: Creative Problem solving–Students' Skills in Tackling Real-Life Problems, Volume V'.

To analyse these trends, an important issue is the role of language and early child care. The children of migrants are learning the Dutch language in a different context than natives, which determines different patterns of development. At present, the characteristics of immigrants have also evolved. The proportion of highly educated migrants has increased, at the same time his command of the Dutch language. This process has helped to integrate better with the native community with a positive impact on the academic performance of their children.

On regard to the school's budget, it is based on the number of students enrolled. Each school receive the same amount of money per student, and additional funds for students with special needs and disadvantaged students. All students at the primary level receive a weighting factor equal to 1. Disadvantaged students receive an additional weight, according to the two categories, established in 2006: (i) a weighting factor equal to 0.3 for pupils whose parents have no more than LBO (training lower professional) / VBO (pre-vocational education) and (ii) 1.2 for students who have a parent with only a primary education and one parent with no more than LBO / VBO.

Before to 2006, disadvantaged students received additional resources taking into account four criteria: (i) Dutch pupils whose parents had a low level of education (0.25); Bargees' children (0.4); Caravan dwellers' and gypsies' children (0.7); and Ethnic minority pupils whose parents have a low level of education (0.9).

The system involved the allocation of subsidies for additional resources disadvantaged students through schools, to compensate for differences with the rest of the group. Each school had the autonomy to allocate resources as it seems appropriate. With the reforms of 2006, subsidies have focused more on disadvantaged students, rather than on disadvantaged schools, as well in the level of education of parents, no matter the ethnic background.

Table 3.1. Current Weighting System in Primary Education[20]

Subsidy System in Primary Education – After 2006	Weight
Pupils whose parents have no more than LBO (lower education training) / VBO (prevocational education) qualifications	0.3
Pupils who have one parent with only a primary education and one parent with no more than LBO/VBO qualifications	1.2

The new scheme was implemented in phases, applying it to each new cohort regarding age, so in October 2009 all students were under the new scheme. The proportion of students with a weighting factor of 0.3 decreases from 7.6 in 2009 to 5.9% in 2013 (87,400 students). The proportion of students with a weighting factor of 1.2 were 10.9 percent of the enrolled students in primary school (73,800 students) 'Key Figures 2009-2013'(2014) 'Key Figures 2009-2013' Netherlands: Dutch Ministry of Education, Culture and Science. : 44.

While it is true that the current system guarantees education for all, with the flexibility to access to different educational levels, offset disadvantages based on the educational level of the parents could be considered a constraint to identify other factors that influence the balance between education's quality and equity.

The proportion of migrant students who transit to the vocational level, according to their CITO scores and teacher's advice is still above the levels of native students. Establish clear grounds for these trends is not easy, especially when the system changes affect all students regardless of their ethnicity. In the last decade, the percentage of students with immigrant background selected to continue on the academic level has increased, however, the proportion of native's students that transit to this level also is rising, so the gap persists ('Key Figures 2009-2013'(2014) . Netherlands: Dutch Ministry of Education, Culture and Science. As for the transition from primary to secondary school, the gap persists between native and immigrant students.

In brief, in the Dutch case, the concept of disadvantaged students is intrinsically linked to the migrant community, taking into account their differences with the native community, especially difficulties associated with the non-Dutch speakers. However, the results of the interventions have not been as expected. To the extent that educational policies have focused more on the weaknesses of the students, have failed to meet minimum goals, sacrificing the potential of students who are at the top limit of the system. Thus, the constraints affect not only outstanding students, who receive benefits, yet are limited by the system, but also to disadvantaged students, who have to adapt to the demands of the system and not on their owns needs.

[20] From Key Figures 2007-2011, Education, Culture and Science, Information Department of the Ministry of Education, Culture and Science, p. 218.

Chapter 4
Data

To analyse the effect of the weighting factor on student's performance and selection of level to transit to secondary level, the present paper uses information from students in group 8 for each one of the three COOL reports. As group 8 corresponds to the group that is about to enter high school, this selection allows us to use information about student's characteristics, the results of CITO test (total score and scores for language and mathematics, study skills, and knowledge of the world), and teacher's advice.

Data source

The current research is based on cross-section data from three surveys - COOL5-18 for the years 2007, 2010 and 2013, available on from the website of EASY / DANS[21]. The databases include the CITO test results as well as information about cognitive development, social skills and social-emotional development of students.

Since 2007, the Netherlands Organization for Scientific Research (NWO) and the Ministry of Education, Culture and Science prepare triennial technical reports called Cohort Survey School Careers COOL5-18 (Hereinafter COOL). Additional data are collected using a specific questionnaire, to monitor, describe and explain the children' process of learning during the school career. These measurements provide a snapshot of the situation of students at any given time, contributing to the development and review of educational policies.

The selection of COOL databases for the present analyses is due to the particular characteristics of the reports, as well its composition, representativeness, availability and reliability. Considering that most of the investigations about the pupils' performance has focused on the outcome of the evaluations, the inclusion of other variables could help to identify more relevant characteristics associated with the most vulnerable children.

The COOL study is the successor of the VOCL and PRIMA studies (1994-2005) that included only students of primary level (until 12 years of age). Since 2007, studies began to be presented every three years instead of two years. In PRIMA, the analyses included groups of students in grades 2, 4, 6 and 8. COOL survey selection includes students from groups are 2, 5 and 8.

At present, three technical reports are available. As the first cohort under the new COOL scheme is now at the beginning of the secondary level of education, it is expected to have information about these students in the COOL

[21] Data Archiving and Networked Services (DANS) promotes sustainable access to digital research data and EASY offers sustainable archiving of research data and access to datasets. DANS is an institute of The Royal Netherlands Academy of Arts and Sciences (KNAW) and The Netherlands Organisation for Scientific Research (NWO). https://easy.dans.knaw.nl/ui/home

2016 survey, allowing a detailed tracking of student's transition process for the first time.

Table 4.1 Total number of pupils per year

	COOL$^{5-18}$ 2007	**COOL$^{5-18}$ 2010**	**COOL$^{5-18}$ 2013**
Total students	38,060	37,779	28,529
Total Group 8	11,609	12,538	10,058

Table 5.1 presents the total number of students surveyed from each COOL report, as well the number of students that belongs to the group 8.

Each COOL database contains twelve sub-datasets with observations from a representative sample of primary school students.

- *Sub-databases 1- 3:* contain information about a pupil's profile, family composition, socioeconomic status, ethnic background,
- *Sub-databases 4 – 6:* include information about the questionnaire filled by the teacher (postural and behavioural characteristics), citizenship skills, and the results of the non-school learning capacities test.
- *Sub datasets 7 – 12:* contain information about parents, school, care profile, the CITO test results, and the advice for transit to secondary education.

To prepare COOL reports the surveys draw on a representative national sample of schools and an additional sample of schools with high concentrations of immigrant children and natives with lower socioeconomic status. COOL survey is not a census but a sampling study. For each measurement, an invitation is sent to the previously selected schools. The number of schools has varied over the years, and attempts are made to involve about 30% of schools that have participated in the immediately previous measurement. However, the number of students that have participated in the three measurements is quite low.

For the school selection it is taking into account criteria such as the location of the school, the province, the degree of urbanization and the school score, based on the socio-ethnic composition of its student population.

In terms of student's age, in each of the three groups (2, 5 and 8), numerous aspects of language development and mathematics are evaluated, according to with the level of attainment expected.

- *Group 2*: evaluated the conceptual knowledge and metalinguistic awareness, and abilities to classify, serialization, and compare and counting.
- *Group 5*. The survey includes the development of written language vocabulary and reading comprehension. The arithmetic test includes numbers and numerical relationships; mental calculation; complex applications; measurement and geometry; time and money.
- *Group 8*. Issues of interest are vocabulary development in written language and reading comprehension. Test arithmetic/math includes areas

of numbers; basic operations automation; mental calculation; operations on paper; fractions; relationships; percentages; measures; geometry and time[22].

A further section of the COOL questionnaire investigates the student profile[23] about four specific items. Teachers were able to give their opinion about each student in their class with respect to pupil performance; behaviour; relationship with the student; background of the learner; care and other educational characteristics; the character of the student. To answer teachers could choose from five possible answers: (1) definitely false, (2) untrue, (3) is not false, not true, (4) where, and (5) definitely true. The questions of this section correspond to previous PRIMA survey, to allow comparability. The teacher has five possible answers for each item: (1) definitely false, (2) untrue, (3) is not false, not true, (4) where, and (5) definitely true. A high score in *behaviour* or *attitude* means a positive behaviour or work habits; a high punctuation to *underachievement* means a high degree of poor performance.

The second section of information contains 15 questions about the relationship of the teacher with the student. Teachers grade their relationship with the students: dependence (teacher-child) conflict (teacher-student), proximity (teacher-student). The COOL studies also include a new dimension related to the family environment, like the language of colloquialism with parents and friends, and involvement of parents in the school's activities, among other characteristics.

The part about citizenship skills competency applies only to Group 8 and includes four components: knowledge, reflection, skills, and attitudes. The questionnaire about the family background of the student is filled by parents or tutors and includes data on religion and language.

One of the key requests of the questionnaire of interest for the present analyses concerns to the most likely recommendation to transit to the secondary level of education. Students that finished the primary level have four options of schools: (i) professional VMBO, (ii) theoretical VMBO, (iii) HAVO, and (iv) VWO. Teachers have the option of advice one or two options. This recommendation has a considerable effect on the student career because it determines the track to follow: academic or vocational. It is expected that future measures, including data on their performance in school, provide additional elements of the impact of the policies implemented.

Data sample

In a first stage, the twelve sub-databases of each of the three COOL measurements were compared to identify and standardize the variables. While the tech-

[22] The test results for each year are not comparable because students take different versions of the mathematic and language test. For example, the language test of 2010 was less difficult that the test from 2007.

[23] This block in the learner profile consists of 13 questions on student performance and student behaviour. These scales were already tested in PRIMA survey.

nical specifications mention that each of the bases contains the same information, at the level of the sub-databases the encoding system changes from one year to another. As a consequence, in a second stage, after identifying common variables to all three reports, the data was unified at the level of the student's observation and the variables were codified. In the last stage, the variables of interest are selected from eliminated missed observations. At this stage, for each year, databases are reviewed and are discarded student's observations that do not have information about the CITO test or teacher's advice.

Further considerations were taken into account to unify the information related to missing observations. Each sub-database contains a unique identifier per student, which allows to follow the student along the sub dataset. Specifically, for 2010, the sub-databases of parents is only available for students in group 2. To this complete the sub-databases for 2010 is used the sub-dataset of parents from 2007, matching the information from students of the group 5 with the information of students from the group 8 of 2010. This option reduced the size of the 2010 sample considerably.

Likewise, in 2013, a description of the schools is presented in the COOL technical report, but the observations are not available at the sub-dataset level. In this case, it uses the information about schools from 2007 and 2010 to match the data about schools. Despite being considerably reduced sample, information from to 2013 is part of the sample with the aim to identify possible trends.

Table 4.2 Total number of pupils selected for the sample

	COOL$^{5\text{-}18}$ 2007	**COOL$^{5\text{-}18}$ 2010**	**COOL$^{5\text{-}18}$ 2013**
Total students Group 8	11,609	12,538	10,058
Final Sample	5.226	1.971	388

The CITO results are available for most schools that participated in the COOL measures, which compares the performance of disadvantaged students before and after the reform of the subsidy system.

To build the cross section data**,** after encoding values for each variable and unify dummy variables, are created additional variables of interest. The added value of the final sample is that combines the CITO test results, among other variables that usually are not available to follow the children's performance, including the teacher's advice and data related to the family and the school. The selection of this dataset also takes into account that COOL5-18 reports have a solid technical quality, and are representative of the students at national level.

Variables

After control for missed observations, and comparability between years, the selected variables for the present analyses are:

- **Student's Profile:** Gender; Year of Birth; Weighting Factor; CITO score in the final test; CITO Maths, Teacher's advice.

- **Student's Performance, Behaviour and Attitude:** Underachievement; Behaviour; Attitude; Popularity in the classroom; Socioeconomic Status.
- **Family Characteristics:** Country of birth mother/father/child; Highest diploma mother/father; Highest training – mother/father; Family composition; Older children at home; Length of stay in the Netherlands mother/father/child; paid job (more 12 hours per week) mother /father; Church- faith mother/father/child; Language of colloquialisms (with mother/father/ brothers-sisters/ friends/ parents themselves); Level understand, speak, read and write Dutch (mother/ father).
- **School's Characteristics:** Province; Urbanity; School score; Denomination

Table 4.3. Overview of Selected Variables

VARIABLE	VALUES
Student's Profile	
CITO score in final test	0=Score below 536 points; 1= Score above 536 points
Education advice	0=Transit to VMBO; 1= Transit to HAVO/VWO
Gender	0 = Girls; 1 = Boys
Weighting Factor	0 =Non-Disadvantaged; 1 = Disadvantaged
Student's Performance, Behaviour and Attitude	
Socioeconomic Status	0 = unknown; 1 = max LBO immigrants; 2 = max LBO native; 3 = max MBO immigrants; 4 = max MBO native; 5 = HBO / WO immigrant; 6 = HBO / WO native
Country of birth mother/father/child	1=The Netherlands; 2=Suriname; 3=Antilles Aruba; 4=Moluccas; 5=Turkey; 6=Morocco; 7=Former Yugoslavia; 8=Former Soviet Union; 9=Poland; 10=China; 12=Iraq; 13=Afghanistan; 14=Somalia; 15=another Western country; 16=other non-Western country; 17=other countries
Highest diploma mother/father	0 = unknown; 1 = No Diploma; 2 = LBO/VBO Diploma; 3 = MULO/MAVO Diploma; 4 = HAVO/HBS/MMS/ VWO/ATH/gym Diploma; 5 = MBO/KMBO/LLW Diploma; 6 = HBO Diploma; 7 = WO Diploma
Highest training – mother/father	0 = unknown; 1 = No Diploma; 2 = LBO / VBO Diploma; 3 = MULO / MAVO Diploma; 4 = HAVO/HBS/MMS /VWO/ATH/gym Diploma; 5 = MBO / KMBO / LLW Diploma; 6 = HBO Diploma; 7 = WO Diploma
Family composition	Complete family = 1; Single parent =0
Older children at home	
Length of stay in the Netherlands mother/father/child	1 = < 1 year; 2 = > 5 years; 3 = 1-3 years; 4 = 4-5 years; 5 = always
paid job> = 12 o'clock mother / father	0 =no; 1= yes
Church- faith mother/father/child	0 =no faith; 1= faith

VARIABLE	VALUES
Colloquialisms child with mother/father/ brothers-sisters/ friends/ parents themselves	0 =other language; 1= Dutch
Level understand, speak, read, write Dutch – mother / father	Command of Dutch (Scale of achievement between 0 and 5)
School Characteristics	
Province	1 = Drenthe; 2 = Flevoland; 3 = Friesland; 4 = Gelderland; 5 = Groningen; 6 = Limburg; 7 = Noord-Brabant; 8 = Noord-Holland; 9 = Overijssel; 10 = Utrecht; 11 = Zeeland; 12 = Zuid-Holland
Urbanity	1 = Non-urban; 2 = Moderate urban; 3 = urban; 4 = Strongly urban; 5 = Highly urbanized
School score	1 = 100-104; 2 = 105-109; 3 = 110-119; 4 = 120-139; 5 = 140-159; 6 = 160-220
Denomination	1 = public; 2 = other particular; 3 = Protestant; 4 = Roman Catholic

Descriptive statistics

The composition of the sample for the analyses is presented in Appendix A. It contains data on the number of observations, mean, and standard deviation for covariates and outcomes, including the CITO test and the results of math, language, student skills, and world sections.

Table 5.4 shows the distribution of the sample for the present analyses, considering the weighting factor, gender, and country of birth of student's mother. Annex A provides descriptive statistics for the selected variables from COOL sample for student's group 8 (observations, means, and standard deviations).

Table 4.4. Sample Distribution by weighting Factor and Student Mother's Birth Country

Mother's Birth Country	Weighting Factor	2007		2010		2013		Total
		Girls	Boys	Girls	Boys	Girls	Boys	
The Netherlands	Non-Disadvantaged	1,376	1,457	617	586	122	109	**4267**
	Disadvantaged	471	387	128	136	25	11	**1158**
Other Country	Non-Disadvantaged	108	115	114	100	30	34	501
	Disadvantaged	561	539	123	107	29	22	1381
Grand Total		**2,516**	**2,498**	**982**	**929**	**206**	**176**	**7,307**

Table 5.5 shows the CITO average results for the girls and boys, with the status of non-disadvantaged and disadvantaged, according to the mother's country of birth, for each one of the years.

As regard to the CITO scores, the Total score average shows a steady increase between 2007 and 2010. On another hand, the average results from the Maths section show a decrease. The standard deviation of all the observations is constant for the three years.

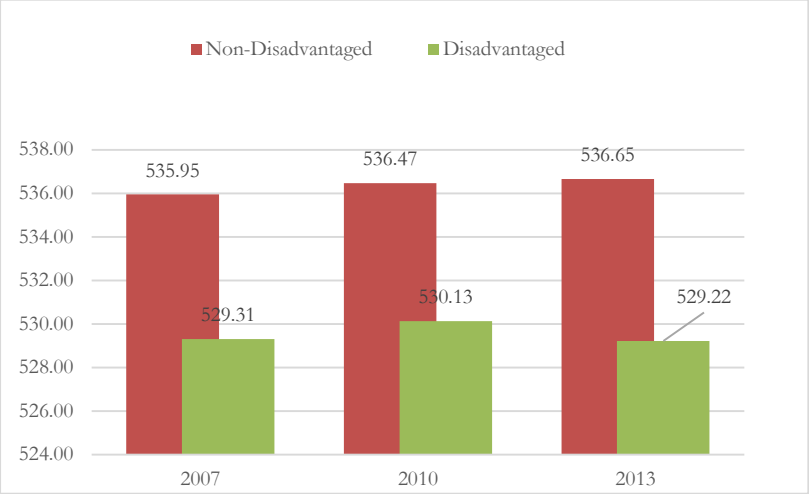
Table 4.5. Total CITO Score COOL5-18

	COOL	Obs.	Average	Standard Deviation	Min.	Max.
CITO Score	**2007**	**5226**	**533.33**	**10.242**	**501**	**550**
	2010	1971	534.88	9.482	501	550
	2013	388	535.03	10.799	501	550
CITO Maths	**2007**	**5169**	**42.45**	**10.996**	**3**	**60**
	2010	1901	42.32	11.005	8	60
	2013	387	41.89	11.143	6	60
CITO Language	**2007**	**5175**	**71.11**	**13.979**	**3**	**100**
	2010	1906	74.09	12.476	4	100
	2013	388	72.86	13.720	17	98
CITO Study Skills	**2007**	**5151**	**28.72**	**6.515**	**1**	**40**
	2010	1897	29.21	6.279	6	40
	2013	388	29.68	5.918	11	40
CITO World	**2007**	**4405**	**60.82**	**13.440**	**3**	**90**
	2010	1401	64.07	12.427	22	90
	2013	251	60.45	13.398	19	85

The difference in the number of observations for the CITO World score is because this section of the CITO test is optional and many schools choose to do not present it.

Differences in average CITO results for the two groups of students, i.e. among those receiving and those not receiving the subsidy, is an average of 6.5 points lower for disadvantaged students. The tendency for both groups shows a small increase in the average, except for the disadvantaged group from 2013 with a slight decrease of 0.91 points compared to 2010.

Figure 4.1. CITO Score Average – Disadvantaged and Non-Disadvantaged Students



With respect to schools, on average the CITO scores from schools with a predominant population of students with immigrant background (school score equal to 5) shows lower results compared to the schools with a higher native population (school score equal to 1), except for 2013, showing a marked increase in the categories 4 and 5.

Figure 4.2. CITO Score Average by School Score

For 2010, the scores of disadvantaged students are higher compared to 2007; the results of non-disadvantaged students also rise, so the gap remains at similar levels.

The aim in the selection of schools for COOL measurements is to obtain a balance representation of children's gender and in the sample selected for the present analysis that proportion is similar (48% boys and 52% girls).

For the full sample, the average age of students is 11.43 years. Approximately 92% of families are composed of a father and mother, considered as a complete family. In the total sample, approximately 30% of students are enrolled

in public schools, 11% in Protestant-Catholic schools, and 20% in Roman Catholic schools. About 75% of the mothers and 71% of fathers are from Netherlands.

The level 4 of socio-economic status has a large representation for three years, close to 35% of the population. In the sample, 13% of the students belong to a lower socio-economic level. In Annex B is presented the school's population distribution by a weighting factor, for the three COOL years.

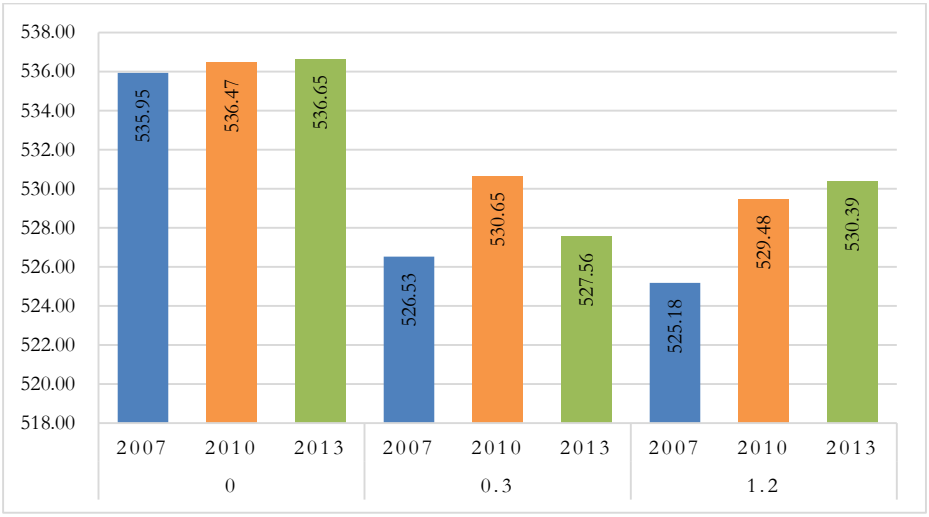
Under the new scheme, schools with a score equal to 4 have the highest percentage of pupils with a weighting factor of 1.2. The simplify version of the subsidy system includes just two categories. The effect is a reduction of the students considered as disadvantaged. For 2007, the percentage of students without a subsidy was 70%, and increase to 75% for 2010 and to 77% to 2013.

The population with migrant background still in the lowest quartile in performance results and the proportion of students who passes the academic level is significantly lower than the native population.

The more advanced students seem to have a teacher's advice to follow the academic track at the secondary level. This option enables them to transit to the higher education. Students who are selected for the vocational option have the possibility of transit to the academic level, but only after fulfilling the requirements of each level, and it is unlikely given the constraints of time and money (the government subsidizes education until a child is 18 years-old).

Figure 5.3 present the average CITO score for the three categories: non-disadvantaged (weighting factor =0), and disadvantaged students (weighting factor =0.3 and 1.2)[24].

Figure 4.3 Average CITO Test Score vs. Weighting Factor - COOL 2007, 2010, 2013



[24] In order to identify trends, weighting factor categories equal to 0.4, 0.7 and 0.9 are not included in this graphic.

On average, CITO score results have improved for all categories of students (non-disadvantaged and disadvantaged students). The decline in the CITO score average for the weighting factor 0.3 should be interpreted with caution, given the small sample size for 2013.

The differences in the averages of the categories 0.3 and 1.2 for 2007 show a variation of 1.35 points while the difference between these categories and the category "unsubsidized" is 9 points. The similar gap continues for three years.

Overall, the characteristics of students for the various categories of subsidies show no major differences in performance results. However, there is a gap between this group and unsubsidized students.

Chapter 5
Empirical Strategy

The most important expected effect of subsidies to disadvantaged students is an increase in student's achievement. Most of the subsidy schemes predict increases in benefits not only for the students but for the overall system, according to the concept of disadvantage student applied. However, to structure the subsidy scheme should take into account the context and the applicability thereof.

It is assumed that the additional school's funding are effectively used to compensate disadvantaged students, for example through free lunch programs or through computers. The probability for disadvantaged students to achieve better academic results is defined by the cumulative distribution of factors that outweigh their weaknesses. If the student has free access to a school near his/her residence and has extra hours of tutoring, there is a greater chance of a better performance in relation to a student who does not have access to these benefits. Consequently, the gap in academic's achievement between best students and those receiving subsidies tends to reduce it.

In the Dutch case, the budget for education takes into account the differences in socioeconomic status, access to schools and incentives for teachers, among others. The system of subsidies to compensate disadvantaged students target students' parents with a low educational level specifically. Although the program, in its different versions, has been running for over 30 years, demographic changes and the generation of new educational goals at international level had implications on the structure of the program.

Despite the fact that Dutch schools do not report significant impacts associated with this particular subsidy scheme, they considered necessary to continue receiving these additional revenues. Nonetheless, the impact of the subsidy system is ambiguous for disadvantaged students (Leuven et al. 2007). Therefore, there is a probability that the expected effects of the policy could be affected by the administrative decisions of the school board, related to the extra funding investments

As the subsidy program is associated with a positive impact on academic results, it is expected to translate into an increase in the rate of transition to the academic level of secondary education, as well to the tertiary level. Consequently, this empirical analysis focuses on two probabilities associated specifically with the subsidy scheme to disadvantaged students: (i) improved CITO test scores; (ii) greater probability of moving to the academic secondary school.

Methodology

The present analysis examines the link between subsidies and achievements, based on databases of the three technical reports COOL5-18, from 2007, 2010 and 2013. The selected observations are from students of group 8 of each year.

Recent studies show that the influence of Dutch students additional funding to disadvantaged would have a minimal impact on student achievement (Leuven, E., M. Lindahl, H. Oosterbeek, D. Webbink, Humanistisk-samhällsvetenskapliga vetenskapsområdet, Nationalekonomiska institutionen et al. (2007) 'The Effect of Extra Funding for Disadvantaged Pupils on Achievement', *The review of economics and statistics* 89(4): 721-736. Children of parents with low education level tend to get lower scores than children of parents with higher education level. However, only the use of this criteria as an indicator of disadvantage diminish the importance of other attributes such as language and colloquialisms used with family and friends, as well as other skills or disadvantages.

COOL Technical reports indicate that students with an immigrant background who study in schools with high concentrations of students with low socioeconomic status tend to score lower on the CITO tests that native students placed in schools with a low concentration of migrant students. It is considered that the differences between the two groups are compensated by subsidies. However, additional student characteristics can distort the effect of the subsidy. For example, if colloquially speaking with his parents in a language other than Dutch, the probability that the test score is low language is greater, and consequently the final CITO score[25].

To analyse the effect of the current subsidy program for Dutch disadvantaged students, the paper relies on a probit model to estimate (i) the probability that a student scores higher than 536 on the CITO exam and (ii) the probability that a student transits to the academic level of secondary education.

The first consideration for the model is that according to the Dutch subsidy scheme, disadvantaged students are receiving an additional extra funding to compensate weaknesses, besides the basic budget per pupil[26]. Under this statement, it is expected that students with the highest weighting factor (1.2), obtain better results than peers with similar characteristics, but are out of the subsidy scheme.

A second consideration is that CITO test score is selected as an independent variable, taking into account its importance to measure student's performance, as well as the role in the student's options to transit to the secondary level. CITO score helps teachers and parents to choose the most suitable option for the pupil, and usually teacher's advice is in the same line as the CITO test results. The four components of the exam CITO realize student achievement in the areas of Language, Arithmetic/Mathematics, Study Skills and -optional- World Orientation, but it is the final score that determines the category that the student must follow.

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[25] The government guarantees access to language courses for parents, to promote the integration with the native community and facilitate the learning process of students. However, first language in families with immigrant background plays a major role.

[26] For 2013, the government expenditure was about 6,400 euros per primary school pupil ('Key Figures 2009-2013'2014: 40).

In order to assess the validity of the subsidy system, this analysis aims to estimate the effects of the extra funds on disadvantaged pupils' academic achievement and their probability to transit to the academic level. If there is a better performance in school outcomes and a higher proportion of disadvantaged students who transit to the academic level, it is possible to infer that subsidies are effectively compensating for weaknesses.

Hence, the equations are defined as:

$$CitoAbove_i = \alpha_1 + \beta_1 Pupil_i + \beta_2 Parents_i + \beta_3 School_i + X_i + \varepsilon_1 \quad (1)$$

and

$$TransitAcademic_i = \alpha_2 + \beta_1 Pupil_i + \beta_2 School_i + X_i + \varepsilon_2 \quad (2)$$

Where $CitoAbove_i$ is the test score of pupil *i*. This binary variable is equal to 1 if a student's CITO score is higher than 536, and equal to 0 otherwise. This is the minimum score value required to be accepted at the academic level (HAVO/VWO). Also, this value is a reference to the teacher who issues the final decision. In general, a student with a score lower than of 536 may not follow academic education and receives a recommendation to transit to the vocational level (VMBO).

The equation *(1)* contains variables relate to student's characteristics, captured by *Pupil*. Include results from the questionnaire concerning the score assigned to the student by the teacher on underachievement, behaviour, attitude and popularity in the classroom[27]. Students characteristics also include *gender, weighting factor* (percentage of subsidy), as well the scores given by the teacher for *underachievement, behaviour*, *popularity in the classroom*, *dependence*, c*onflict*, *parental involvement*, w*ell-being with the teacher*, w*ellbeing with peers*, *task motivation*, *attitude,* and s*kill.*

In CITO questionnaires, each school report the weight factor for the student. Given that the system has six categories before the reform and only two categories after 2007, it was created a binary variable denominated *weighting factor*. This variable takes a value equal to 1 when the student receives the subsidy and takes a value of 0 when the student is non-disadvantaged and therefore not receive additional resources.

The equation *(1)* was applied to the total population, as well to the groups of disadvantage and non-disadvantage students, with the purpose of identifying variables that have the greatest impact on the results CITO. The expected effect of the subsidy is to compensate for differences related to the educational level of parents. Therefore, it is expected that each new measurement

[27] The factors taken into account for the evaluation are: 1. Underachievement: give performances good idea of talent; stay behind in performance capabilities; may actually be (even) better performance. 2. Behaviour: often brutal; abides by the rules; always trying to push through their own sense; will never fight. 3. Posture: work accurately; think soon that the work is finished; hold fast if something fails. 4. Popularity: gets along well with classmates; is popular with classmates; has little friend (inn) and in the classroom (COOL5-18 Technical Report 2013: 47).

CITO, disadvantaged students presented better results in comparison with their peers.

Aspects associated to $Parents_i$ include country of birth, Dutch language skills (average speak, read, write), and language used to talk with the student. School score ($School_i$) take values between 1 and 5, according to the percentage of students with the immigrant background and native students with lower socio-economic level, enrolled in the school. *School score* is equal to 5 if the school has a large share of immigrant children - colloquially called black schools and a school with a score of 1 includes schools with the lowest proportion (called white schools). X_i is a vector of other student's characteristics related to school and family and includes fixed school effects (*Province, Urbanity, Denomination*), and Family Characteristics (*Socio-Economic Status*[28]*, Older children at home);* ε_i is the error term.

For the equation (2) $TransitAcademic_i$ corresponds to the teacher's advice to transit to the secondary level. The binary variables take a value equal to 1 when the student receive the advice to transit to the academic level (associated with satisfactory academic attainments), and a value equal to 0 when the advice is to transit to the vocational level.

The equation *(2)* contains variables relate to student's characteristics, captured by $Pupil_i$, including *Attitude, Skills, Reflection, Underachievement, Behaviour, Popularity in classroom, Popularity in classroom, Dependence, Conflict, Closeness, Parental involvement, Care Apprentice, Wellbeing -teacher, Wellbeing -peers, Self-efficacy, Task motivation.* Beside include school characteristics: *Province, Urbanity, School Score, and Denomination*

Assuming ε_1 and ε_2 are each normally distributed, the equations can be estimated by a probit model to identify differences in academic achievement between non-disadvantaged and disadvantaged students.

To examine the two probabilities of interest, (i) better results in the CITO tests; and (ii) greater probability of moving to the academic school, equations (1) and (2) are estimated separately for non-disadvantaged and disadvantaged students.

Given the available data correspond to two different times (before and after the reform of 2007), the equations are estimated separately for each of the years COOL. These are calculated on a sample of observations of 5.226 students from 2007, 1.971 from 2010 and 388 from 2013.

Additionally, to account for the academic performance associated with other characteristics, equation (1) is used to estimate probabilities of obtaining a

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[28] 1. Non-Western immigrant parents who both maximum training followed by LBO level; 2. Native parents who both maximum training at LBO level followed; 3. Non-Western immigrant parents whose most educated parent has undergone training at MBO level (more than LBO, but less than HBO / WO); 4. Native parents whose most educated parent training followed by vocational level (more than LBO, but less than HBO / WO); 5. Non-Western immigrant parents whose most educated parent has attended a course at college / university level; 6. Native parents whose most educated parent training HBO / WO-level followed.

CITO score above 536, for each level of *school score* while holding the constant and other variables at its mean.

For each variable the codes are standardized across the three years. Thus, the data are categorized as alphanumeric became numeric codes used to verify that the information corresponds to each category. For purposes of analysis, the options in some categories (dummy variables) were pooled.

Empirical Strategy and specification

The aim is to identify the effect of subsidies, after controlling for other factors associated with academic performance. Using the data available from COOL surveys is possible to compare variations odds of CITO scores, taking into account the weight factor that has the student. The probability of getting a CITO score greater than 536 points is used as a function of the observed characteristics that influence student academic performance.

The subsidy reform process began in 2007 but was fully implemented until 2009, when the new cohort started. Therefore, students' information from 2010 and 2013 are considered under the new subsidy scheme.

It is assumed that other differences among students are compensated by the system, in other words, the system allows students to have the opportunity to improve the academic performance, regardless of external factors. However, it is not possible to control for differences in unobserved characteristics in student groups subsidized and unsubsidized. An additional concern is that schools autonomously invest resources for disadvantaged students, and so the effect on schools could have variations.

To analyse the sample from COOL's results is taking into account the availability of information for each student. In some cases, there are missed data associated with two aspects. Firstly, schools that do not fill all the information of the survey on time, like some CITO test results from schools in 2013. As the voluntary COOL survey is implemented in phases, some institutions were not able to have the information on time. Secondly, part of parents omitted information in the questionnaire filled by them. The COOL questionnaire is available in four languages: Dutch, Turkish, Arabic and English. However, by different causes some fields are skipped by the parents.

Eligibility for allocation of additional resources for disadvantaged students under the new system is related strictly to the educational level of parents. However, the CITO results and advice of teachers show that students who are in the lowest quartile of performance have other characteristics in common. In the COOL 2013 measurement, CITO test results show the same trends that in previous years. On another hand, students with a migrant background have a better performance than previous years, but the effect has been minimized because native students also improved their performance 'Key Figures 2009-2013'(2014) . Netherlands: Dutch Ministry of Education, Culture and Science. .

Given the characteristics of the subsidy system, it is difficult to identify a causal link between its implementation and improvements in student's performance, which can be attributed to other factors such as the pedagogical system,

teachers' performance, or transit to another school. Other variables that can influence the link are the location of the school and the grade of urbanity of the area.

Most important, there is a restriction to find a valid control group that permits a comparison of the results between the previous and the new scheme of subsidies. Financial resources destined for the schools are distributed proportionally according to the number of students and the number of students with special needs, reducing the bias related to differences in socioeconomic status. Since 2006, elementary schools receive a single block grant budget for staff costs and other expenses and have autonomy on how to spend the budget.

Parents have the freedom to choose the school, according to their beliefs, teaching method and location. However, additional resources coming into the school for disadvantaged students are autonomously used by the institution. So, establish the real impact of subsidies on student's performance requires additional measurement elements.

By predicting the odds between the different groups, and using scales for selected variables, the aim is to identify significant differences between the performance of students with similar characteristics, taking into account if they are classified as disadvantaged students or not.

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Chapter 6
Results

This chapter presents the main findings of probit model to predict probabilities of student's performance and transitions to secondary level, according to the weighting factor.

Table 6.1 summarizes results of the probit model with marginal effects on the equation *(1)*. The results for the covariate $CitoAbove_i$ (probability of obtain a score higher than 536) and variables shown the estimations for the full sample (column 1) and for non-disadvantaged and disadvantaged students (columns 2 and 3, respectively), for each COOL year.

In relation with the equation *(2),* the results of the probit model with marginal effects are summarized in Table 6.2. The results for the covariate $TransitAcademic_i$ (probability of transit to the academic level, according to the teacher's advice) and variables shown the estimations for the full sample (column 1) and for non-disadvantaged and disadvantaged students (columns 2 and 3, respectively), for each COOL year.

Probability of obtaining a score higher than 536

For the full sample, there are no significant differences on CITO scores between the groups of children. A boy has 3 points more likely to get a score of 536 or more for 2007 and a probability of 8 points more than girls for 2010 and 2013. This result is consistent with the results of tests at the national level[29].

Regarding the *country of origin* of the father and mother are contradictory results. While for the group in 2010, the children of Dutch parents have 16 points less likely to score above 536, the children of Dutch mothers are 17 points more likely to score above the limit. By 2013, the proportion changed significantly, with 36 points less likely to get a high score if the father is Dutch.

The results associated with the family composition are not significant, given that almost about 90% of students belong to families that are composed by father and mother (*family complete*). By 2013, this variable was excluded from the model, taking into account the limitations associated with the small number of observations.

[29] According with the Key Figures National Report, in the Netherlands, the achievements of boys and girls are comparable, as well the CITO scores and the final examination results show them at equal levels of performance (Key Figures 2011-2013' 2014: 138).

Table 6.1. Probability of a CITO Score above 536 (Probit marginal effects)

	COOL$^{5-18}$ 2007						COOL$^{5-18}$ 2010						COOL$^{5-18}$ 2013			
	Full Sample (1)		Non- Disadvantaged (2)		Disadvantaged (3)		Full Sample (1)		Non- Disadvantaged (2)		Disadvantaged (3)		Full Sample (1)		Non- Disadvantaged (2)	
	Probit ME	Std.	Probit ME	Std.	Probit ME	Std.	Probit ME	Std.	Probit ME	Std.	Probit ME	Std.	Probit ME	Std.	Probit ME	Std.
Male = 1	0.028	0.021	0.019	0.026	0.031	0.031	0.076	0.035	0.100	0.040	0.060	0.061	0.083	0.118	0.065	0.114
*Country Birth - Father NL=1**	0.010	0.061	0.168	0.088	-0.108	0.067	-0.157	0.097	-0.171	0.098	-0.018	0.241	-0.361	0.279	-0.349	0.136
*Country Birth - Mother NL=1**	0.041	0.056	-0.068	0.087	0.053	0.060	0.168	0.102	0.227	0.111	-0.062	0.251	-0.038	0.331	-0.010	0.310
Family Composition	0.125	0.091	0.148	0.115	0.118	0.122	0.030	0.149	0.126	0.192	-0.048	0.247				
Attitude (total)	0.054	0.023	0.094	0.029	-0.015	0.030	0.090	0.042	0.075	0.048	0.096	0.081	0.082	0.142	0.088	0.140
Skill (total)	-0.034	0.018	-0.010	0.025	-0.047	0.022	-0.138	0.045	-0.112	0.053	-0.145	0.068	0.004	0.150	-0.010	0.142
Reflection (total)	0.008	0.017	-0.018	0.022	0.041	0.024	0.045	0.029	0.065	0.034	0.050	0.050	0.074	0.095	0.011	0.093
Underachievement	-0.054	0.012	-0.073	0.015	-0.017	0.016	-0.087	0.020	-0.080	0.023	-0.070	0.035	0.062	0.070	0.066	0.069
Behaviour	-0.006	0.014	-0.022	0.017	0.034	0.021	-0.067	0.026	-0.075	0.029	-0.035	0.045	-0.147	0.097	-0.157	0.094
Attitude	0.116	0.013	0.105	0.016	0.108	0.018	0.130	0.021	0.131	0.025	0.136	0.036	0.143	0.074	0.135	0.070
Popularity in classroom	-0.029	0.013	-0.018	0.016	-0.036	0.018	0.000	0.021	-0.010	0.025	0.025	0.036	0.024	0.073	0.016	0.073
Dependence	-0.085	0.014	-0.088	0.018	-0.065	0.021	-0.071	0.023	-0.048	0.026	-0.091	0.038	-0.200	0.100	-0.184	0.097
Conflict	0.011	0.017	0.016	0.020	0.016	0.026	0.026	0.028	-0.029	0.033	0.139	0.047	-0.200	0.127	-0.188	0.119
Closeness	-0.038	0.015	-0.044	0.019	-0.014	0.021	-0.018	0.024	-0.020	0.028	-0.027	0.042	0.022	0.102	0.043	0.096
Parental involvement	0.086	0.013	0.092	0.017	0.053	0.017	0.090	0.022	0.076	0.026	0.092	0.036	0.030	0.083	0.053	0.081

	COOL[5-18] 2007						COOL[5-18] 2010						COOL[5-18] 2013			
	Full Sample (1)		Non- Disadvan-taged (2)		Disadvantaged (3)		Full Sample (1)		Non- Disadvan-taged (2)		Disadvantaged (3)		Full Sample (1)		Non- Disadvan-taged (2)	
	Probit ME	Std.	Probit ME	Std.	Probit ME	Std.	Probit ME	Std.	Probit ME	Std.	Probit ME	Std.	Probit ME	Std.	Probit ME	Std.
Care Apprentice	-0.327	0.020	-0.359	0.027	-0.219	0.026	-0.336	0.034	-0.378	0.042	-0.199	0.054	-0.386	0.133	-0.340	0.153
Wellbeing - teacher	-0.007	0.015	-0.016	0.019	0.006	0.021	-0.004	0.025	0.007	0.029	-0.020	0.038	-0.121	0.097	-0.112	0.094
Wellbeing - peers	-0.058	0.015	-0.068	0.019	-0.046	0.021	-0.059	0.024	-0.050	0.027	-0.098	0.042	-0.206	0.104	-0.224	0.099
Self-efficacy	0.168	0.016	0.163	0.020	0.136	0.023	0.194	0.028	0.212	0.031	0.106	0.048	0.175	0.100	0.148	0.094
Task motivation	-0.012	0.016	-0.009	0.019	-0.005	0.025	0.015	0.028	0.004	0.032	0.024	0.048	0.192	0.099	0.184	0.093
Highest diploma father	0.027	0.007	0.027	0.009	0.010	0.009	0.063	0.022	0.092	0.026	-0.008	0.058	0.062	0.043	0.049	0.041
Highest diploma mother	0.046	0.007	0.050	0.010	0.030	0.010	0.102	0.025	0.124	0.029	0.006	0.064	0.014	0.045	0.029	0.046
Length of stay father	-0.044	0.048	-0.157	0.073	0.036	0.052	0.081	0.071	0.145	0.081	0.085	0.121	0.047	0.064	0.034	0.057
Length of stay mother	0.001	0.044	0.122	0.071	-0.024	0.037	-0.065	0.076	-0.092	0.082	-0.006	0.075	-0.027	0.101	-0.047	0.093
Length of stay Child	0.039	0.049	-0.068	0.088			0.078	0.097					-0.257	0.425		
Paid job > 12 Hours x week father	-0.016	0.040	-0.035	0.069	-0.014	0.039	0.003	0.069	0.041	0.093	-0.021	0.084				
Paid job > 12 Hours x week mother	-0.022	0.022	-0.037	0.028	-0.014	0.030	0.020	0.036	0.000	0.041	0.052	0.062				
Faith father	0.011	0.030	0.032	0.074	0.005	0.026	0.106	0.049	0.175	0.066	0.010	0.060	0.224	0.268	0.187	0.256
Faith mother	0.001	0.031	-0.011	0.069	-0.012	0.028	-0.064	0.048	-0.117	0.063	-0.002	0.059	-0.487	0.278	-0.466	0.244

	COOL$^{5-18}$ 2007						COOL$^{5-18}$ 2010						COOL$^{5-18}$ 2013			
	Full Sample (1)		Non- Disadvan-taged (2)		Disadvantaged (3)		Full Sample (1)		Non- Disadvan-taged (2)		Disadvantaged (3)		Full Sample (1)		Non- Disadvan-taged (2)	
	Probit ME	Std.	Probit ME	Std.	Probit ME	Std.	Probit ME	Std.	Probit ME	Std.	Probit ME	Std.	Probit ME	Std.	Probit ME	Std.
Colloquialisms father	0.010	0.029	0.052	0.050	-0.020	0.028	-0.026	0.050	-0.059	0.065	0.011	0.064	0.429	0.362	0.642	0.423
Colloquialisms mother	0.046	0.039	-0.016	0.058	0.079	0.042	-0.010	0.069	0.025	0.083	-0.035	0.102	-0.088	0.372	-0.043	0.389
Dutch Father – Average	-0.012	0.022	-0.005	0.032	-0.020	0.024	0.014	0.036	0.013	0.043	-0.003	0.051	0.329	0.211	0.306	0.183
Dutch Mother – Average	0.013	0.022	0.034	0.033	-0.004	0.024	0.012	0.036	0.023	0.042	0.020	0.054	-0.297	0.220	-0.257	0.203
Province	0.000	0.004	-0.003	0.004	0.000	0.005	0.012	0.006	0.015	0.007	-0.002	0.012	-0.022	0.025	-0.028	0.023
Urbanity	0.013	0.010	0.008	0.012	0.027	0.015	0.005	0.015	0.016	0.017	-0.008	0.028	0.155	0.062	0.149	0.059
School Score	-0.042	0.011	-0.023	0.016	-0.046	0.013	0.004	0.020	0.020	0.024	-0.033	0.028	-0.355	0.123	-0.321	0.119
Denomination	-0.002	0.008	-0.002	0.010	-0.007	0.011	0.051	0.014	0.055	0.016	0.040	0.024	-0.036	0.069	-0.043	0.067
N	3329		2197		1080		1328		1027		285		169		153	
Log likelihood	-1690.21		-1142.13		-493.99		-638.17		-495.511		-118.952		-63.343		-59.3216	
Pseudo R2	0.264		0.247		0.245		0.307		0.300		0.3045		0.4475		0.4157	

In general, behaviour characteristics seems to have a positive impact. Students who are more willing (*attitude*) are on average 13 more likely to get results above 536 points, as well as those who have *parents who are actively involved* in their learning process (9 percentage points) and show *self-efficacy* (18 percentage points). Moreover, as expected, students with high *underachievement* and low *behaviour* grades tend to have the lowest score in the CITO test than the other students.

For all years, students have been enrolled in *Care Apprentice*[30] are less likely to score higher on the exam (35 percentage points on average). Usually, students that are participating in *Care Apprentice* have an immigrant background, which involves language development at a different level from native children. Consequently, the learning processes are affected by these differences.

For the attribute of *self-efficacy*, the difference is only 2 points between the two groups in 2007 (16 and 14 points respectively), but by 2010 this gap widens to 10 points, with more likely to score higher for students without disadvantage (21 percentage points).

Regarding diplomas earned by parents, for 2007 there are no significant differences between the group without disadvantages and with disadvantages. Concerning the *highest diploma* obtained by the mother, for the group 2010 without disadvantages, there is a greater chance of scoring higher (12 percentage points) than for the disadvantaged group (1 percentage point).

According to the model results, the incidence of parents to have a *job* that requires more than 12 hours of work per week is not significant either for the total sample or the two subgroups.

Finally, differences related to *school characteristics* are not significant to the extent that the school system tends to compensate for factors that may affect the process of student learning, such as transportation facilities, school autonomy to select and methodology of studies.

In conclusion, the equation (1) does not differ from the results of the group without disadvantage students and disadvantaged students, on the probability of obtaining a CITO score higher than 536 associated with any variable specifically. The results of other variables show variations that can be attributed to the impact of the policies implemented by the school and other characteristics, like an immigrant background.

Probability of transit to the academic level, according to the teacher's advice

About the advice of the teacher, the results of the equation *(2)* for the full sample show an important relationship with the variable *popularity in the class*. Students with high scores on this variable are more likely to move to the academic level (11 percentage points in 2007 and 16 percentage points in 2010). For the sample of 2013 students, this probability decreases (8 points).

[30] Early childhood Education

Table 6.2. Probability to transit to the academic level (Probit marginal effects)

	COOL$^{5-18}$ 2007						COOL$^{5-18}$ 2010						COOL$^{5-18}$ 2013					
	Full Sample (1)		Non Disadvantaged (2)		Disadvantaged (3)		Full Sample (1)		Non Disadvantaged (2)		Disadvantaged (3)		Full Sample (1)		Non Disadvantaged (2)		Disadvantaged (3)	
	Probit ME	Std.	Probit ME	Std.	Probit ME	Std.	Probit ME	Std.	Probit ME	Std.	Probit ME	Std.	Probit ME	Std.	Probit ME	Std.	Probit ME	Std.
Male = 1	0.051	0.016	0.065	0.022	0.008	0.020	0.068	0.029	0.085	0.032	0.018	0.044	0.111	0.070	0.131	0.081	0.078	0.082
Attitude (total)	0.037	0.017	0.063	0.025	0.021	0.020	0.030	0.034	0.037	0.037	-0.008	0.055	0.083	0.079	0.138	0.090	-0.097	0.079
Skill (total)	-0.016	0.014	-0.003	0.021	-0.030	0.014	-0.065	0.034	-0.039	0.039	-0.085	0.047	0.121	0.080	0.030	0.092	0.180	0.132
Reflection (total)	0.000	0.013	-0.008	0.018	0.004	0.015	-0.003	0.023	0.008	0.026	-0.017	0.035	-0.066	0.053	-0.094	0.064	0.015	0.036
Underachievement	-0.059	0.009	-0.059	0.012	-0.044	0.011	-0.046	0.017	-0.042	0.019	-0.045	0.028	-0.069	0.040	-0.010	0.045	-0.115	0.076
Behaviour	-0.031	0.011	-0.030	0.015	-0.010	0.014	-0.072	0.021	-0.080	0.024	-0.015	0.034	-0.025	0.050	-0.057	0.057	0.007	0.034
Popularity in class-room	0.115	0.010	0.135	0.014	0.074	0.011	0.160	0.018	0.151	0.020	0.120	0.028	0.078	0.039	0.168	0.051	-0.035	0.031
Popularity in class-room	-0.050	0.010	-0.052	0.014	-0.025	0.011	-0.019	0.018	-0.019	0.020	-0.027	0.027	-0.046	0.042	-0.044	0.050	-0.007	0.027
Dependence	-0.078	0.011	-0.080	0.015	-0.052	0.013	-0.122	0.018	-0.106	0.021	-0.122	0.027	-0.027	0.053	-0.089	0.061	0.045	0.047
Conflict	-0.025	0.013	-0.045	0.017	0.015	0.016	0.037	0.023	0.016	0.025	0.083	0.034	-0.142	0.064	-0.092	0.074	-0.116	0.080
Closeness	-0.051	0.012	-0.072	0.016	-0.021	0.013	-0.028	0.019	-0.014	0.021	-0.027	0.030	-0.065	0.051	-0.063	0.065	-0.050	0.046
Parental involve-ment	0.140	0.009	0.117	0.014	0.091	0.010	0.127	0.016	0.091	0.019	0.101	0.022	0.061	0.037	0.055	0.047	-0.011	0.020
*Care Apprentice**	-0.291	0.015	-0.340	0.023	-0.175	0.017	-0.391	0.027	-0.415	0.035	-0.222	0.038	-0.242	0.077	-0.253	0.091	-0.115	0.068
Wellbeing - teacher	-0.004	0.012	-0.021	0.016	0.014	0.013	0.011	0.020	0.014	0.023	-0.002	0.028	-0.029	0.052	-0.052	0.061	0.040	0.041
Wellbeing -peers	-0.030	0.012	-0.036	0.016	-0.020	0.013	-0.041	0.020	-0.037	0.022	-0.026	0.032	-0.039	0.049	-0.039	0.054	-0.015	0.041
Self-efficacy	0.168	0.013	0.193	0.018	0.103	0.015	0.168	0.023	0.146	0.024	0.190	0.037	0.227	0.059	0.233	0.067	0.114	0.083
Task motivation	0.001	0.012	0.012	0.017	-0.008	0.015	0.028	0.023	0.032	0.025	-0.007	0.036	0.033	0.060	0.059	0.067	-0.088	0.074

	COOL$^{5-18}$ 2007						COOL$^{5-18}$ 2010						COOL$^{5-18}$ 2013					
	Full Sample (1)		Non Disadvantaged (2)		Disadvantaged (3)		Full Sample (1)		Non Disadvantaged (2)		Disadvantaged (3)		Full Sample (1)		Non Disadvantaged (2)		Disadvantaged (3)	
	Probit ME	Std.	Probit ME	Std.	Probit ME	Std.	Probit ME	Std.	Probit ME	Std.	Probit ME	Std.	Probit ME	Std.	Probit ME	Std.	Probit ME	Std.
Province	0.004	0.003	0.004	0.004	-0.001	0.003	0.015	0.005	0.016	0.005	0.008	0.009	-0.021	0.013	-0.028	0.016	-0.006	0.008
Urbanity	0.013	0.008	0.015	0.010	0.019	0.010	0.007	0.012	0.009	0.013	0.007	0.020	0.116	0.036	0.111	0.040	0.074	0.050
School Score	-0.065	0.007	-0.051	0.012	-0.022	0.007	-0.067	0.013	-0.045	0.016	-0.012	0.017	-0.210	0.033	-0.201	0.039	-0.076	0.049
Denomination	-0.028	0.006	-0.033	0.008	-0.020	0.007	0.005	0.012	0.005	0.013	0.014	0.017	-0.051	0.030	-0.078	0.036	-0.001	0.015
N	5052		3006		1917		1894		1394		468		369		285		81	
Log likelihood	-2494		-1576		-805.7		-919		-684.5		-190		-172.9		-125.8		-25.05	
Pseudo R2	0.2663		0.2435		0.2347		0.2992		0.2724		0.3265		0.3239		0.3514		0.4322	

Likewise, if the student's parents *participated actively* in the learning process, the student is more likely to move to the academic level (14 and 13 percentage points for 2007 and 2010 respectively). Students who show the higher level of *self-efficacy* have 17 points more likely to transit the academic level as those who are less efficient.

The results for the scores of *underachievement* are consistent with the results of academic achievement. Students who score higher in this category are more likely to move to vocational level (6 percentage points for 2007). Moreover, students who show a greater *dependence* on the teacher are less likely to move to the academic level. The results associated to *care apprentice* show that students who were in it are more likely to receive advice to transit the vocational level (30 percentage points on average for the three years).

About differences between disadvantaged and non-disadvantaged pupils, the results associated with *care apprentice* show a similar trend. Students unsubsidized who were in care apprentice are more likely to receive advice to transit the vocational level (30 percentage points on average for three years). On another hand, disadvantaged students who were in care apprentice are 20 percentage points less likely to transit to the academic level.

Differences in results between disadvantaged students and non-disadvantaged students range from 2 to 7 percentage points on average for the three years.

Annex C presents the student's transitions to Secondary Level. In the first part show the *teacher's recommendation* by *weighting factor* for the years 2007, 2010, and 2013. For the three years, there are not significant differences in the patterns between categories 0.3 and 1.2 of subsidies. The second part of Annex C shows the *teacher's recommendation* by s*chool score* for 2007, 2010, and 2013. The proportion of students that transit to the academic level was raising between 2007 and 2013 not just for the schools with less concentration of students with an immigrant background (school score =1), but also for the students from the schools with the highest score. Schools with score 2, 3 and 4 show a peak for 2010, but a decrease for 2013.

However, in contrast to equation *(1)*, the results of the equation *(2)*, show differences between the two groups for the results associated with the school score. In both cases, students are less likely to move to the academic level, following the advice of the teacher, when the school has a higher concentration of students with an immigrant background (5 percentage points for students unsubsidized and 2 points for students with subsidy).

It is expected that disadvantaged students who receive the subsidy have higher scores than the unsubsidized group with similar characteristics, like behaviour, school, faith and family composition. However, before and after the reform of 2006, the results are similar for both groups. Both groups have improved in total scores, but the disadvantaged group remains at least 6 points lower, on average. These differences can be associated with student characteristics related to other aspects, which may vary depending on unobserved.

Annex D show the *CITO test scores* by *mother's country of birth* and *teacher's advice*, for 2007, 2010 and 2013. The pattern for the three periods is similar. The

proportion of students that transit to the vocational level is still higher for the students with an immigrant background than for native students. The proportion of students with a CITO score lower than 536 that receive advice to transit to the academic level is higher for the native students than for students with an immigrant background. Students with the same CITO score receive a different advice from the teacher, highlighting the importance of other student's characteristics not relate to parent's level of education, to review the concept of the disadvantaged student.

The observations for 2007, 2010, and 2013 show that the categories are not evenly distributed between the country of origin of the mother and the teacher's advice. In the lower segments of CITO scores, there is a significant percentage of students of the category "another country." Moreover, the percentage of Dutch students that receive a teacher's advice "HAVO / VWO" concentrates more on the top level of the CITO scores. This trend continues for three periods.

Table 6.3. Teacher's Advice vs. CITO score (Mother's country of birth)

Teacher's Advice	Mother's country of birth	Year	Level suggested (CITO test score)	
			VMBO (501 – 536)	HAVO / VWO (537 – 550)
VMBO	Other Country	2007	16%	
		2010	12%	
		2013	10%	
	Netherlands	2007	34%	1%
		2010	30%	1%
		2013	37%	2%
HAVO / VWO	Other Country	2007	1%	4%
		2010	2%	5%
		2013		3%
	Netherlands	2007	3%	22%
		2010	6%	26%
		2013	5%	25%

An indicator of low parent's education level in the Dutch context may have less impact, despite its high predictive level, considering other factors related to the student, as the immigrant background of the student.

In summary, the results for the two equations are not significant. Additional factors are affecting the academic results of subsidized student and not necessarily related to the educational level of parents. The persistence of sharp differences about student's achievement is evident. The aim of the subsidy system, object of this research, is to improve the disadvantaged pupils' performance. However, the results of the students before and after the reform of the weighting factor, indicate that significant differences between students are related to the classroom. Relations with the teacher and the peers have a greater weight in the final advice issued by the teacher. Likewise, the CITO test results show a marked trend associated with the immigrant background.

The validity of the current indicator to assign a weight factor of students could incorporate additional attributes. Since schools are investing additional funds to disadvantaged students autonomously, the expected effect on the individual level seems to be distributed in the classroom in general.

Chapter 7
Conclusion

The findings suggest that the use of a subsidy scheme for students with disadvantages associated with the low educational level of parents has no a significant impact on the student's achievement, based on CITO results. According to the results of the estimated equations presented in Tables 6.1 and 6.2, the effects of the additional funds in the academic achievement of disadvantaged students and their probability of moving to the academic level does not show a reduction in the gap with students more advantaged. Other factors and barriers to equality of disadvantaged students seem to be more associated with factors related to the class environment, and an immigrant background than the level of education of parents.

In addition, the impact of the additional resources to disadvantaged students seems to be diminished by (i) the autonomy of schools to invest extra resources that allow them to use the resources for all the students and not just for the disadvantaged; (ii) unobserved characteristics associated with the environment. In general, is recognize the positive effect of the subsidies on achievements of disadvantaged students, but in the Dutch case the effect is not so clear.

A further transdisciplinary analysis is required in the field of subsidies to disadvantaged children. The literature review also reveals a high level of endogenous references across different approaches and disciplines. While it is true that subsidies can compensate economic lacks, the Dutch policies that support investments in education could include additional elements relate to individual characteristics.

With a public subsidy system, there is greater coverage of the educational service but not all individuals can benefit equally. If government's objective is to benefit the 'poor', selecting programs that have the greatest impact at the lowest cost are the best answer. If public subsidies target individuals, the level of equity could be higher (Dur 2003). However, the system has to be efficient to identify the critical characteristics of the less advantaged students.

For the present analyses, the effects of subsidies to disadvantaged students were estimated using data from COOL reports from 2007, 2010, and 2013. The observations of those reports are a representative sample de Dutch schools and student's population, which includes schools with high concentrations of disadvantaged students.

The estimates obtained with the probit model for the equation *(1), the probability of obtaining a score higher than 536*, and for the equation *(2), the probability of transit to the academic level, according to the teacher's advice*, do not show a significant impact on disadvantaged student's achievements.

The Dutch education system is still in the process of transition between integration to the inclusion of students with an immigrant background. A further transdisciplinary analysis is required in the field of subsidies to disadvantaged

children, for the purpose of maximizing not just the financial investments but also the options for children to have access to the education that they deserve, and most important, the education that they want.

Following the recommendations of the OECD, future reforms of the system should be focused on reducing the concentration of white and black schools, resulting in additional benefits for students. On the one hand, the possibilities of further integration of the migrant community are increased and on the other, disadvantaged students have the opportunity to share with the most disadvantaged students, which positively impacts their learning process

In conclusion, the validity of the Dutch subsidy program, based on the results of the comparison of the achievements of students with and without subsidy, seems to have already reached its limit. Alternative extra financing strategies may have greater weight in the development of skills and abilities of students.

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ANNEX A - COOL 5-18 Sample Group 8: Observations, Mean, and Standard Deviations

	COOL$^{5-18}$ 2007			COOL$^{5-18}$ 2010			COOL$^{5-18}$ 2013			FULL SAMPLE COOL$^{5-18}$		
	Obs.	**Mean**	**Std. Dev.**	**Obs.**	**Mean**	**Std. Dev.**	**Obs.**	**Mean**	**Std. Dev.**	**Obs.**	**Mean**	**Std. Dev.**
Sex	5226	0.501	0.500	1971	0.486	0.500	388	0.459	0.499	7585	0.495	0.500
Country Father	4847	2.607	3.617	1881	2.553	3.597	359	2.947	3.751	7087	2.610	3.619
Country Father-D	4847	0.757	0.429	1881	0.772	0.420	359	0.705	0.457	7087	0.758	0.428
Country Mother	5091	2.750	3.823	1941	2.569	3.644	386	3.179	4.125	7418	2.725	3.795
Country Mother-D	5091	0.738	0.440	1941	0.770	0.421	386	0.697	0.460	7418	0.745	0.436
Country Child	4938	1.436	2.097	1873	1.194	1.378	372	1.306	1.723	7183	1.366	1.919
Country Child-D	4938	0.943	0.231	1873	0.970	0.170	372	0.957	0.203	7183	0.951	0.216
Family composition	5044	1.137	0.448	1941	1.094	0.354	388	1.121	0.417	7373	1.125	0.424
Family Composition-D	4998	1.096	0.295	1936	1.074	0.262	384	1.089	0.284	7318	1.090	0.286
SEE	5021	3.710	1.707	1929	3.910	1.692	381	3.940	1.712	7331	3.775	1.706
Weighting factor	5094	0.251	0.371	1939	0.179	0.381	384	0.188	0.406	7417	0.229	0.377
Disadvantaged	5094	1.337	2.066	1939	0.969	1.933	384	0.984	2.049	7417	1.222	2.038
Underachievement	5157	2.424	0.859	1958	2.421	0.851	388	2.400	0.856	7503	2.422	0.856
Behaviour	5198	3.690	0.841	1965	3.736	0.864	388	3.871	0.913	7551	3.711	0.852
Attitude	5151	3.462	0.910	1952	3.488	0.943	385	3.631	1.026	7488	3.477	0.926
Popularity in classroom	5149	3.649	0.790	1949	3.647	0.802	385	3.716	0.773	7483	3.652	0.792
Dependence	5197	2.065	0.787	1966	1.973	0.881	388	1.844	0.756	7551	2.030	0.813
Conflict	5198	1.730	0.792	1965	1.696	0.850	388	1.557	0.760	7551	1.712	0.807
Closeness	5194	3.498	0.668	1963	3.537	0.695	388	3.539	0.690	7545	3.510	0.676
Parental involvement	5188	3.612	0.912	1965	3.623	0.903	386	3.631	0.869	7539	3.616	0.908
Care Apprentice	5226	0.233	0.423	1971	0.233	0.423	387	0.214	0.411	7584	0.232	0.422
Wellbeing -teacher	5216	3.668	0.658	1967	3.719	0.669	388	3.803	0.688	7571	3.688	0.663

	COOL5-18 2007			COOL5-18 2010			COOL5-18 2013			FULL SAMPLE COOL5-18		
	Obs.	Mean	Std. Dev.	Obs.	Mean	Std. Dev.	Obs.	Mean	Std. Dev.	Obs.	Mean	Std. Dev.
Wellbeing -peers	5217	4.183	0.630	1970	4.184	0.680	388	4.223	0.637	7575	4.185	0.644
Self-efficacy	5211	3.657	0.619	1967	3.720	0.621	386	3.855	0.621	7564	3.684	0.621
Task motivation	5202	3.932	0.594	1966	3.985	0.613	386	4.090	0.633	7554	3.954	0.602
ISM Management	5116	3.744	0.579	1970	3.787	0.595	387	3.856	0.611	7473	3.761	0.586
ISM Performance	5114	2.051	0.749	1968	2.073	0.802	386	2.011	0.817	7468	2.055	0.767
ISM Extrinsic	5116	2.803	0.756	1969	2.860	0.794	387	2.734	0.858	7472	2.815	0.772
ISM Social	5116	3.444	0.611	1970	3.538	0.614	386	3.581	0.688	7472	3.476	0.618
Teacher's Advice	5052	10.440	3.914	1894	10.795	3.723	369	11.046	3.812	7315	10.563	3.864
*Teacher's Advice**	5052	0.400	0.490	1894	0.520	0.500	369	0.507	0.501	7315	0.436	0.496
CITO Final	5226	533.334	10.242	1971	534.883	9.482	388	535.034	10.799	7585	533.823	10.105
*CITO Final **	5226	0.428	0.495	1971	0.475	0.499	388	0.490	0.501	7585	0.443	0.497
CITO Maths	5169	42.452	10.996	1901	42.317	11.005	387	41.889	11.143	7457	42.388	11.005
CITO Language	5175	71.112	13.979	1906	74.089	12.476	388	72.861	13.720	7469	71.962	13.658
CITO Study Skills	5151	28.724	6.515	1897	29.213	6.279	388	29.683	5.918	7436	28.899	6.431
CITO World	4405	60.825	13.440	1401	64.075	12.427	251	60.446	13.398	7281	8.133	2.973
Length of stay - father	4483	4.717	0.516	1738	4.730	0.530	352	3.810	1.815	6573	4.672	0.688
Length of stay - mother	5057	4.681	0.593	1902	4.733	0.554	381	3.900	1.758	7340	4.654	0.716
Length of stay - child	5146	4.917	0.353	1932	4.946	0.301	386	4.904	0.425	7464	4.924	0.345
Older children	3196	2.207	0.892	1305	2.136	0.857	192	1.453	0.707	4693	2.157	0.888
Younger children	5226	1.109	1.199	1971	1.116	1.176	230	1.117	0.866	7427	1.111	1.184
paid job> = 12 -father	4520	0.898	0.303	1753	0.912	0.284	303	1.000	0.000	6576	0.906	0.291
paid job> = 12 -mother	5017	0.624	0.484	1887	0.612	0.488	237	1.000	0.000	7141	0.633	0.482
Faith father	4503	3.036	2.305	1747	3.024	2.244	353	3.156	2.412	6603	3.039	2.295
Faith father	5226	0.862	0.345	1971	0.886	0.317	388	0.910	0.287	7585	0.871	0.336
Faith mother	4931	3.102	2.336	1871	3.050	2.237	378	3.212	2.412	7180	3.094	2.314
Faith mother - D	5226	0.944	0.231	1971	0.949	0.220	388	0.974	0.159	7585	0.947	0.225

	COOL[5-18] 2007			COOL[5-18] 2010			COOL[5-18] 2013			FULL SAMPLE COOL[5-18]		
	Obs.	**Mean**	**Std. Dev.**	**Obs.**	**Mean**	**Std. Dev.**	**Obs.**	**Mean**	**Std. Dev.**	**Obs.**	**Mean**	**Std. Dev.**
Faith child	4871	3.005	2.353	1842	3.004	2.267	372	3.124	2.449	7085	3.011	2.336
Faith child – D	5226	0.932	0.252	1971	0.935	0.247	388	0.959	0.199	7585	0.934	0.248
Colloquialisms -father	4353	1.298	0.679	1672	1.260	0.627	347	1.392	0.765	6372	1.293	0.671
Colloquialisms -father – D	4353	0.828	0.377	1672	0.840	0.366	347	0.781	0.414	6372	0.829	0.377
Colloquialisms - mother	4837	1.288	0.671	1813	1.254	0.622	371	1.372	0.751	7021	1.283	0.663
Colloquialisms - mother – D	4837	0.835	0.372	1813	0.845	0.362	371	0.792	0.406	7021	0.835	0.371
Colloquialisms - brothers / sisters	5058	0.980	0.512	1893	0.991	0.517	356	1.163	0.511	7307	0.992	0.515
Colloquialisms - brothers / sisters *	5058	0.820	0.384	1893	0.814	0.389	356	0.899	0.302	7307	0.822	0.382
Colloquialisms - friends	5158	0.971	0.377	1941	0.982	0.373	373	1.086	0.349	7472	0.980	0.375
Colloquialisms - friends *	5158	0.883	0.322	1941	0.880	0.324	373	0.936	0.246	7472	0.885	0.319
Colloquialisms -parents themselves	4919	1.407	0.855	1887	1.393	0.850	351	1.615	0.870	7157	1.414	0.856
Colloquialisms -parents themselves – D	4919	0.639	0.480	1887	0.623	0.485	351	0.644	0.480	7157	0.635	0.481
Level understand Dutch – father	4595	4.504	0.698	1788	4.512	0.692	357	4.538	0.728	6740	4.508	0.698
Level speak Dutch – father	4552	4.433	0.748	1776	4.432	0.744	349	4.464	0.763	6677	4.434	0.748
Level read Dutch - father	4546	4.427	0.775	1778	4.430	0.776	349	4.413	0.855	6673	4.427	0.780
Level write Dutch – father	4543	4.311	0.864	1776	4.311	0.876	346	4.269	0.942	6665	4.309	0.871
Dutch Father – Average	5226	3.855	1.591	1971	3.992	1.443	388	3.992	1.470	7585	3.897	1.549
Level understand Dutch – mother	5083	4.466	0.747	1926	4.484	0.729	381	4.501	0.753	7390	4.473	0.743

	COOL$^{5-18}$ 2007			COOL$^{5-18}$ 2010			COOL$^{5-18}$ 2013			FULL SAMPLE COOL$^{5-18}$		
	Obs.	**Mean**	**Std. Dev.**	**Obs.**	**Mean**	**Std. Dev.**	**Obs.**	**Mean**	**Std. Dev.**	**Obs.**	**Mean**	**Std. Dev.**
Level speak Dutch – mother	5001	4.399	0.804	1905	4.417	0.773	374	4.414	0.830	7280	4.404	0.797
Level read Dutch – mother	5025	4.410	0.831	1910	4.452	0.773	374	4.420	0.880	7309	4.421	0.819
Level write Dutch – mother	5002	4.308	0.895	1906	4.348	0.846	373	4.316	0.963	7281	4.319	0.886
Dutch Mother - Average	5226	4.229	1.068	1971	4.293	0.988	388	4.271	1.088	7585	4.248	1.049
Province	5226	7.381	2.970	1971	7.494	2.706	388	8.057	2.834	7585	7.445	2.900
Urbanity	5226	3.037	1.199	1971	2.925	1.286	388	3.191	1.237	7585	3.016	1.225
School score	5226	2.089	1.440	1971	1.990	1.214	388	2.000	1.372	7585	2.058	1.382
Denomination	5226	2.624	1.275	1971	2.818	1.216	388	2.977	1.182	7585	2.692	1.260
Attitude (total)	5138	2.975	0.442	1968	2.962	0.440	386	3.008	0.428	7492	2.973	0.441
Skill (total)	5138	2.960	0.591	1965	3.021	0.411	386	3.116	0.409	7489	2.984	0.543
Reflection (total)	5138	2.285	0.587	1965	2.279	0.583	384	2.308	0.589	7487	2.284	0.586
Knowledge (total)	5138	0.757	0.183	1970	0.774	0.161	386	0.770	0.165	7494	0.762	0.176

*Note: * corresponds to a dummy variable.*

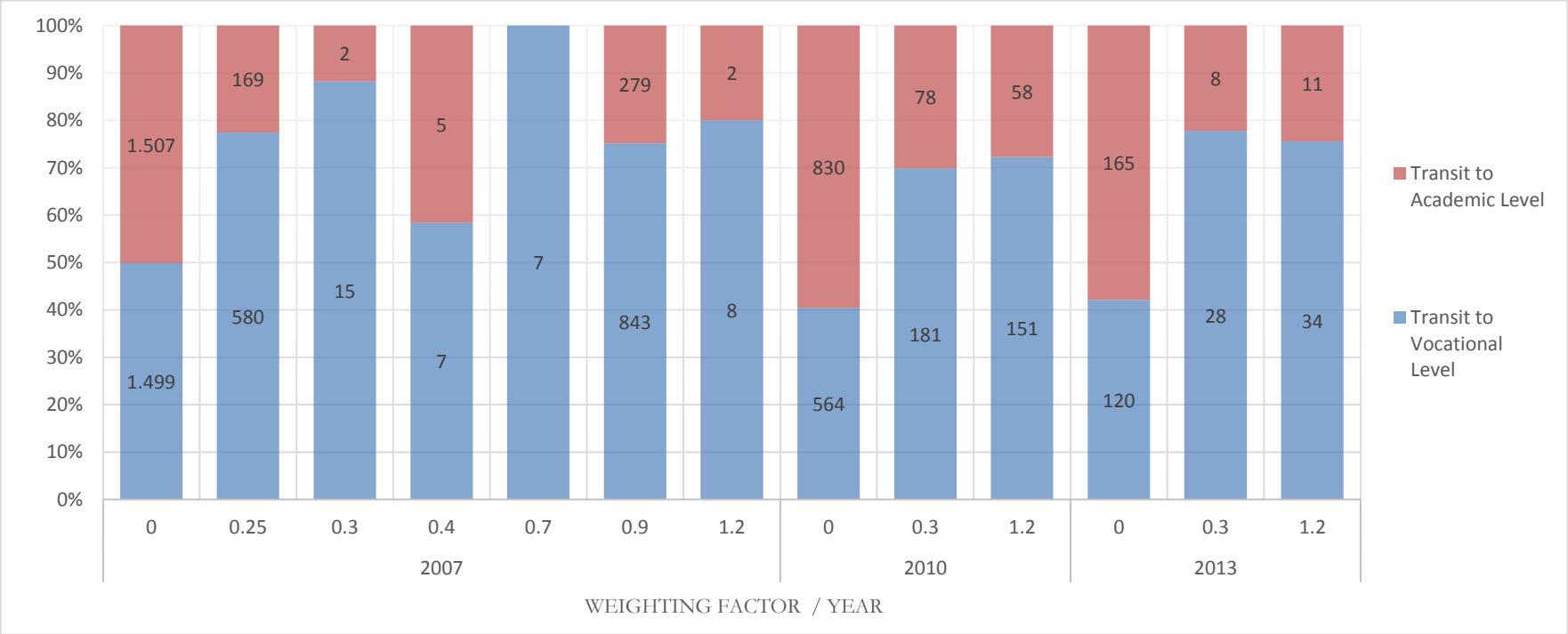
ANNEX B – COOL5-18 Sample Group 8: Weighting factor by School Score (in percentages)

	2007							2007 Total	2010			2010 Total	2013			2013 Total
School score	**0**	**0.25**	**0.3**	**0.4**	**0.7**	**0.9**	**1.2**		**0**	**0.3**	**1.2**		**0**	**0.3**	**1.2**	
1	44.6%	7.8%	0.2%	0.2%		1.7%		**54.5%**	44.9%	5.2%	0.7%	**50.8%**	52.9%	4.2%	0.5%	57.6%
2	8.6%	3.2%	0.1%			2.3%		**14.2%**	13.2%	3.6%	1.0%	**17.8%**	8.6%	2.3%	1.6%	12.5%
3	4.0%	2.3%			0.1%	3.9%		**10.2%**	10.5%	3.8%	2.5%	**16.8%**	5.5%	0.3%	3.1%	8.9%
4	2.1%	1.1%				5.4%	0.1%	**8.7%**	4.5%	1.2%	4.4%	**10.1%**	6.8%	1.3%	5.5%	13.5%
5	1.6%	0.8%	0.1%			9.8%	0.1%	**12.5%**	1.2%	0.4%	2.8%	**4.5%**	3.6%	1.3%	2.6%	7.6%
Total	60.9%	27.7%	0.6%	0.5%	0.3%	42.3%	0.2%	**100.0%**	74.4%	14.2%	11.4%	**100.0%**	77.3%	9.4%	13.3%	100.0%

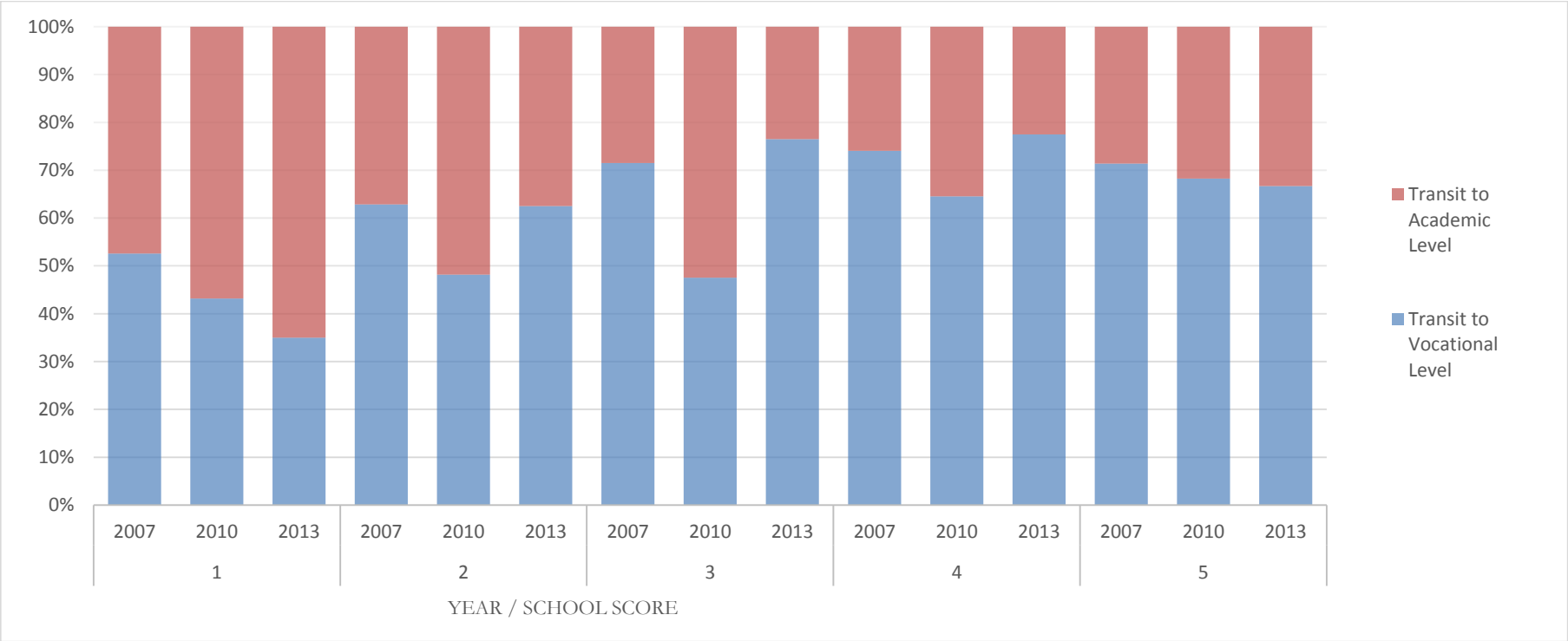
Note: The scale of School Score correspond to the concentration of students with an immigrant background. School score equal to 5 corresponds to schools with the highest proportion of students an immigrant background or low socioeconomic level.

ANNEX C - Transitions to Secondary Level

a) Teacher's Recommendation by Weighting Factor for 2007, 2010, and 2013 (100% stacked columns)

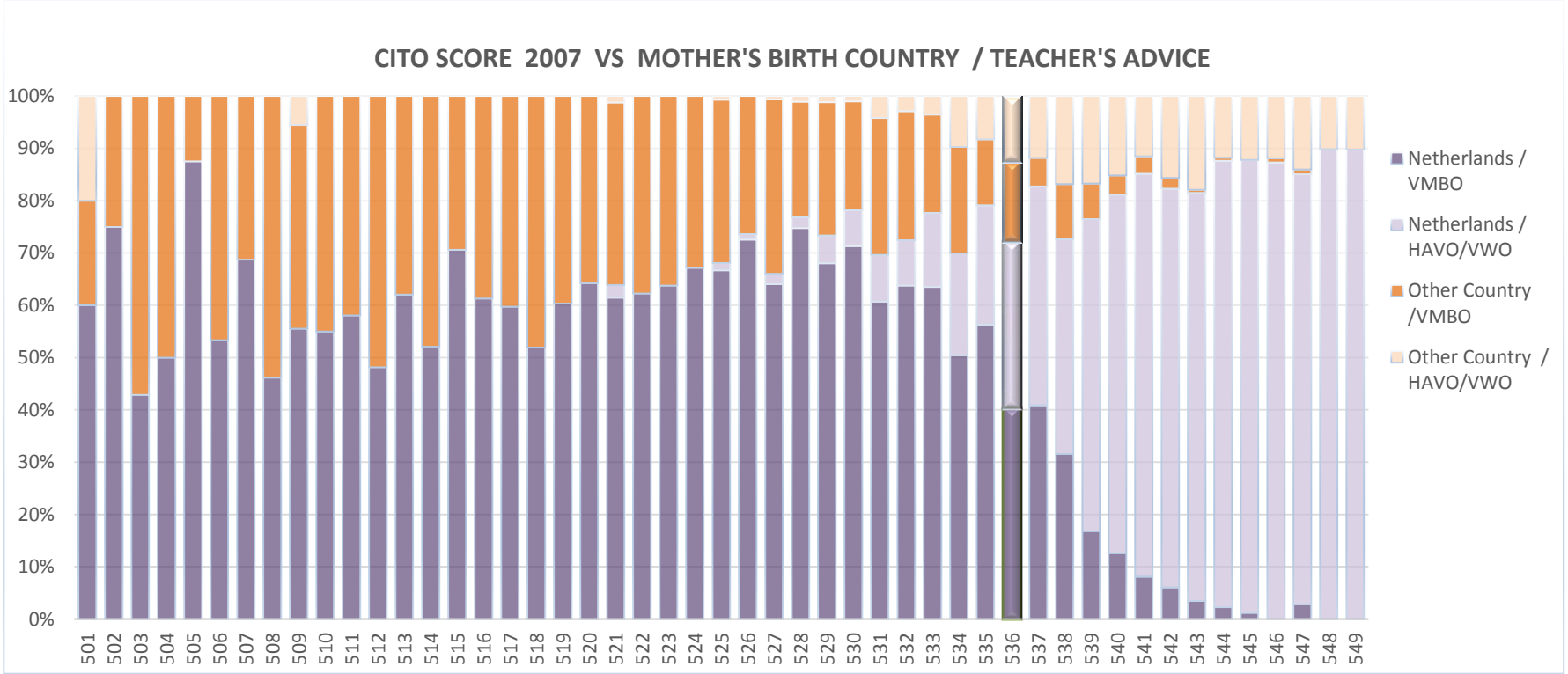


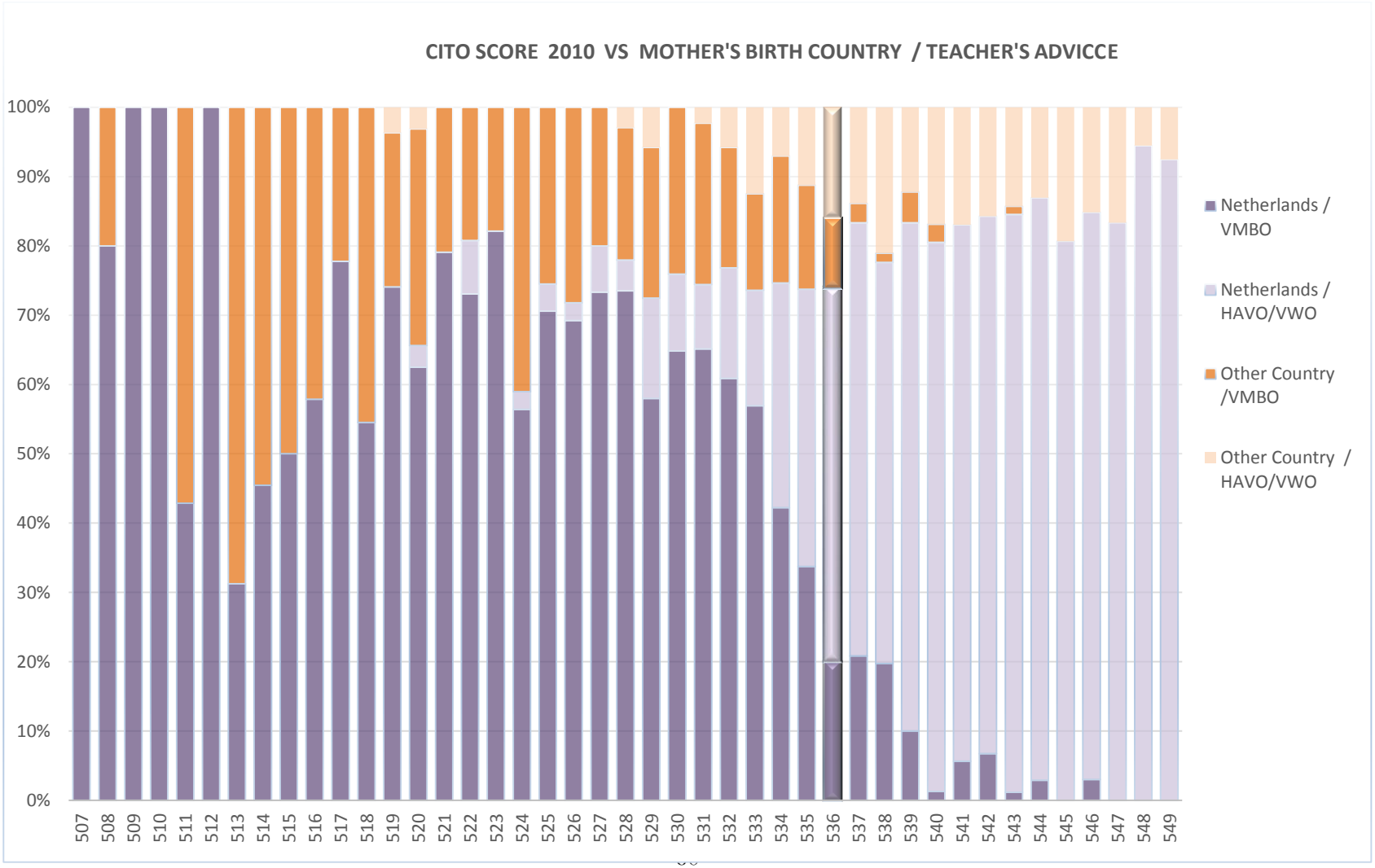
b) Teacher's Recommendation by School Score for 2007, 2010, and 2013 (100% stacked columns)

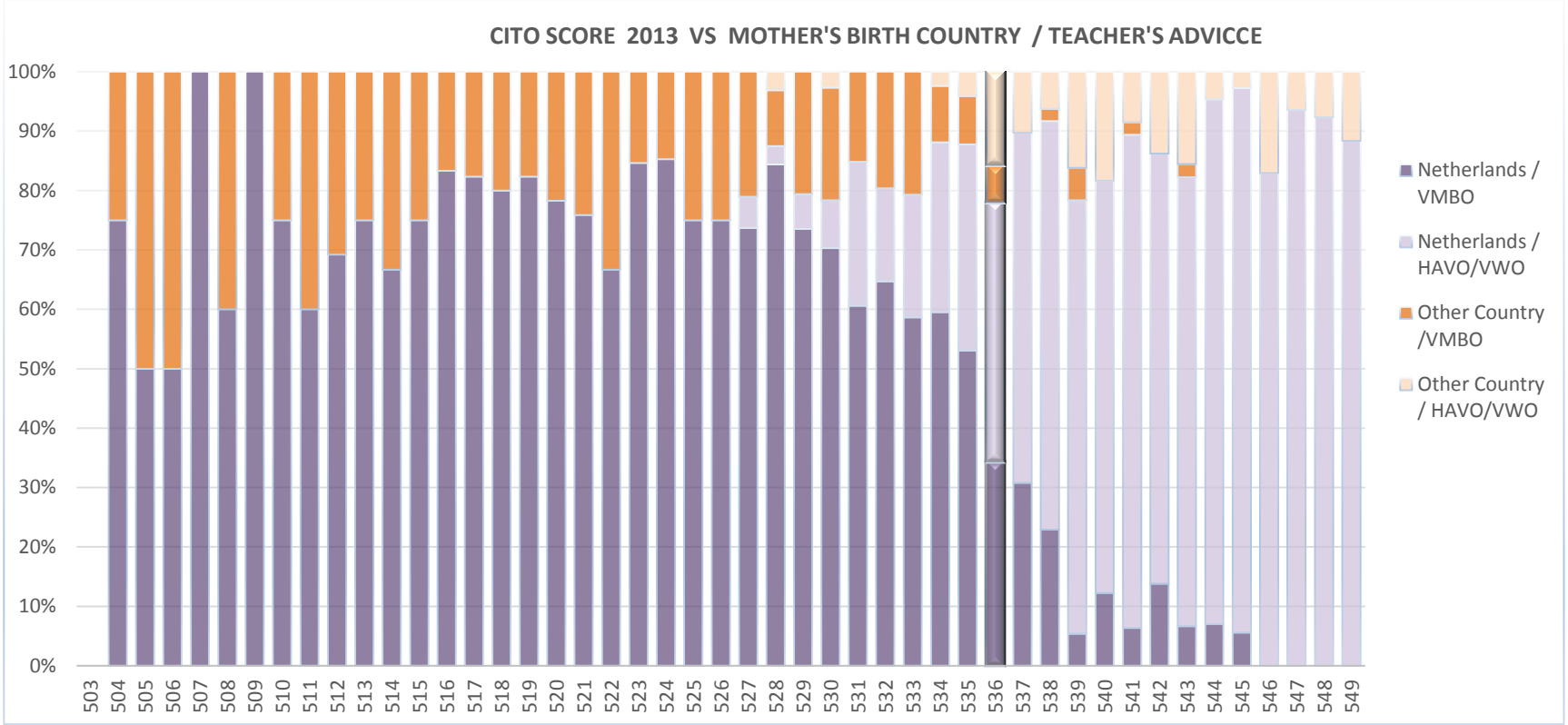


Note: The scale of School Score correspond to the concentration of students with an immigrant background. School score equal to 5 corresponds to schools with the highest proportion of students an immigrant background or low socioeconomic level.

ANNEX D - COOL 5-18 Sample Group 8: CITO scores results versus Mother's Country of Birth and Teacher's Recommendation for transition to Secondary Level 2007, 2010, and 2013 (100% stacked columns)




CITO SCORE 2010 VS MOTHER'S BIRTH COUNTRY / TEACHER'S ADVICCE
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549
Netherlands / VMBO
Netherlands / HAVO/VWO
Other Country /VMBO
Other Country / HAVO/VWO


CITO SCORE 2013 VS MOTHER'S BIRTH COUNTRY / TEACHER'S ADVICCE
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549
Netherlands / VMBO
Netherlands / HAVO/VWO
Other Country /VMBO
Other Country / HAVO/VWO