Test-based admission to selective universities: A lever for first-generation students or a safety net for the professional classes?

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Abstract

This paper examines whether the existence of a secondary higher education admission system honouring more qualitative and extra-curricular merits has reduced the social class gap in access to highly sought-after university programmes in Denmark. I use administrative data to examine differences in the social gradient in the primary admission system, admitting students on the basis of their high school grade point average, and in the secondary admission system, admitting university students based on more qualitative assessments. I find that the secondary higher education admission system does not favour first-generation students; further, the system serves as an access route for low-achieving children from the privileged professional classes. Drawing mainly on theories in the social closure tradition, I argue that children with highly educated parents will be favoured when qualitative merits are honoured, and that professional-class families will be especially vigilant in pursuing educational pathways that will secure the reproduction of their class.

Keywords

Access to selective universities, higher education admission, extra-curricular merits, first-generation students, test-based admission, social class gap

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Introduction

Inequality in access to higher education has long been a central issue for policy makers and researchers alike. Scholars have produced a sizable amount of studies on the social class gap in higher education participation (for comparative examples, see Breen et al., 2009; Lucas, 2001; Shavit et al., 2007; Triventi, 2011). The admission system is a key concern in studies on social stratification in higher education, especially for access to the most prestigious and socially selective universities. With Karabel (2005) as a prominent example, studies investigating social inequality in higher education admission systems find that some systems may in reality cater to the reproduction of the privileged classes by using definitions of merit that favour the privileged classes in the admission process. In Karabel's (2005) view, holistic assessments, which place weight on the character and extra-curricular merits of the applicant, may serve as a way through which families and institutions secure the enrolment of a particular group of students.

These sociological insights notwithstanding, in Denmark, the introduction of a secondary admission quota dedicated to applicants with alternative, extra-curricular entrance qualifications has been driven largely by equity concerns. Since the late 1970s, a dual higher education admission system has been in effect in Denmark that designates a second quota, 'Quota 2', for those who do not possess the high school grade point average (GPA) necessary for access through the main admission system, 'Quota 1'. The concern of policy makers has been that 'first-generation' applicants (applicants without college-educated parents) should also have the opportunity to access a university programme, even though they will not statistically have the same academic qualifications as those applying through Quota 1. Consequently, policy makers set up a supplementary admission channel (Quota 2) for applicants with various types of extra-curricular qualifications. The introduction of Quota 2 means that the prevailing definition of merit – scholarly effort and ability summarised in the student's GPA – has been supplemented by a more holistic,

qualitative understanding of merit that is designed to honour a range of experiences and qualifications (such as past work experience, volunteer work, alternative educational credentials and performance during interviews).

This paper examines whether this second admission channel has reduced the social class gap in access to highly sought-after university programmes in Denmark. Has admitting students based on their extra-curricular entrance qualifications ameliorated the supposedly socially biased effect of a Quota 1 based only on high school GPA? From an equity perspective, investigating the socially diversifying effect of Quota 2 on these sought-after university programmes is particularly important because these programmes are the most socially selective (Thomsen, 2012, 2015).

This paper contributes significantly to existing knowledge on the socially diversifying effect of different admission systems. It does so because the Danish admission system allows for a simultaneous examination of the impact of different admission channels on the social composition of the students admitted. The parallel admission system is also uniquely suited to assess the diversifying potential of different admission channels in an access system without positive or affirmative action programmes (i.e. without giving an advantage to minorities and disadvantaged groups).

The remainder of the paper is as follows: I begin with a brief overview of the Danish higher education admission system. I then present and assess existing empirical literature and relevant theoretical perspectives, leading to the main research question and hypotheses of the paper. Next, I present the data and methods used to analyse the diversifying effect of the alternative admission system. The analysis examines whether substantial differences exist in the social gradient in Quotas 1 and 2, and the findings are discussed in the concluding section.

Study context

In Denmark, roughly two-thirds of 15 to 16-year-olds coming out of elementary school (grade zero to nine) continue their studies in the three-year higher education preparatory academic track in high school, or the ‘Gymnasium’, at which point they have the option to pursue a higher education degree. The Danish higher education system can be characterised as a binary one, separating universities from university colleges (and business academies). Universities are research-intensive institutions that offer bachelor’s, master’s and PhD programmes, whereas university colleges have very few research activities and primarily offer semi-professional bachelor’s programmes.

Formally, the higher education system is made up of i) business academies, featuring a number of smaller two- to three-year programmes; ii) university colleges, with three- to four-year programmes educating primarily welfare state civil servants (teachers, nurses and child care and social workers); and iii) university institutions, with a wide range of traditional liberal arts and professional programmes comprising three-year bachelor’s programmes and two-year master’s programmes.¹ Of the youth cohort finishing elementary school in 2013, the Ministry of Higher Education expects 6 per cent to earn a business academy degree, 28 per cent to earn a university college degree and 29 per cent to earn a university degree.²

Even though the post-WW2 educational expansion in Denmark has led to an increased share of youth cohorts attending higher education, and even though these young people are supported by government grants and do not have tuition fees, access to higher education continues to disproportionately favour socially privileged children – especially at university institutions that offer selective programmes (Thomsen, 2015; Benjaminsen, 2006).³ This paper focuses specifically on access to these selective, highly sought-after university programmes.

In Denmark, all higher education institutions are public, and the laws regulating access and access systems are nationally stipulated. In the Danish admission system, a high school diploma

from the ‘Gymnasium’ (awarded if the student obtains at least a passing GPA) will formally grant access to any higher education programme provided that it has the space to accept all of the applicants. Twice per year, students can apply for up to eight programmes in prioritised order. All students must use the application sheet from the Danish Central Admission Secretariat.⁴

A range of sought-after programmes, almost exclusively found at the university level, either do not have the capacity to accept all applicants or deliberately choose to limit their intake. A small share (typically around 20–25 per cent) of the student intake is granted to Quota 2 applicants who do not meet the GPA requirements for entry in Quota 1. The sought-after programmes, where demand exceeds supply, have their own Quota 2 admission committees to assess the alternative entrance qualifications of the applicants. Most of the committees assess both a short written application as well as the amount and relevance of the documented extra-curricular activities such as work experience, volunteer work and additional relevant academic courses. The committees often use a point system to rate the relevance of the activities. A few programmes apply other, even more qualitative and less standardised assessment criteria such as interviews, multiple-choice tests and practical assignments.

Investigating the effect of Quota 2 is practically relevant only for the highly sought-after programmes where demand far exceeds supply. A programme with 100 available places and only 80 applicants will not need a Quota 2 intake because all of the students can be admitted through Quota 1. But if a programme has 100 available places and 400 applicants, it will reserve 75 places for the students with the 75 highest GPAs and the remaining 25 places for students with alternative entrance qualifications. Equally important, this admission procedure means that applicants do not know beforehand what the minimum GPA needed for admission will be: it is completely determined by the GPA profiles of the applicant pool. Given only one round of application, many

students apply through the Quota 2 system even though they may end up being admitted in Quota 1, because it may turn out that they have a high enough GPA to gain entry through Quota 1.

Students admitted through Quota 2 represent a sizable portion of all admitted students – about one quarter of all available places at Danish universities are found in programmes with more eligible applicants than available places. These programmes therefore provide a Quota 2 entrance possibility. As outlined in the first section, one of the main reasons for establishing a Quota 2 has been to provide an access channel that favours the extra-curricular merits of first-generation students, thereby aiding the goal of equality of access to higher education. After reviewing the relevant literature, I examine whether the Quota 2 admission channel has reduced the social class gap in access to higher education.

Point of departure: Existing research and theoretical perspectives

Studies on higher education admission criteria do not lend credence to the argument that admission procedures based on subjective assessments of extra-curricular merits would favour first-generation students. These studies can be divided into research on the socially segregating effects of different admission systems and on the socially diversifying effects of affirmative or positive action programmes.

A body of research targets the socially unequal admission to elite US colleges, finding that holistic admission procedures (and aptitude tests) are culturally biased in that they favour applicants with the cultural resources needed to ‘play the admission game’. In his seminal study *The Chosen*, which examines the history of admission to Harvard, Princeton and Yale, Karabel (2005) warns against the use of holistic assessments when, in reality, they favour the merits of particular groups. Any prevailing definition of merit ‘. . . always bears the imprint of the distribution of power in the

larger society' (Karabel, 2005: 55), and different definitions of merit serve to privilege different groups at different periods.

Stevens (2007) stresses the social bias in placing weight on the cultivation of character in admission to elite US colleges, and Kahn (2010) finds that the focus on character, traits and extra-curricular activities disproportionately favours children from wealthy elite boarding schools or children of families with the sufficient funds to finance extra-curricular activities. In line with Karabel (2005), Soares (2007) depicts how elite US colleges continue to privilege socially advantaged children, warning against the extensive weight that elite college admission offices place on extra-curricular activities. In addition, he is also critical of the preference for the socially biased SAT over standardised subject exams, arguing that standardised testing based on the actual curriculum taught in high school does a better job of reducing socioeconomic bias than aptitude tests (Soares, 2007: 194ff).

In the UK, Boliver (2013) finds social disparities in admission to prestigious UK universities: disadvantaged groups are not only less likely to apply, but they are also less likely to be granted admission than their equally qualified peers from more privileged backgrounds (see also Boliver, 2015). Zimdars et al. (2009) investigates the effect of cultural capital in elite higher education admissions. They find that cultural knowledge significantly predicts admission into arts subjects at Oxford, supporting how Bourdieu (1996) would explain this finding (i.e. when the demands of admission officers are vague or unclear, the importance of the applicants' cultural knowledge increases) (see also Zimdars, 2010). Moreover, a Swedish study (Berggreen, 2007) finds that the alternative entry route to Swedish higher education, using scholastic assessment tests instead of the standard high school GPA, is class-biased in that it is used primarily by male students from the upper middle class.

Taken together, these studies question the notion that honouring merit in the form of aptitude tests or holistic evaluations will aid in widening the social composition of higher education students. As an alternative, Soares (2007), among others, suggests increasing the use of socioeconomically sensitive admission policies. However, the call for affirmative action programmes giving an advantage to students on the basis of their race or socioeconomic status is contested by politicians and stakeholders, and it has been met with charges of discrimination in the US and UK (see also Zimdars, 2007: 205). Alon (2011) examines the effect of an Israeli alternative, finding that a ‘need- and colour-blind’ affirmative action system favouring students from disadvantaged neighbourhoods adds to the diversification of the university student body while avoiding preferential treatment based on individual traits such as race or class.

The majority of these studies draw on a theoretical framework inspired by key arguments in cultural capital theory (Bourdieu, 1986, 1996; Bourdieu and Passeron, 1977), summed up by Karabel (2005) as follows: ‘Though in principle open to everyone, the elite colleges are in truth a realistic possibility only for those young men and women whose families endow them with the type of cultural capital implicitly required for admission’ (Karabel, 2005: 549). Admission procedures reward students from homes with large amounts of cultural capital because their habitus is aligned with the ethos of the institution (i.e. with the ‘institutional habitus’) (Reay et al., 2005). Privileged by way of their possession of cultural capital, these students are more likely to meet the particular programme’s conception of the ideal student, what Ulriksen (2009) terms ‘the implied student’. As a result, first-generation students find it more difficult to successfully meet qualitative assessment criteria, whereas privileged children more easily understand the performance that admission officers expect (see also Zimdars, 2010).

The advantage of privileged children in the admission process can also be seen as a special case of Bernstein’s (1977, 1990) studies on working-class pupils. These pupils have more trouble

deciphering the codes in educational settings where the classification and framing is weak – where what the institution considers to be appropriate or legitimate extra-curricular activities or how one should display these activities is not explicitly stated. Admission procedures adopting a holistic approach would represent such a weak classification and framing.

As Karabel (2005) and others point out, holistic assessment criteria as practiced in many elite universities may indeed act as a hidden way of reproducing the privileged, professional classes. Professional classes assert their influence on the changing definitions of merit to implement admission procedures that operate de facto to ensure that children from privileged backgrounds gain access to elite universities. These mechanisms are well captured in social closure theory – how privileged groups maintain their privilege by monopolising access to prestigious or lucrative positions in society in which access to elite programmes is a prerequisite (Collins, 1979; Parkin, 1974; Weber, 1978).

Research questions

Following the insights outlined in the previous section, I ask the following: As an alternative entrance route to selective university programmes, has Quota 2 aided in reducing the social class gap in access to higher education? I compare Quota 1 and 2 admission criteria and investigate the social gradient in the two admission systems.⁵ The studies and theoretical framework discussed in the previous section suggest that admission procedures with a weak classification and framing (i.e. where admission committees value subjective traits such as character, aptitude and performance) will tend to favour prospective students from socially privileged backgrounds. Thus, the first hypothesis is as follows: *Admission criteria in Quota 2 favour socially privileged students.* In addition, I expect that the more qualitative the Quota 2 admission criteria are, the greater this advantage will be.

In addition, the literature suggests that admission criteria and perceptions of merit are institutionalised in ways that ensure that professional classes maintain a privileged access route (e.g. Karabel, 2005). Furthermore, social closure theory argues that professional-class families with highly profession-oriented occupations have stronger communities and social bonds and are more actively involved in the reproduction of their social position (Parkin, 1974; Weeden and Grusky, 2005; Collins, 1979; Bourdieu, 1996; Weeden, 2002). Thus, the second hypothesis is as follows: *Of the selective programmes analysed, the highly profession-oriented programmes have a more socially biased Quota 2 intake than the less profession-oriented programmes.*⁶

Moreover, admission channels such as Quota 2 will be particularly important for professional-class families with lower-achieving children to ensure the occupational reproduction of those children who failed to obtain a GPA high enough to enter the programmes through Quota 1. Hence, my third hypothesis is as follows: *Quota 2 is a channel of specific occupational reproduction for low-achieving children from the privileged professional classes.*

Data and method

I use administrative data on all of the students from Statistics Denmark's official registers combined with data from the Danish Central Admission Secretariat, which is responsible for registering all higher education applications in Denmark.⁷ The data contain information on students who are registered as enrolled three months after they have been admitted through Quota 1 and 2 each year from 1996 to 2007. I restrict the data to the Danish university programmes that have been consistently highly sought after in this period: 18 programmes and 31,504 students (in 2007, these 18 programmes held just under one-fifth of all university students admitted).⁸ I differ between highly profession-oriented and less profession-oriented programmes, defining a programme as highly profession-oriented if it leads to a specialised and well-defined occupation and, furthermore,

if this occupation is distinguished by having its own union or an educational certification monopoly (e.g. physicians and architects) (see Weeden, 2002).

The variables include gender, high school GPA (ranging from a low of six to a high of 13 in Denmark), university programme and enrolment year, whether the student was admitted through Quota 1 or 2 and whether the student is a first-generation university student or not as a proxy for social origin.⁹ For each selective programme in each year, the high school GPA has been rescaled, setting the programme's threshold GPA to zero, where zero denotes the lowest possible GPA necessary for admission through the Quota 1 channel. The rescaling yields negative values for GPAs lower than what is necessary for gaining access through Quota 1 and positive values for GPAs higher than the minimum GPA necessary for gaining entry through Quota 1.

Data are available only on *admitted* students, not on all applicants, and students enrolled in the most selective university programmes represent a highly selective group. Adding that the selection into Quota 1 or 2 is completely determined by the student's GPA, any standard regression model with the admission channel as the predicted variable would be unsuitable for assessing the socially diversifying effect of Quota 2 relative to Quota 1. Thus, I rely on descriptive tables and on regression models yielding probabilities of associations between the rescaled high school GPA and social origin. These probabilities are used to determine the social gradient in the two different admission channels.

The paper proceeds as follows: First, I use descriptive measures to investigate the overall difference in social composition between Quota 1 and 2 students. Second, I analyse whether substantial differences exist in the social gradient in Quotas 1 and 2 in the programmes investigated. The overall association between admission channels (Quota 1 or 2) and the students' social origin may differ conspicuously: as discussed earlier, in some programmes, Quota 2 students may be even more socially advantaged than Quota 1 students.

Results

I begin by examining the overall social difference between Quota 1 and 2 students. Table 1 lists key programme characteristics, including size, Quota 2 assessment criteria, the social composition of students in the programmes and how profession-oriented the programmes are.

Table 1 about here

The last column in Table 1 shows that only about half of the investigated programmes show a significant difference between the share of second-generation students in Quotas 1 and 2. This finding is especially noteworthy given that this column compares the average parental educational level of the three-fourths of students with the highest GPA (Quota 1) with the lowest fourth (Quota 2). That the lowest 25 per cent in the GPA range do not differ from the upper 75 per cent with respect to parental education is very surprising, suggesting that Quota 2 may indeed act as a privileged entryway for lower-achieving children from higher-educated homes. In addition, it is predominantly the highly profession-oriented programmes leading to well-defined occupations that show no significant differences in social composition between Quota 1 and 2 students. Furthermore, the two highly profession-oriented programmes that use the most subjective assessment criteria in Quota 2 have the largest share of students with highly educated parents in Quota 2 (the largest negative figures in column five).

While Table 1 shows that Quota 2 does not have a more socially diverse composition of students than Quota 1 in half of the programmes investigated, assessing the diversifying potential of Quota 2 for the other programmes from these descriptive tables is not possible. As students admitted through Quota 2 have, by definition, a lower GPA than Quota 1 students, crosstabs showing that students with lower-educated parents are more likely to be admitted in Quota 2 are not particularly

informative. It is not possible to assess whether the existence of a secondary admission channel has had a positive impact on the social composition of the students admitted, exceeding that of a scenario of admitting *all* students on the basis of their high school GPA (having only a Quota 1). Therefore, it is necessary to examine whether the social gradient in the two quotas differs: disadvantaged students may be found even more (or less) than expected in Quota 2.

To investigate whether the social gradient changes across the GPA range and whether conspicuous gradient differences are found between the two quota groups, I run a series of linear regression models on the relation between GPA and social origin (parental education). I regress the probability of having at least one university-educated parent over the rescaled high school GPA, with the threshold GPA set at zero (the GPA dividing Quota 1 admission from Quota 2 admission). I run one model for all programmes (including dummies for programmes, year admitted and gender as controls) as well as models for each of the 18 programmes (with dummies for gender and year admitted as controls). In addition to these controls, all models are tested for the necessity of including functional forms of GPA as well as interaction terms of GPA and type of admission channel (Quota 1 or 2).

Figure 1 provides a notional example of how the graph of the association between GPA and social background (by parental education) could look if indeed Quota 2 favoured underprivileged (first-generation) students.

Figure 1 about here

Figure 1 illustrates three possible social gradient changes when admission changes from Quota 1 to Quota 2. The social gradient in Quota 2 is either lower or more negative (or both) than it is in Quota 1, indicating that Quota 2 favours first-generation students. Moving to the empirical evidence,

Figure 2 depicts the model-derived predicted probability of having at least one university-educated parent in Quota 1 and 2.

Figure 2 about here

Figure 2 contains a graph of the association between GPA and social background (by parental education) for all programmes. The graph does not show any sign that Quota 2 generally favours disadvantaged (first-generation) students. The probability of having at least one university-educated parent gradually diminishes from about 40 per cent to a little over 20 per cent as the GPA drops, and nothing indicates any conspicuous gradient changes from Quota 1 to Quota 2.¹⁰ This picture is repeated in Figure 3, which contains graphs for the individual programmes.

Figure 3 about here

As Figure 3 shows, no programme displays a social gradient that is more negative in Quota 2 than in Quota 1. A more negative slope would reasonably be expected if socially disadvantaged students were more prevalent in Quota 2. On the contrary, a series of programmes, primarily the highly profession-oriented ones, exhibits slopes where the probability of having a university-educated parent flattens out or even rises in Quota 2, indicating that socially privileged (second-generation) students may be even more favoured in Quota 2 than in Quota 1. For example, one medical programme (SDU medicine) exhibits the completely opposite trend of the political intent for Quota 2. In SDU medicine, disadvantaged students are found more often in Quota 1 than in Quota 2. These results partly support the first hypothesis and fully support the second. For many of the highly profession-oriented programmes, the admission criteria in Quota 2 favour socially

advantaged students, whereas no difference exists between Quota 1 and 2 for the less profession-oriented programmes.

The third hypothesis anticipated that Quota 2 would be a channel of specific occupational reproduction for low-achieving children from the privileged professional classes (children failing to obtain a GPA high enough to enter the programmes through Quota 1). To investigate this hypothesis, I look more closely at the parents' education, asking whether 'programme reproduction', that is, children enrolling in the same programme that one of their parents completed, is more prevalent amongst those admitted in Quota 2 than in Quota 1. Column three in Table 2 reports the share of students reproducing their parents' education through Quota 2 relative to that in Quota 1. Column three shows that programme reproduction in Quota 2 is smaller than or equal to that in Quota 1 for the less profession-oriented programmes, but it is higher in Quota 2 for the highly profession-oriented programmes.

Previous studies reveal that male university students present themselves as more confident than females in academic contexts (Crawford and MacLeod, 1990; Heatherington et al., 1993). Therefore, I separate the column three ratio by gender in columns four and five in order to examine whether male students show more programme reproduction through Quota 2. For the highly profession-oriented programmes, the male ratio is generally higher than the female ratio, especially in the two highly profession-oriented programmes that make use of the most qualitative Quota 2 assessment criteria (individual presentations). For example, in the architecture programme, males reproduce their parents' education more than twice as often in Quota 2 as in Quota 1, whereas reproduction occurs close to twice as often in the medicine programme at SDU.

Table 2 about here

Not only does Table 2 show significant programme reproduction amongst professional class families (especially the highly profession-oriented families) – this reproduction is *consistently* higher in Quota 2 than in Quota 1. The consistently higher reproduction suggests that Quota 2 acts as a safety net (i.e. as an alternative and even more successful admission strategy) for low-achieving children pursuing the same education as their professional class parents. The theoretical explanation for this is that families characterised by profession-oriented socialisation and reproduction patterns (Parkin, 1974; Weeden, 2002) will be particularly motivated to seek alternative access to the right programmes for their low-achieving children. That differences are even more pronounced with division by gender (males showing higher programme-reproduction rates than females) could indicate that lower-achieving professional class sons in particular resort to Quota 2 as an entryway to the same professional class as their parents.

I have not found any evidence of Quota 2 generally favouring first-generation students. The likelihood of having a university-educated parent does not decline at a steeper rate in Quota 2 than in Quota 1. On the contrary, many of the highly profession-oriented programmes show an increase in the likelihood of having a university-educated parent in Quota 2 than in Quota 1. In addition, Table 2 suggests that Quota 2 acts as a safety net for low-achieving children, particularly sons, pursuing the same education as their professional class parents. In sum, holistic assessment criteria do not fare well compared to a GPA-based admission system. Nothing indicates that the alternative access channel of Quota 2 favours socially disadvantaged students, a finding running counter to one of the key political intentions of introducing Quota 2.

Discussion and Conclusion

This paper has examined whether a secondary admission channel, honouring qualitative and extra-curricular merits has had a positive impact on the social composition of students admitted to

selective university programmes in Denmark. Regarding the first hypothesis, the social composition of Quota 1-admitted students compared to Quota 2-admitted students does not suggest any *dis-favouring* of socially advantaged students in Quota 2. On the contrary, and in support of the second hypothesis, many of the highly profession-oriented programmes have a socially more biased intake in Quota 2 than in Quota 1. For these programmes, first-generation students may benefit even more from a GPA-based Quota 1 admission procedure than from a Quota 2 admission based on assessments of extra-curricular activities.

In addition to the first hypothesis, I expected Quota 2 to favour socially advantaged students even more when assessments were particularly subjective. I found that programmes using individual presentations as Quota 2 assessment criteria have a particularly socially biased Quota 2 intake. The third hypothesis anticipated that Quota 2 would be a channel of specific occupational reproduction for low-achieving professional class children failing to obtain a GPA high enough to enter the programmes through Quota 1. Table 2 supports this hypothesis, suggesting that access through Quota 2 is an important tool in maintaining the occupational reproduction of professional class families.

In line with Bernstein's (1977, 1990) and Bourdieu's (1979) early works on social class, language codes and the importance of extra-curricular cultures in educational settings, these results suggest that children with highly educated parents will be better equipped than their peers from lower-educated families to honour the weakly framed and classified definitions of merit that characterise admission through Quota 2. As cultural reproduction theory states (Bourdieu, 1986, 1996), these kinds of educational settings valorise particular kinds of cultural capital possessed by privileged students. Recalling the overrepresentation of medical parents among medicine students and architect parents among architecture students admitted through Quota 2, I understand the strategies of different professional class families as pertaining to occupation-specific parent-child

socialisation patterns. As argued in micro-class theory (Sørensen and Grusky, 1998; Weeden and Grusky, 2005) the occupational socialisation process is key to understanding why children develop preferences for specific educational programmes and institutions. Micro-class theory helps to explain why professional-class families will be especially vigilant in pursuing an educational pathway that will secure the reproduction of their occupational position, even if their offspring fail to achieve a GPA high enough to secure entrance to the profession-oriented programmes through Quota 1. As for the institutions themselves, the professional programmes may tacitly prefer a certain type of student, disproportionately favouring those applying to the same type programme as their parents (Reay et al., 2005; Thomsen, 2012; Karabel, 2005; Ulriksen, 2009; Weeden and Grusky, 2005).

More males than females reproduce their parents' education through the Quota 2 admission channel. This difference may have several possible explanations: men, having statistically lower high school GPAs than women, might have extra incentives to attempt admission through Quota 2; the admission committees might implicitly favour male applicants; and male students may also be more adept at successfully meeting the qualitative assessment criteria because of the gendered academic performance bias reported in several studies (Crawford and MacLeod, 1990; Heatherington et al., 1993). In order to examine these gender perspectives more thoroughly than what the administrative data allows for, future research should incorporate interviews and field observations.

The findings in this paper run counter to one of the key purposes of establishing a secondary admission channel (Quota 2) based on more holistic assessments of applications – aiding in closing the social class gap in access to higher education. However, since the 2000s, the political balance has shifted from viewing Quota 2 as helping to close the social class gap toward seeing Quota 2 as a vehicle of efficiency. Quota 2 admittants, having successfully undergone a meticulous admission

procedure, are believed to be more motivated and at a lower risk for dropping out or opting out.

Indeed, a recent expert committee report by the Ministry of Higher Education (2015) on quality in higher education in Denmark proposes altogether abandoning admission based on high school GPA in favour of using qualitative admission procedures.

In contrast, this paper shows that equity concerns may be ill-served by increasing the share of students accepted on the basis of their extra-curricular merits. Even though the well-known correlation between social origin and high school GPA produces a social bias in GPA-based Quota 1 admission, for some programmes, this bias might be modest relative to the even greater social bias in Quota 2 admission. The Quota 2 admission test for the architecture programme presents a particularly informative example: it is highly plausible that we find more children of architects in Quota 2 than in Quota 1 because they are much better equipped for the admission test (designing an architectural project) than other children who do not possess the same habitualised knowledge about architecture. The result is that prospective students from lower-educated homes have a better chance of obtaining a sufficient high school GPA than they do of deciphering how one successfully meets the holistic assessment criteria for access to particular programmes.

Social class gaps in the secondary admission system are particularly large because selectors may be biased in their evaluation of applicants' performance (e.g. Zimdars et al., 2009; Boliver, 2015) and because parental resources are much more important when admission are high-stakes, as is the case with admission tests (Bradbury et al., 2015: 38). Bradbury et al. (2015) argue that the use of high school GPA (predominant in Canada and Australia) is more 'forgiving', catering more to equalising opportunities than the use of admission tests (predominant in the US and the UK). A high school GPA, the result of three years of cumulative effort in many different subjects, is much less high-stakes than 'one-shot' admission tests. In sum, when policy makers are faced with a

choice of either a GPA-based admission system or a system based on admission tests, the system least prone to social class bias may be the GPA-based one.

However, if policy makers want to take one step further in reducing the class gap in admission to higher education, they could supplement a GPA-based system with contextualised admission (for example, by identifying the best applicants from disadvantaged areas), as practised in some higher education institutions in the UK (Bridger et al., 2012).

Denmark already has a law allowing higher education applicants to multiply their high school GPA by 1.08 if they apply no later than two years after they have finished high school. In the same vein, a pro-equity admission policy could allow applicants to multiply their GPA if they come from disadvantaged neighbourhoods, or it could create a special quota exclusively for eligible students from disadvantaged neighbourhoods. As Alon (2011) argues, a secondary admission system giving advantage to students from disadvantaged neighbourhoods could aid in closing the social class gap while also bypassing ethically problematic individual assessment criteria (as Danish admission committees are not allowed to discriminate based on individual applicants' minority group status). However, the current educational policy climate tends to favour an increased focus on efficiency, rendering the introduction of equity reforms in Denmark less feasible in the near future.

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¹ The vast majority of Danish bachelor's students continue with a two-year master's programme.

² Measured by the higher education initial participation rate, participation is high compared to the UK: In 2007, the rate for 18 to 29-year-olds (measured as the sum of the percentages of each age group enrolling in higher education in each year) was 59 per cent for men and 85 per cent for women. These percentages rose to 82 per cent and 98 per cent, respectively, in 2015.

³ Educational inequality in the Nordic countries is less pronounced than elsewhere (Esping-Andersen, 2006; Shavit et al., 2007; Erikson and Jonsson, 1996).

⁴ Successful applicants will not receive offers from several programmes, but be accepted only by one programme (the one the student has given the highest priority).

⁵ I focus on the impact of different admission procedures, not on differences in returns to education or differences in completion rates (the effective completion rate in Denmark is close to 90 per cent). For studies on how affirmative action programme-admitted students perform differently from other students, see Fischer and Massey (2007) and Hoare and Jonston (2011).

⁶ I define a programme as highly profession-oriented if it leads to a very specialised and well-defined occupation distinguished by having its own union and/or an educational certification monopoly (e.g. doctors and architects) (e.g. Weeden, 2002). For the purpose of this paper, I view professional-class members as primarily belonging to these occupations.

⁷ While application sheets were not available for the period I investigated, Statistics Denmark records whether students have been admitted through Quota 1 or 2.

⁸ Before 1996, there was no record of whether the student had been admitted through Quota 1 or 2. After 2007, there was a break in the registration process, because the admission procedure became electronic. In addition, a range of other policy changes was introduced in 2008, making it more difficult to assess the socially diversifying effects of Quota 2 after 2007. Due to a registration error in the reporting of Quota 2 markings, information on a second sought-after architecture programme in Copenhagen is missing.

⁹ I choose parental education as a proxy for social origin because the Quota 2 system targets first-generation students. I do not include a variable for ethnicity because the number of minority applicants to the sought-after programmes studied in this paper (1996 to 2007) is negligible.

¹⁰ For each programme in each year, I have run a series of non-parametric visualisations of zero-rescaled high school GPAs and social origin (by parental education) using locally weighted regression scatterplot smoothing (LOWESS). The smoothed graphs from these regressions support the main findings in the paper: nothing indicates that socially disadvantaged students are given preferential treatment in Quota 2. Furthermore, nothing indicates any immediate jumps in the share of disadvantaged students, right at the high school GPA cut-off when admission shifts from Quota 1 to 2.

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Jens-Peter Thomsen is senior researcher at SFI – The Danish National Centre for Social Research, Denmark. His research activities lie within the sociology of education, in particularly issues of inequality in the education system. Using both quantitative and qualitative methods, he deals with concepts of social closure, class, elites, stratification, segregation and differentiation, especially within higher education.

Table 1: University programme characteristics (1996 to 2007)

University programme	N	Quota 2: Assessment criteria	Profession- oriented profile of programme	Share of second- generation university students	Difference in share of second- generation university students in Quota 1 and 2 (percentage points; share in Quota 1 minus share in Quota 2)
Anthropology (UCPH)	646	WA	Lower	33.2	14.1*
Sociology (UCPH)	689	WA	Lower	37.1	14.4*
Political science (UCPH)	1,885	WA	Lower	43.6	15*
Political science (AU)	2,303	WA	Lower	31.4	7.2*
Law (UCPH)	6,133	WA	Lower	31.4	9.1*
Law (AU)	3,796	WA	Lower	21.6	1.2
Humanistic studies (RUC)	3,123	WA	Lower	28.7	9*
Literature studies (UCPH)	830	WA	Lower	43.4	11.4*
Exercise and sports programme (UCPH)	818	WA	Lower	28.1	-1.8
Architecture (ASA)	1,382	IP	Higher	23.7	-3.5
Psychology (UCPH)	1,526	WA	Higher	29.5	8.3*
Psychology (AU)	1,487	WA	Higher	22.5	-0.2
Medicine (UCPH)	1,886	WA	Higher	43.4	2.8
Medicine (AU)	1,602	WA	Higher	36.0	2.7
Medicine (SDU)	946	IP	Higher	26.5	-2.2
Dentistry (UCPH)	818	WA	Higher	33.6	0.4
Dentistry (AU)	560	WA	Higher	29.0	2.6
Veterinary science (UCPH)	1,074	WA	Higher	23.9	3.7
Total	31,504			30.8	4.5

Notes: UCPH = University of Copenhagen, AU = Aarhus University, RUC = University of Roskilde, ASA = Aarhus School of Architecture, SDU = University of Southern Denmark. Column three: WA = written application, IP = individual presentation. Percentages in column five are found by subtracting the percentage of second-generation university students in Quota 2 from that in Quota 1. Positive figures signify a higher share of university-educated parents in Quota 1 than in Quota 2, whereas negative figures signify a higher share of university-educated parents in Quota 2 than in Quota 1. Significant differences at the 5 per cent level are marked with asterisk. I consider the law programme to have a lower profession-oriented profile because it can lead to a multitude of different types of occupations in the public and private sector in Denmark.

Table 2: Programme reproduction (1996 to 2007)

	Share of students where at least one parent has the same university education as the student (per cent)		Ratio of Quota 2/1	Ratio of Quota 2/1, female students	Ratio of Quota 2/1, male students
	Quota 1	Quota 2			
<u>Less profession-oriented programmes</u>					
Political science (UCPH)	1	–	–	–	–
Political science (AU)	2	–	–	–	–
Law (UCPH)	9	8	.9	1	.7
Law (AU)	6	6	1	–	1.1
<u>Highly profession-oriented programmes</u>					
Architecture (ARCH)	6	9	1.5	1.3	2.3
Psychology (UCPH)	3	4	1.3	1.7	–
Psychology (AU)	2	3	1.5	–	–
Medicine (UCPH)	18	20	1.1	1.2	1.1
Medicine (AU)	16	17	1.1	.9	1.3
Medicine (SDU)	11	15	1.4	.9	1.7
Dentistry (UCPH)	10	14	1.4	1.5	1.5
Dentistry (AU)	10	11	1.1	1.3	–
Veterinary science (UCPH)	3	3	1	–	–

Notes: Figures are only reported for programmes in which more than 10 students in each cell have reproduced their parents' education (this may, among other things, be caused by structural changes in offered programmes over time). Bold figures in the column one indicate significant differences between the shares at the 10 per cent level. I do not have information on the graduating institution of the parents (data not available).

Figure 1: Probability of having at least one university-educated parent (y-axis) over high school GPA (x-axis). Notional example of possible social gradient changes if Quota 2 favoured disadvantaged students.

Note: X-axis: 2.5 represents a very high GPA (2.5 grade points above the cutoff between Quota 1 and 2) and -2.5 represents a low GPA (2.5 grade points below the cutoff).

Figure 2: Association between GPA and student type for all programmes. Probability of having at least one university-educated parent (y-axis) over high school GPA (x-axis).

Note: For ease of interpretation, the GPA scale is inverted, with 2.5 representing a very high GPA (2.5 grade points above the cutoff) and -2.5 representing a low GPA (2.5 grade points below the cutoff). I have controlled for programmes, year admitted, gender and for the need to include functional forms of GPA and interaction terms of GPA and type of admission channel (Quota 1 or 2) (95 per cent confidence intervals are shown).

Figure 3: Association between GPA and student type for individual programmes. Probability of having at least one university-educated parent (y-axis) over high school GPA (x-axis).

Note: For ease of interpretation, the GPA scale is inverted, with 2.5 representing a very high GPA (2.5 grade points above the cutoff) and -2.5 representing a low GPA (2.5 grade points below the cutoff). In each model, I control for year admitted, gender and for the need to include functional forms of GPA and interaction terms of GPA and type of admission channel (Quota 1 or 2) (95 per cent confidence intervals are shown).