
Author: Stefan Öberg, Unit for Economic History, University of Gothenburg – School of Business, Economics and Law.

Abstract

Background
The Swedish Ministry of Education and Research in 2017 proposed an update to the Higher Education Act which increased the responsibility of universities to promote diversity among students. There is a widespread perception in academia that widening participation can pose a challenge to the quality of the education and lead to worse performances of students. I will investigate the empirical support for this perception for the case of students in economic disciplines in Sweden, 2007–2016.

Methods
Because my study relies on published, aggregate statistics I cannot establish any causal effects from selectivity in admission on student diversity or achievements. What I can do is to use graphical methods and regression analyses to analyze the cross-sectional variation across universities and the longitudinal variation in a panel of universities over time. I have tried to limit my analyses to include only students in economic disciplines to increase the comparability across universities.

Findings
There are substantive differences across universities in the characteristics and background of students. None of the largest universities are among the most diverse regarding the educational careers of students or the least selective regarding the socioeconomic background of the students. There is much more variation between the smaller, regional universities. Students in economic disciplines in Sweden seem to have become less diverse in regard to age, behavior and immigrant background during the last decade. The selectivity of the students in the admittance process has increased. I find tentative support for a positive association between the degree selectivity of students and performance among students in economic disciplines in both the cross-sectional and the longitudinal analyses.

Interpretation
This study can not prove any link between the trends mentioned above, but my results are not refuting the perception that widening participation in higher education can lead to less prior knowledge and worse performance of students. My results are based on students in economic disciplines. The results are not conclusive, but show that the question is worth further investigation, for example, through studies of students in other disciplines.

Keywords: widening participation, widening participation research, socioeconomic background, selectivity, student diversity
1. Introduction

Student groups with highly diverse backgrounds and differences in previous knowledge pose serious challenges to teachers in higher education. At the same time, university studies still need to be made more inclusive rather than the opposite. It is a difficult task to come up with solutions that can both increase the diversity of students and maintain the level of learning without raising the costs of higher education. Smaller, regional universities have a larger degree of diversity among their students than larger universities. It is therefore possible that the smaller, regional universities could provide positive examples on how to increase student diversity. This paper investigates whether there are indeed such differences in student diversity across different types of universities. It then goes on to investigate whether there are similar patterns in the degree of selectivity of admissions across universities. Finally, it investigates if there also are differences in student performance.

A possible counterargument against a possibility that smaller, regional universities could provide positive examples for widening participation is that they are less selective in their admissions. They could therefore get students with both more diverse backgrounds and less previous knowledge. This, in turn, leads to worse student performances. This line of thought seems to be a widespread belief in academia but in my initial literature searches I could not find any good empirical support for it. That is what I try to contribute in this paper. Figure 1 presents my stylized analytical model.

Figure 1 The analytical model

Participation in higher education has expanded dramatically in Sweden, as in other high-income countries, since the middle of the twentieth century (Högskoleverket 2006, 14; SOU 2015, chapters 2 and 9; Statistics Sweden 2016). In Sweden the expansion of higher education
occurred in parallel with, and partly as a result of, policies aiming at widening participation (Berggren and Cliffordson 2012). Over the long run, the expansion of higher education has meant that new groups of people have become students: Higher education has become less socially elitist and it has also become possible for people to study later in life to, for example, change careers. Widening participation in higher education has thus been a political goal in Sweden for many decades (Cliffordson and Gustafsson 2007; Berggren and Cliffordson 2012). Despite the implemented policies to widen the recruitment base, socioeconomic background is still a strong predictor of participation in higher education (Statistics Sweden 2004; UHR 2016, 135–38; Petersson 2016; UKÄ 2017, 51–55; see also Hinton-Smith 2012a). Widening recruitment to and participation in higher education gained renewed interest in the early 2000s and again in 2015 (UHR 2016, 119–21). The Swedish Ministry of Education and Research on July 18, 2017, proposed an update to the Higher Education Act (SV. Högskolelag) which increased the responsibility of universities to promote diversity among students. The aim of the bill was to continue both expanding higher education and to make the student body more representative of the population in general. The bill was withdrawn on December 1, 2017, partially because of

1 What is meant by "widening recruitment" and "widening participation" is not well defined in the laws or regulations (UHR 2016, 23). The best definition I have found is the motivation provided by the Swedish Council for Higher Education (UHR, SV. Universitets- och högskolerådet): "Universities and university colleges have a societal responsibility to ensure that diversity in society is reflected in higher education. This can be understood as a basic definition of widening access on a principal level, even though widening access work on an operative level may vary. Everybody’s right to higher education, and in the long term to influence and power, is an issue of democracy. In economic terms Sweden cannot afford to miss potentially excellent students. With diverse student groups new perspectives are added and experiences broadened. Diverse student groups therefore contribute to increased quality in education, as knowledge is developed when different perspectives meet. Another aspect of quality is that students are prepared to meet a diverse society by studying at a diverse university." (UHR 2016, 10)

3 I will use "universities" to indicate all institutions for higher education in Sweden, i.e. both university colleges (SV. högskolor) and universities (SV. universitet).

4 The proposed update changes the wording of the law from a focus on widening the recruitment of higher education to a focus on widening participation. The update is intended to highlight that the universities have responsibilities throughout the educational career of the students. The proposal (in Swedish) can be found here: [http://www.regeringen.se/rattsdokument/departementsserien-och-promemorior/2017/07/brett-deltagande-i-hogskoleutbildning/](http://www.regeringen.se/rattsdokument/departementsserien-och-promemorior/2017/07/brett-deltagande-i-hogskoleutbildning/). The Swedish Council for Higher Education’s (2016) report (in Swedish) “Kan excellens uppnås i homogena studentgrupper?”
concerns in the referrals from the universities that a widened participation could come at the cost of lowering the quality of the education (Ekot, December 1. 2017).¹

There is a widespread perception in academia that widening participation can pose a challenge to the quality of the education (SOU 2017, 99, 173, 220; see also UKÄ 2014, 7). The potential conflict between widening participation and the quality of education is also brought up in much of the research on the topic (UHR 2016, 146–47; e.g. Cliffordson and Gustafsson 2007, 43, 58; Hinton-Smith 2012b).⁵ The perception assumes that admitting more students leads to the students having less prior knowledge (e.g. Cliffordson and Gustafsson 2007, 57; SOU 2017, 222). Students with less prior knowledge would, in turn, pose a challenge for teaching at universities.

The argument linking widening participation to challenges to quality of education goes something like; when higher education is expanded, the entry requirements will be lowered. Cliffordson and Gustafsson (2007, 43, 58), for example, argued that this has been the case in Sweden. They go on to claim that the lowered entry requirements in turn have meant less prior knowledge of the students. They admit that the empirical support for this is weak, but still argue that the lower grades signal that the new student groups are less well-prepared for successful university studies (Cliffordson and Gustafsson 2007, 57).

People from the under-represented groups in academia on average have lower grades than people from more privileged backgrounds. But it is not self-evident that lower entry requirements lead to more people from the under-represented groups being admitted to universities. The Swedish Government Official Inquiry into admission systems to university studies (SOU 2017, 175) recommends that this should be investigated empirically.

The Official Report of the inquiry (SOU 2017) also stress that it is important to keep in mind that there are two distinct parts to the admission system for higher education in Sweden, firstly, there is the evaluation of qualifications, and secondly, there is the system of selection (based on grades etc.). Everyone who is qualified for higher education is judged to be able to benefit from

(EN. “Can excellence be achieved in homogenous student groups?”) provides a background to the proposed changes.

⁵ See UHR (2016, 147–55) for a selective overview of the literature on widening participation.
university studies. The selection only takes place when there are more applicants than places. Grades from upper secondary education (SV. gymnasiet) is the best instrument available to predict performance in higher education (SOU 2017, chap. 7). But, even if grades is the best available instrument to predict performance they still predict only a relatively small share of the variation (SOU 2017, 229). It is therefore not obvious that lowered entry requirements would lead to any noticeable change of the prior knowledge or performance of the students.

The Swedish Government Official Inquiry into admission systems to university studies reviewed what little evidence there is on how the prior knowledge of new students has developed over time (SOU 2017, 220–23). They conclude that there is some support for a notion that the level of prior knowledge of students fell from the mid-1990s to the mid-2000s. But, they also point out that the perception that the prior knowledge of the students is worse today compared to what it used to be has been around for a long time (SOU 2017, 174). It is therefore not certain that the perception is accurate, but rather a widespread feeling among teachers in higher education.

1.1 Purpose and research questions

Even if the widening participation has not led to admitting students with less prior knowledge, there are reasons to look into the literature on widening participation for pedagogical development. The Swedish Council for Higher Education (UHR, SV. Universitets- och högskolerådet) highlights positive examples of projects at Swedish universities to widen both recruitment and participation (UHR 2016). The projects include career consultations, collaborations with local companies, and actions to systematically follow up student performances to find students in need of extra support. Most students would benefit from more developed systems of support during their studies. Widening participation should also, ideally, be

6 Bergren and Cliffordson (2012) highlight that the discussion about the potential link between widening participation and student quality has been ongoing in Sweden, at least, since the 1940s. 7 Tamsin Hinton-Smith goes so far as to conclude that “One of the key contributions of the WP [widening participation] discourse has been to provide the vital resource of well-researched and documented insight into some of the most productive ways in which to support WP students operating within imperfect HE [higher education] economies.” (Hinton-Smith 2012a, 302)
a process of integration—in which both parties adapt to the other—and not a one-sided assimilation in which the new student groups adjust to fit into the traditional universities.

There is a contradiction between the conclusions of UHR (2016), that increased student diversity is a necessity for high-quality education, and the perception of many working at Swedish universities, who think that widened participation will pose a challenge to the quality of education. I will investigate if widened participation has any consequences for student performances. I do this to investigate the empirical support for the perception that widening participation in higher education means that the students perform less well at the university. Because my study relies on published, aggregate statistics I cannot establish any causal effects from selectivity in admission on student diversity or achievements. What I can do is to analyze the cross-sectional variation across universities and the longitudinal variation in a panel following measures on a set of universities over time. There is therefore one cross-sectional research question and one longitudinal research question linked to each of the aspects; student diversity, selectivity in admission criteria, and student achievements. My research questions are:

Are there systematic differences…

1. in student diversity across universities?
2. in student diversity over time?
3. across universities in how selective they are in regard to their admission criteria?
4. in selectivity of admissions over time?
5. across universities in the achievements of the students?
6. in the achievements of students over time?

2. Data and methods

I answered these questions by analyzing aggregated, statistical data on Swedish universities and students, primarily for the period 2007–2016. The analyses are mostly graphical, i.e. plotting the development over time or differences across universities. I find this to be the most informative method given the small number of observations. In some of the figures, I have highlighted the University of Gothenburg and Lund University because they turned out to be good illustrations of differences in student characteristics between universities. I used a Chi-square group-comparison test to analyze deviations of the student populations from the expected distribution across groups by age and sex. I used a regression analysis to investigate the development of the completion rate over time to be able to adjust for differences in student characteristics and courses and programs offered.
The discussion of widening participation in higher education in Sweden has focused on social background (as measured by the educational level and, until 2007, occupational category of the parents) and immigrant background (UHR 2016, 23). These are also the two student background characteristics that the Swedish Higher Education Authority (UKÄ, SV. Universitetskanslers-ämbetet) presents statistics on (see: http://statistik.uka.se/). The UKÄ also presents a composite measure on "non-traditional students". The definition of non-traditional students is students who fulfill at least one of the criteria: students starting their university studies at age 25 years or older, studying part-time, or having had a break from university studies of at least three semesters. What is measured is therefore differences in student behavior, specifically behaviors indicating a less than straightforward educational career. Because my study is based on published statistics, I am limited to analyzing the student characteristics that are presented by the UKÄ.

There are large differences in the characteristics and background of students between different programs and courses (UHR 2016, 135–45). Different groups of students, for example, participate in different professional qualification degree programs (SV. yrkesprogram). Because different universities have different programs and courses, this could contribute to the differences we observe between students of different universities.

To allow for comparisons across different universities I have tried to limit the statistics to cover students in economic disciplines (compare e.g. Cliffordson and Gustafsson 2007; Berggren 2010). There is some variation regarding which universities that are included in the different analyses. The lists of universities included can be found in the notes to the figures. In the regression analysis of the changes in the completion rate over time, I have limited the sample to include only universities which had students in the relevant disciplines in all the included years. When the analysis is limited to only one point in time, the data is for (the autumn semester) 2016.

To investigate widening participation, I need data on the socioeconomic background and characteristics of students. A limitation of the published statistics is that the statistics on the non-traditional students’ population is not divided by discipline. Therefore, I have been able to remove the differences in the mix of subjects across the different universities in the analysis of the deviations of the student populations from the expected distribution across groups by age and sex.

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8 The term in the UKÄ’s statistical database is "economy/administration", SV. ekonomi/administration. This includes economics, business administration, economic history etc. I have only been able to remove the differences in the mix of subjects across the different universities in the analysis of the deviations of the student populations from the expected distribution across groups by age and sex.
traditional students and the socioeconomic background of the students is only available at an aggregated level; either by type of education or by university. It is therefore not possible to compare the social background of students within a specific subject across universities. The background and characteristics of students at a university will be strongly influenced by the set of courses and programs offered at that university. Any unadjusted differences between universities, as those presented below, should be interpreted with caution. The analyses show what could be done using the individual level data underlying the aggregated statistics.

Most data come from the UKÄ’s statistical database or from Statistics Sweden’s tables publishing data from UKÄ. To study variation of the entry requirements across universities, I collected data from the UHR’s admission statistics database (SV. antagningsstatistik). This presents figures on the program level. I chose about 50 programs at 20 universities which, from their title, seemed to have business or economics as their main subject. I did not check any course documents for uncertain cases. I excluded programs on logistics, retail store manager programs and programs focused on real estate. Some initially selected programs had to be excluded because there was no data on their admission or students for the autumn semester 2016. In the analyses presented below I include 43 or 45 programs at 17 different universities. The programs analyzed are listed in Table A1 in the Appendix. The selection process is admittedly less than perfect, but I do not think the selection affected the results.

3. Results

3.1. Are there systematic differences in student diversity across universities?

3.1.1. The age and sex composition of the student groups

There are no strong or systematic differences across the universities in the age and sex composition of the student groups (Figure 2). It was possible to compare students in economic disciplines across universities in regard to their distribution by age and sex. For this I was even able to include only students in business administration (SV. företagsekonomi) and economics (SV. nationalekonomi) to further standardize across universities. I collected the shares of the students that belonged to three broad age groups by sex during autumn semester 2016 and compared to the shares expected in the Swedish population. I then, as mentioned, used a Chi-square test to summarize the deviations from the expected distribution.
None of the student populations deviated enough from the expected (crude) age and sex distributions to be statistically significantly different. But we can see that there were differences between the 20 universities studied (Figure 2). The Mid Sweden University (SV. Mittuniversitetet) had the lowest deviation and the University of Borås (SV. Högskolan i Borås) the largest deviation from the expected age distribution. The deviation scores are plotted against the number of students registered for economics and business administration. There is only a weak (not statistically significant) negative association between the two.

Figure 2 The deviation from the expected distribution by age and sex among registered students in economics and business administration plotted against the number of such students, by university

Note: See text for explanation.


Years included: Autumn semester 2016.

Universities included: 20: Göteborgs universitet, Högskolan Dalarna, Högskolan Väst, Högskolan i Borås, Högskolan i Gävle, Högskolan i Halmstad, Högskolan i Skövde, Karlstads universitet, Linköpings universitet, Linnémuseums, Luleå tekniska universitet, Lunds universitet, Mittuniversitetet,
3.1.2. The shares of non-traditional students

I now turn to the measures on student characteristics and background presented by the UKÄ at the university level. Figure 3 presents the share of all students (registered during the fall semester) that fulfil at least one of the criteria indicating a less than straightforward educational career. The first thing to notice from Figure 3 is the large share of students that are “non-traditional”. This group of students is indeed oftentimes in majority. The average for the 20 universities included here is at or slightly above 50 percent until 2008 and slightly below 50 percent from 2009 onwards.

*Figure 3 Change of the share of non-traditional students by university, 2001–2016*

Note: The shares are out of all registered university students during the Autumn semester each year.


Universities included: The 20, as in Figure 2.

The second thing to notice is that there are substantive, and relatively stable, differences across universities in the share of non-traditional students. Indeed, most (89 percent) of the variation is explained by constant differences between universities when estimating a fixed effects panel
regression (results not shown). None of the large universities are among the most diverse in terms of the student behaviors (as captured by UKÄ’s indicator for non-traditional students, Figure A1 in the Appendix). This creates a weak, negative association between university size and student diversity in this regard. But there are substantive differences also between the large universities. The University of Gothenburg (SV. Göteborgs universitet), for example, has a slightly larger share than the average while Lund University (SV. Lunds universitet) has among the smallest share non-traditional students.\(^9\) I remind the reader of the definition of a non-traditional student is indicating people with a less than straightforward educational career. In regard to this limited aspect of student diversity I conclude that there are clear differences across universities and that these differences are weakly, but negatively associated with the number of students at the university.

### 3.1.3. The socioeconomic background of the students

Student behavior is, as just mentioned, only a limited part of student diversity. What seems to most often be meant by student diversity is rather the socioeconomic background of the students. UKÄ presents statistics on the relative representation of students with different socioeconomic background at the university level. The measures include the relative representation of people with parents with higher education, people with parents with worker occupations, and people with immigrant background. The figures are standardized for differences in the students’ age and their municipality of origin. The measure based on parental education, for example, compares the educational level of the parents of new-comer students to that of people of the same age from the same municipalities that the students came from. Because the comparison is made based on the municipality of origin, it takes the regional differences in educational attainment into account. The measure captures to what extent to which the admitted students are selected in regard to socioeconomic background. Figures above one indicate that it is more common among students than average to have parents with higher education. A figure of 1.5 can, more specifically, be

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\(^9\) Figure 3, as well as Figures 4, 5, A3, and A4, are not intended to show the change over time for each university but is rather intended to give an impression of the overall development among the universities included. I have indicated the average as well as the University of Gothenburg and Lund University in figures 3, 4, A3, and A4. These three lines are dashed and labeled.
interpreted as that it is 50 percent more likely that the parents of a new-comer student have higher education compared to a random person of the same age, from the same municipality.

There are substantive and relatively stable differences across universities in regard to the socioeconomic background of the students. Students with parents with higher education are overrepresented at all Swedish universities, but to a varying degree. Firstly, we investigate the parents’ educational background (Figure 4). The most striking result is, again, that there are substantive and stable differences between different universities (see also Statistics Sweden 2004; UHR 2016, 139–43). People with parents with higher education are over-represented among university students. Lund University is the most socially selective university in Sweden in regard to the parents’ educational background. University of Gothenburg is also clearly more selective than the average. None of the large universities are among the least selective (Figure A2). There is variation also among the smaller universities but all of the least selective universities are small, regional universities. University West (SV. Högskolan Väst) is the least socially selective university in the sample together with the University of Borås.10

For the years 2001–2007, UKÄ also presented the relative representation of students with parents with lower skilled, manual occupations (“worker occupations”). There are substantive differences across universities also in this aspect (Figure A3). People with parents with worker occupations are under-represented among new-comers to university studies. Lund, Uppsala and Gothenburg are, again, the most selective, and University West and University of Borås among the least selective. Students with a working-class background (SV. socialgrupp III) were less under-represented at the smaller, regional universities than at the large, old universities even when compared across selected programs given at both types of universities (Cliffordson and Gustafsson 2007, 51–54).

The last aspect that the UKÄ presents the relative representation of is people with immigrant background. The selectivity is less strong for people with immigrant background than for the other aspects of student background. The measure includes new-comer students (younger than 65 years) born outside Sweden or with two foreign-born parents. Again, there is substantive

10 UHR also highlight the University West and the University of Borås as examples of universities with low degrees of social bias in recruitment (UHR 2016, 139).
variation between universities (Figure A4). The difference in this case is that the variation is around one, i.e. that the misrepresentation of students with immigrant background is relatively slight. But again, it is at only the small universities that there is over-representation of people with immigrant background (Figure A5). Lund University and Lulea University of Technology (SV. Luleå Tekniska Universitet) are the most selective in regard to immigrant background and University West and University of Borås the least. The variation between the universities is not standardized for the types of programs and courses given in this case either.

*Figure 4 Change of the relative representation of students with parents with higher education by education, 2001–2016*

![Graph showing change of relative representation of students with parents with higher education by education, 2001–2016.](image)

*Note:* The figures concern students without previous university studies (new-comers), limited to newcomer students younger than 35 years. The series show the figures for a school year for the later calendar year, i.e. 2016 shows the figures for the Autumn 2015/Spring 2016 school year. There are no data for the year 2009 and 2010. The lines have been interpolated between 2008 and 2011.

*Source:* Data from UKÄ, [http://statistik.uka.se/statistiksidor/nyckeltal.html => Utbildning på Grund- och avancerad nivå => Jämförelsetal, föräldrars utbildning (Accessed September 21, 2017)].

*Years included:* Autumn semester 2001–2016.

*Universities included:* The 20, as in Figure 2.

The universities that are less selective in regard to the educational background of the students also tend to have a larger share of non-traditional students (Figure A6). These universities also tend to be smaller, regional universities. There is no corresponding pattern for immigrant
background (Figure A7). The relative representation of students with immigrant background is not associated with the share of non-traditional students.

### 3.2. Are there systematic differences in student diversity over time?

#### 3.2.1. The composition of the student groups and shares of non-traditional students

Students in economic disciplines in Sweden seem to have become less diverse in regard to age, behavior and immigrant background during the last decade. The third thing worth noting from Figure 3 is that there is a tendency for the share of non-traditional students to decline over time. The share varies between the single years, but tends to be lower in the later years than in the earlier. The decline is substantive (−4.8% in total) and statistically significant when estimated as the average change within each university using a fixed effects regression (results not shown). These results show that the behavior of university students has become less, not more, diverse over the last 16 years.

The share of non-traditional students is, as mentioned, a composite measure of three indicators. Two of them can be investigated separately. The share of new-comer students aged 25 years or older has increased since about 2013 after having fallen since around 2001 (Figure A8). This recent change has counteracted the tendency towards increased homogeneity in student behavior in recent years. The development of the share of new-comer students aged 25 years or older is similar to the development of the average age of new-comer students (Figure A9). The changes of the average age have been quite small because the older new-comer students always have been a minority. When we are interested in student diversity we are, quite naturally, oftentimes interested in the behavior of the minorities. The average age of different groups of students (or other similar measures) is therefore not the best way to capture important changes to behavior and student diversity.

There are several potential explanations for the changes over time of behaviors leading to decreased diversity in regard to age and educational careers. Two of the most likely are the business cycle and the Bologna process reforms (on the effects of the Bologna process, see e.g. SOU 2015, 114). The Bologna reforms were implemented in 2007. They importantly split some programs into a bachelor’s program and a master’s program. This will, quite naturally, have impacted the average age of applicants to university. It is less clear how the reforms should have impacted (i.e. reduced) the tendency to start university studies at older ages. The behaviors of
young adults are also strongly affected by the economic and societal context, for example the business crisis. There is a close association between the unemployment rate and the number of new students starting university studies (Figure A10).

It is also possible to investigate the behaviors related to studying full- or part-time separately. The share of students registered for less than full-time studies has increased drastically since the early 1990s (Figure A11). There has been a turnaround in recent years for this measure as well. Since 2011 the share of students studying less than full-time has started to decline and has fallen from about 35 percent to about 32. It is not clear to me what has driven these developments.

3.2.2. The socioeconomic background of the students

There is no systematic change of the social selectivity over time across all included universities (Figure 4). The educational background of the parents is an important factor influencing the likelihood of entering university studies today and has been so for the last 16 years. There is a tendency that the three most selective universities—Lund, Uppsala and Gothenburg—have become less socially elective over time. But, there is no general trend towards increasing student diversity, as measured by the parents’ educational background, across all the universities studied here.

There is, in contrast, a slight decline of the relative representation of people with immigrant background across all the included universities (Figure A4). The decline is, as mentioned, weak but is still statistically significant (results not shown). This indicates that the student diversity in regard to immigrant background has declined since 2001. There are no obvious explanations to why the selectivity in regard to immigrant background has increased over time.

3.3. Are there systematic differences across universities in how selective they are in regard to their admission criteria?

3.3.1. The number of applicants per place

Next, I investigate if there are systematic differences in selectivity across universities. I first analyze the number of applicants per place at the bachelor’s programs in economics and business administration as presented by the UKÄ (Figure 5). Most programs, at most universities, have to make a selection among the applicants because there are more than one qualified, first choice applicant per place at the program. There are pronounced differences between universities in the
number of applicants per place with some being close to one and some having at least three throughout the period 2007–2017.

*Figure 5 The number of applicants per place for bachelor’s programs in economics and business administration, autumn semesters 2007–2017*

*Note:* The thick black is the locally weighted regression average estimated using the *lowess* command in Stata 15 (bandwidth 0.4). The lines most clearly above the rest represent the Stockholm School of Economics (SV. Handelshögskolan i Stockholm) and Uppsala University (SV. Uppsala universitet).

*Source:* Data from UKÄ, [http://statistik.uka.se/](http://statistik.uka.se/) => Sökandetryck fr.o.m. HT 2007 [Bachelor’s programs: SV. Programtyp = Kandidatprogram, Bachelor of Economics and Business Administration: SV. Utbildningsprogram = Kandidatexamen, ekonomi].

*Years included:* Autumn semesters 2007–2017.

3.3.2. The level of the admission criteria

There are large and relatively stable differences across universities in the level of their admission criteria. Programs with more applicants per place also have a higher requirement on grades for being accepted (Figure A12). This is a first indication that the programs that have a larger number of applicants per place can afford to be more selective in their admissions. There is a tendency that the larger programs have both a larger number of applicants per place and a higher credit increment requirement for admission than smaller programs. The programs at the University of Gothenburg provide a good example of the fact that there is variation also between programs within the same university.

There is a clear pattern in that the credit increment (SV. betyg) of the last admitted student is higher for universities with a larger number of students (Figure 6). This is in line with the results of Cliffordson and Gustafsson from ten years ago. They found that the average merit value of the admitted was lower for smaller, regional universities than for large, old universities even when compared across the same type of program (Cliffordson and Gustafsson 2007, 51–55). This is not in itself proof that the selectivity is higher at the larger universities, but a clear indication that there is, at the very least, a clear sorting of the students. Students with higher grades apply to the programs at the larger universities. We can also see that there is variation of the requirements across different programs at the same university (most clearly visible below for the University of Gothenburg).

3.3.3. The degree of selectivity in admissions

The higher grades at the larger universities does, as mentioned, not in itself prove that the larger universities are more selective. To investigate the differences in selectivity more directly, I calculated the difference between the credit increment of the last accepted student in the first admission round and the credit increment of the last admitted student in the second admission round. This measure is intended to capture how much the programs must deviate from their initial admission requirement, i.e. lower the credit increment required, to fill the places in the program.
The programs included are the ones in Table A1. The pattern is very similar for the results from the Swedish SAT (SV. Högskoleprovet), see Figure A13 in the Appendix.

Source: The programs included are the ones in Table A1. Credit increment: Own calculations on data from UHR, https://www.uhr.se/studier-och-antagning/Antagningsstatistik/soka-antagningsstatistik/ => Urval 1 => Antagningspoäng (Urvalsgrupp BI). Number of full-time equivalent students = SV. Helårsstudenter (Hst): UKÄ, http://statistik.uka.se/. The average of the sometimes slightly different figures from Hst per studieform och ämnesdelområde fr.o.m. läsåret 2007/08 [Ämnesdelområde = Ekonomi/administration] and Hst per ämnesdelområde och utbildningsnivå fr.o.m. läsåret 2007/08 [Ämnesdelområde = Ekonomi/administration].

Years included: Autumn semester 2016.


Most programs do not have to lower their requirements very much at all, with less than one credit increment point (Figure 7). There is a tendency that some of the smaller universities have to lower their requirements more than the larger ones, corresponding to that the larger universities can be more selective in their admissions. But the pattern is diverse with some clear outliers. The
measure of selectivity I present is of course not perfect and there are reasons to believe that the measure is affected, for example, also by student behaviors.

Students can apply and be admitted to programs at different universities. Students will, for example, apply to bachelor’s programs in business and economics at several different universities and chose where to study once they know where they get accepted. This could contribute to a sorting of the students depending on their grades if students with high grades tend to choose to study at certain universities based on, for example, the reputation of the program. The difference in the grade will therefore be affected by both the selectivity of the program and the selectivity of the students. Strategic applications of students could be an explanation for the large drops in grades for some programs in the Stockholm region.\(^{11}\) Two of the most attractive programs are in the Stockholm region\(^{12}\), and strategic applications in combination with sorting among the students could create this pattern.

\(^{11}\) Mälardalen University (SV. Mälardalens högskola): Analytical Finance, Mid Sweden University: Bachelor’s Program in Business and Economics, and Uppsala University: Bachelor’s Program in Business Administration.

\(^{12}\) The Bachelor’s Programs in Business and Economics at the Stockholm School of Economics and at Uppsala University.
Figure 7 The decline of entry requirements from the first to the second admission round, autumn semester 2016

Note: The programs included are listed in Table A1. The pattern is very similar for the results from the Swedish SAT (SV. Högskoleprovet), see Figure A14 in the Appendix.


Years included: Autumn semester 2016.

Universities included: The 17 as in Figure 6.
3.4. Are there systematic differences in selectivity over time?

3.4.1. Changes of the number of applicants per place

To analyze the change in selectivity over time we return to the number of applicants per place at bachelor’s programs in business and economics at twenty different universities, as shown in Figure 5. We can see that there is indeed some systematic pattern to the change over time.\textsuperscript{13} The number of applicants per place shifted upwards around 2011–2013, increasing by about one applicant per place for most programs. This indicates that the selectivity increased during this period and shifted to a new, higher level than before. The same pattern is confirmed across programs at different levels, e.g. bachelor’s, master’s etc. (Figure A15). In these calculations, the number of applicants per place increases from 2007 until 2013 and then stays at that level. The reasons behind the leveling off after 2013 are not obvious and should be investigated further.

3.4.2. The admittance rates in different student groups

There are indications that behaviors of people applying to the university have changed during the last decade. The number of people applying to university varies somewhat between years, but has in general increased over the last decade (Högskoleverket 2006; UKÄ 2017, 22). Importantly, the number of people applying has increased \emph{per place available} at the universities. This has led to that the admittance rate of new-comer students has fallen during the last ten years (Figure 8: “Everyone”).\textsuperscript{14}

\textsuperscript{13} The thick black line in Figure 5 is a flexible regression line that summarizes the development over time without limiting it to be linear. The level of the line can be interpreted roughly as smoothed average values for each year.

\textsuperscript{14} The admission rate is the mathematical inverse of the number of applicants per place, i.e. the share of applicants that are admitted.
Figure 8 The admittance rate among students without previous university education, by age group, 2007–2016

Note: The admission rate is the number of admitted students divided by the number of qualified first choice applicants.


Universities included: All universities in Sweden.

The decline is especially pronounced for older students (Figure 8: “Age >= 30 years”). The admittance rate has fallen also for students with previous university education (Figure A16). The admittance rate among these students have fallen again especially for the older students. The increased age-selectivity among the older applicants has led to an increased difference in the average age between the applicants and the admitted students (Figure A17). The increased selectivity in regard to age might have contributed to an increased homogeneity among university students in Sweden.
3.5. Are there systematic differences across universities in the achievements of the students?

3.5.1. The level of the completion rates of students in economic disciplines

To study the differences in completion rate I merged information on the annual performance equivalent (SV. helårsprestationer) and the number of full-time equivalent students (SV. helårsstuderter) for students in economic disciplines across 24 universities. The 24 universities were chosen because they offered higher education in economic disciplines for all years 2007–2016. The data is available separately for three age-groups by sex. I also linked information on the number of students in programs and free standing courses and the share of courses at the advanced level. The dataset therefore allows me to adjust the differences over time and across universities for differences in the age and sex of students, as well as the characteristics of the education provided. There is reason to adjust the estimates because there are systematic differences in the completion rate of different groups of students. Men have worse completion rates than women (UKÄ 2017, fig. 22). Students in freestanding courses also have worse completion rates than students enrolled in programs (UKÄ 2017, fig. 23). The results from the regression analyses are reported in Table 1.

3.5.2. Factors associated with the completion rate

Figure 9 shows a graphical summary of the differences in completion rate across universities. There were substantive differences in the completion rate of about 15 percent between the best and worst performer. The estimates are based on the average deviation from the overall average for each university. The deviations are adjusted so that all universities have an average share of advanced level education (20%) and an average share of free standing courses (37.5%). The level is for the school year 2015/2016, for male students aged ≤24 years.

What is more interesting than the fact that there are substantive differences across universities, is that the completion rate is positively associated with the number of applicants per place. This indicates that the universities that can be more selective in who they admit also get students with better performance. This, in turn, supports the notion that lowered entry requirements could lead to less prior knowledge among the students.
There is, again, a systematic pattern in the association between the completion rate and number of students at the university (Figure 10). None of the large universities are among the worst performing. There is much more variation between the smaller, regional universities. Not much of the variation in completion rate seems to be explained by the size of the student body beyond the dichotomy between large and smaller universities.

*Figure 9 The association between completion rate and the number of applicants per place among students in economic disciplines, Sweden 2016*

Notes: The completion rates are predicted values based on unreported regression coefficients for the universities from model B in Table 1. The predicted values are for the school-year 2015/2016, for male students aged ≤24 years, and assuming an average level of courses at the advanced level and share free standing courses.

Source: See Table 1 on the completion rate. Applicants per place: UKÄ, [http://statistik.uka.se/](http://statistik.uka.se/) => Sökandetryck fr.o.m. HT 2007 [Bachelor’s programs: SV. Programtyp = Kandidatprogram, Bachelor of Economics and Business Administration: SV. Utbildningsprogram = Kandidatexamen, ekonom].

Years included: The school year 2015/2016.

Universities included: 22: Göteborgs universitet, Högskolan Dalarna, Högskolan Kristianstad, Högskolan Väst, Högskolan i Borås, Högskolan i Gävle, Högskolan i Halmstad, Högskolan i Skövde, Karlstads universitet, Linköpings universitet, Luleå tekniska universitet, Lunds universitet, Malmö högskola, Mittuniversitetet, Mälardalens högskola, Stiftelsen Högskolan i Jönköping/Jönköping university, Stockholms universitet, Sveriges lantbruksuniversitet, Södertörns högskola, Umeå universitet, Uppsala universitet, Örebro universitet. (Excluding the two technical universities included in the regression.)
Table 1 Results from regression analyses of the completion rate in economic disciplines at 24 Swedish universities, 2007–2016

<table>
<thead>
<tr>
<th>Dependent variable: completion rate</th>
<th>Model A</th>
<th>Model B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>$0.793^{***}$ (0.0044)</td>
<td>$0.791^{***}$ (0.0051)</td>
</tr>
</tbody>
</table>

Year:

<table>
<thead>
<tr>
<th>Year</th>
<th>Model A</th>
<th>Model B</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007/2008</td>
<td>$-0.043^{***}$ (0.0086)</td>
<td>$-0.045^{***}$ (0.0069)</td>
</tr>
<tr>
<td>2008/2009</td>
<td>$-0.052^{***}$ (0.0077)</td>
<td>$-0.048^{***}$ (0.0062)</td>
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<td>2009/2010</td>
<td>$-0.060^{***}$ (0.0073)</td>
<td>$-0.053^{***}$ (0.0058)</td>
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<tr>
<td>2010/2011</td>
<td>$-0.040^{***}$ (0.0061)</td>
<td>$-0.031^{***}$ (0.0054)</td>
</tr>
<tr>
<td>2011/2012</td>
<td>$-0.011^{*}$ (0.0053)</td>
<td>$-0.004^{n.s.}$ (0.0053)</td>
</tr>
<tr>
<td>2012/2013</td>
<td>$-0.006^{n.s.}$ (0.0057)</td>
<td>$-0.0001^{n.s.}$ (0.0056)</td>
</tr>
<tr>
<td>2013/2014</td>
<td>$+0.001^{n.s.}$ (0.0047)</td>
<td>$+0.004^{***}$ (0.0054)</td>
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<tr>
<td>2014/2015</td>
<td>$+0.007^{n.s.}$ (0.0052)</td>
<td>$+0.010^{***}$ (0.0053)</td>
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<td>ref.</td>
<td>ref.</td>
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Age group:

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<th>Model B</th>
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<tr>
<td>≤24 years</td>
<td>ref.</td>
<td>ref.</td>
</tr>
<tr>
<td>25–34 years</td>
<td>$+0.056^{***}$ (0.0049)</td>
<td>$+0.087^{***}$ (0.0063)</td>
</tr>
<tr>
<td>≥35 years</td>
<td>$-0.022^{*}$ (0.0087)</td>
<td>$+0.006^{n.s.}$ (0.0102)</td>
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</table>

Sex:

<table>
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<th>Model B</th>
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</thead>
<tbody>
<tr>
<td>Men</td>
<td>ref.</td>
<td>ref.</td>
</tr>
<tr>
<td>Women</td>
<td>$+0.047^{***}$ (0.0035)</td>
<td>$+0.044^{***}$ (0.0030)</td>
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</table>

Characteristics of education:

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<th>Model B</th>
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<tbody>
<tr>
<td>Share on advanced level</td>
<td>$+0.153^{***}$ (0.0203)</td>
<td>$-0.030^{n.s.}$ (0.0218)</td>
</tr>
<tr>
<td>Share freestanding courses</td>
<td>$-0.256^{***}$ (0.0168)</td>
<td>$-0.326^{***}$ (0.0211)</td>
</tr>
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</table>

University fixed effects:

<table>
<thead>
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<th>Model A</th>
<th>Model B</th>
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</thead>
<tbody>
<tr>
<td>NO</td>
<td></td>
<td>YES</td>
</tr>
</tbody>
</table>

$N$, observations: 1.296

$N$, full-year students: 247,033.65

$p(>F)$: 0.000

$R^2$: 0.602
Notes: The data summarize the completion rate, share in advanced courses and share in freestanding courses by categories (the 1,296 observations) specified by age group, sex, university and year. The observations are weighted in the regressions by the number of full-time equivalent students included in each observational category (total number of full-time equivalent students 247,033.65). Robust standard errors: n.s. $p \geq 0.05$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Source: Own calculations based on data from UKÄ, [http://statistik.uka.se/](http://statistik.uka.se/) => Utbildning på grundnivå och avancerad nivå.

Completion rate: The annual performance equivalent divided by the number of full-time equivalent students. The annual performance equivalent = SV. Helårsprestationer (Hpr), by university, year, sex and age group: Hpr per ämnesdelområde och utbildningsnivå fr.o.m. läsåret 2007/08 [Students in economic disciplines: Ämnesdelområde = Ekonomi/administration]. Number of full-time equivalent students = SV. Helårsstudenter (Hst): The average of the sometimes slightly different figures from Hst per studieform och ämnesdelområde fr.o.m. läsåret 2007/08 [Students in economic disciplines: Ämnesdelområde = Ekonomi/administration] and Hst per ämnesdelområde och utbildningsnivå fr.o.m. läsåret 2007/08 08 [Students in economic disciplines: Ämnesdelområde = Ekonomi/administration], by university, year, sex and age group.

Share freestanding courses: Hst per studieform och ämnesdelområde fr.o.m. läsåret 2007/08 [Students in economic disciplines: Ämnesdelområde = Ekonomi/administration], by university, year, sex and age group.

Share at advanced level: Hst per ämnesdelområde och utbildningsnivå fr.o.m. läsåret 2007/08 08 [Students in economic disciplines: SV. Ämnesdelområde = Ekonomi/administration], by university, year, sex and age group.


**Figure 10 The association between the completion rate and the number of students in economic disciplines**

Notes: The completion rates are predicted values based on unreported regression coefficients for the universities from model B in Table 1. The predicted values are for the school-year 2015/2016, for male students aged ≤24 years, and assuming an average level of courses at the advanced level and share free standing courses.

Source: Number of full-time equivalent students = SV. Helårsstudenter (Hst): UKÄ. The average of the sometimes slightly different figures from Hst per studieform och ämnesdelområde fr.o.m. läsåret 2007/08 [Ämnesdelområde = Ekonomi/administration] and Hst per ämnesdelområde och utbildningsnivå fr.o.m. läsåret 2007/08 [Ämnesdelområde = Ekonomi/administration].

Years included: The school-year 2015/2016.

Universities included: The 22, as in Figure 9.

3.6. Are there systematic differences in the achievements of students over time?

The second purpose of the regression analyses of the completion rate was to investigate if there were any systematic changes over time. The overall completion rate across all higher education was constant at (82–)83 percent during the years 1996–2005 (Högskoleverket 2006, tables 1 and 2). The overall completion rate has remained constant also over the last decade (UKÄ 2017, 45). I wanted to investigate if this was the case also within economic disciplines specifically.
The results show clearly that there was a change in the completion rate over time (Table 1). The completion rate was 3–5 percent lower during the years 2007/2008–2010/2011 than in 2011/2012–2015/2016. There is therefore a shift to a new, higher level occurring during the same years as the number of applicants per place increased (Figure 5). This is another indication that the more selected students are performing better at university. There is yet another indication from previous research. The period 1992–2002 was an exception in that the share of students with working class background increased (Statistics Sweden 2004). This is also the period when UKÄ concludes there are indications that the level of prior knowledge of students fell (SOU 2017, 220–23).

The regression results confirm the expected patterns that women perform better than men, and that students in programs perform better than the ones in freestanding courses. We also see that the somewhat older students (25–34 years old) are performing better than the younger students. This is likely to be a result of them having accumulated more experience and confidence on how to manage their university studies. Experience and confidence (“self-efficacy”) are among the few factors that can systematically predict student performance (Richardson, Abraham and Bond 2012). The older students include the non-traditional students. It is interesting that they are not performing as well as the middle group. On the other hand, they are not performing any worse than the youngest group. More education at the advanced level is associated with better completion rates. But this is a result of better completion rates and more advanced courses at some universities. We can see this because the coefficient is positive and statistically significant in Model A, but not in Model B when we include the university fixed effects.

4. Concluding discussion

Students in economic disciplines in Sweden seem to have become less diverse in regard to age, behavior and immigrant background during the last decade. The selectivity of the students in the admittance process has increased. I find tentative support for an association between the degree selectivity of students and student performance in both the cross-sectional and the longitudinal analyses. This study can not prove any links between these trends, but they are not refuting the perception that widening participation in higher education can lead to a reduction of the prior knowledge of students. Further studies are required to establish if these results are generalizable to students in other disciplines. I will discuss below how future studies could be
designed to use individual level data to study these processes. What is needed to learn more on this is not just more research, it is more high-quality research (Gorard et al. 2006).  

The variation I have shown across different universities in the characteristics, selectivity and performance of students, could be utilized in a future study. The smaller, regional universities are less selective in their admissions than the larger universities and there is also much more variation in the completion rate at the smaller universities. The smaller, regional universities are moreover less selective in regard to the social background of the students. The participation in higher education was widened when the establishment of smaller, regional universities available in more places (Cliffordson and Gustafsson 2007, 50; SOU 2015, 42). The smaller, regional universities, for some reasons, provide opportunities for other groups of students. Understanding these reasons would provide possibilities to develop better policies for widening participation in higher education. If the higher student diversity at the smaller, regional universities are the result of, for example, their pedagogics, information or other services to the students, there could be important lessons to learn for the whole university sector in Sweden.

Degrees from the larger, older and more prestigious universities are more valuable in the Swedish labor market than degrees from the smaller, regional and less prestigious ones (Berggren 2010, 2011). Still, students from disadvantaged backgrounds in general have a tendency to choose to study at less prestigious universities (Hinton-Smith 2012a, 2012b). This is the pattern we find for Swedish universities as well (Statistics Sweden 2004; Cliffordson and Gustafsson 2007, 51–54; UHR 2016, 139–43).

What is more concerning is that under-represented student groups not only study at less prestigious universities, but that they get lower quality education. UKÄ (2014) found that there is

15 After having participated in reviewing the scientific literature on widening participation, Stephen Gorard and Emma Smith (2006) formulated a devastating critique of much of the research conducted in this field. They concluded that the development of knowledge on this topic was hampered by severe methodological problems, such as “pseudo-research, poor quality reporting of research, deficiencies in datasets, analytical errors, a lack of suitable comparators, obfuscation, a lack of scepticism in general, and the regular misattribution of causal links in particular” (Gorard and Smith 2006, 575).
a slight tendency that students with lower grades and from disadvantaged backgrounds attend universities with lower quality of education. Importantly they found that there was an association between the average grade of students and the quality of the education also after adjusting for the educational level of the parents (UKÄ 2014, fig. 7). This indicates that the students are either prevented from attending the higher quality educations because of their lower grades or that they self-select different types of universities based on their prior grades.  

Many different factors at both the individual and the university level interact and influence the choice when potential students chose whether to apply for university studies, what education to apply for, and at which university (Hemsley-Brown and Oplatka 2015; Kanonire 2016; UHR 2017). Some of these factors will be related to more apparent things, such as the profile and location of the university, while other will be related to often unobserved attributes of the students, such as their ability or academic self-esteem. Under-represented groups of students tend to apply to programs and universities with lower requirements. This could be because they do not have sufficiently high grades to apply for other programs, or because of a choice (i.e. self-sorting). These two mechanisms have very different implications for how we should go about to widen the participation in higher education. They also have different implications for what we should expect as consequences from lowering admission criteria.

The characterization of the factors influencing the choices of the prospective students can be generalized as preventing obstacles, such as relocation costs or grade requirements, and (potentially rational) self-selection, or self-sorting of students (Berggren and Cliffordson 2012; Hinton-Smith 2012a, 2012b). The processes of self-selection will in itself be based on many different factors. Not the least for under-represented student groups, it is a matter of both fitting into university life and fitting university into life (compare Hinton-Smith 2012a, 307; see also Spiegler and Bednarek 2013; Whitty, Hayton and Tang 2015). The self-selection can be based on, for example, knowledge or expectations of receiving better support at a less prestigious

\[\text{\footnotesize 16} \text{ The differences were very slight in the social sciences (UKÄ 2014, tab. 1). The association between grades and quality of education was less pronounced for the programs with higher grade requirements than for the ones with lower requirements (UKÄ 2014, fig. 1). This should be kept in mind when designing the study and choosing the student groups to investigate. Preferably there should be students in several different types of programs.}\]
university. It can also be because the costs of relocating to a larger, more prestigious university are preventive.

To understand the selection processes and their consequences we need to model the behavior of young adults, including people who do and do not chose to apply for and attend higher education. We can only estimate the causal effects of obstacles and self-selection on the choices of students using representative and prospective, longitudinal individual level data. This would allow us to use models that attempt to quantify the effects of unmeasured characteristics (see e.g. Birgier, Lundh, Haberfeld and Elldér 2016). The estimates from these models could then be used as background information to in turn evaluate the effect from widening participation on educational outcomes.

To be able to model the unobserved factors we need a reasonable model of the choices and the factors influencing them. There are frameworks for how to model choices that potentially could be useful (Willekens, Bijak, Klabunde and Prskawtz 2017). We then need to summarize the factors influencing how students chose university in a simplistic model. One way of doing this is to define the reasons for and against a specific university as benefits and costs. The benefits will vary depending on, for example, the quality of the teaching\textsuperscript{17}, the interactions with other students and the reputation of the university.

The costs can be divided into direct and indirect costs. Higher education in Sweden is free for students from within the European Economic Area.\textsuperscript{18} The direct costs of university fees and costs for educational materials are therefore less important than the indirect costs. The indirect costs include the opportunity cost of participating in higher education, i.e. the foregone labor income when studying instead of working. Varying opportunity costs could be an explanation for why women study to a larger extent than men. Wages in typically male occupations requiring only secondary education, such as craftsmen occupations, are higher than the wages in corresponding

\textsuperscript{17} By quality of teaching I mean that there could be systematic differences across universities in how well they teach etc. which would lead to systematic differences in the opportunities for the students (for a discussion on evaluations of the quality of different university programs, see UKÄ 2014).

\textsuperscript{18} The EU27 countries + Norway, Iceland, Lichtenstein and Croatia.
typically female occupations, oftentimes public sector care work. The opportunity costs to participate in higher education are therefore higher for men than women.

The pay-off from higher education has become less certain in recent years (Berggren and Cliffordson 2012, 207). That can be an obstacle for students that are more dependent on that the costs of studying will be compensated through later earnings. Differences in the certainty of pay-off is a potential explanation for the strong sorting of students from different backgrounds into different programs (UHR 2016, 135–45). Berggren and Cliffordson (2012) conclude that the social inequality in higher education today is at least as strong within universities as in the participation in higher education overall. The varying certainty in pay-off is likely a contributing factor for why students from disadvantaged backgrounds tend to choose degree programs with good prospects in the labor market, such as a degree in education or nursing.

But, under-represented student groups also tend to have less straightforward educational careers than other students (Hinton-Smith 2012b). Freestanding courses are important for providing opportunities for such students (SOU 2015). A degree based on freestanding courses will never be as predictable in terms of contents and outcome as a degree program. There is therefore a potential conflict for universities between making higher education more predictable in terms of contents and outcome—i.e. focusing on degree programs—and creating opportunities for less straightforward educational careers—i.e. providing a wide range of freestanding courses. The current trend is that the number of students taking freestanding courses is decreasing rapidly (UKÄ 2017). This can have consequences for the diversity of students if the opportunities for a less straightforward education career are important to some under-represented groups.

Another important indirect cost is the costs (in themselves both direct and indirect) of relocating. These indirect costs most likely contribute to explaining why, for example, older students to a larger extent tend to study at the smaller, regional universities rather than at larger universities in any of the large cities in Sweden. The costs of relocating are higher if you have dependents or are just more deeply rooted in a certain place. First-generation students are in general older than their peers with parents with higher education (Cliffordson and Gustafsson 2007, 47). It is therefore likely that the costs of relocating would be higher for them.

There are, quite naturally, a multitude of factors that contribute to the social imbalances among students at Swedish universities. The discussion on what could and should be done to
counteract this is influenced by the perception that a widened participation would lead to less prior knowledge among the admitted students and hence worse performance. My study has contributed tentative empirical support for this perception based on a study of students in economic disciplines. I find nothing that contradicts the conclusions of the UHR and UKÄ, that what could and should be done to widen participation in higher education should include general measures to better support students in their studies and transition to work. General systems would create opportunities to support also the underrepresented student groups without stigmatization. My results are in line with the idea that widening recruitment without adapting universities to the needs of the new student groups risks becoming counterproductive.

References


### Appendix tables and figures:

*Table A1 The studied bachelor’s programs in business and economics*

<table>
<thead>
<tr>
<th>University</th>
<th>Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>Göteborgs universitet</td>
<td>Handelshögskolans ekonomprogram, Japansk inriktning</td>
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<tr>
<td>Göteborgs universitet</td>
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<td>Handelshögskolans ekonomprogram, Tysk inriktning</td>
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<td>Göteborgs universitet</td>
<td>Handelshögskolans ekonomprogram, Kinesisk inriktning</td>
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<td>Ekonombildning</td>
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<td>Ekonomprogrammet. På plats + på distans</td>
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<tr>
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<td>International sales and marketing</td>
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<tr>
<td>Linnéuniversitetet</td>
<td>Internationella affärer</td>
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<td>Luleå tekniska högskola</td>
<td>Ekonome, kandidat</td>
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<td>Internationell ekonomi, kandidat</td>
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<tr>
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<td>Ekonomin, kandidat</td>
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<tr>
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<td>Mittuniversitetet</td>
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<td>Ekonominprogram</td>
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<td>Mälardalens högskola</td>
<td>Analytical finance</td>
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<td>International business management</td>
</tr>
<tr>
<td>Mälardalens högskola</td>
<td>Internationella marknadsföringsprogrammet, allmän inriktning¹</td>
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<tr>
<td>Mälardalens högskola</td>
<td>Internationella marknadsföringsprogrammet, tyska¹</td>
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<td>Mälardalens högskola</td>
<td>Ekonominprogrammet</td>
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<td>Kandidatprogram i företagsekonomi</td>
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<td>Stockholms universitet</td>
<td>Kandidatprogram i företagsekonomi och statsvetenskap</td>
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<tr>
<td>Stockholms universitet</td>
<td>Kandidatprogram i nationalekonomi och statistik</td>
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<td>Stockholms universitet</td>
<td>Kandidatprogrammet i ekonomi och IT</td>
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<tr>
<td>Södertörns högskola</td>
<td>Ekonomin kandidatprogram med inriktning nationalekonomi</td>
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<td>Södertörns högskola</td>
<td>Ekonomin kandidatprogram med inriktning företagsekonomi</td>
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<td>Södertörns högskola</td>
<td>Internationella ekonomiprogrammet</td>
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<td>Uppsala universitet</td>
<td>Ekonomin kandidatprogram</td>
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<td>Uppsala universitet</td>
<td>Kandidatprogram i företagsekonomi</td>
</tr>
<tr>
<td>Örebro universitet</td>
<td>Ekonominprogrammet</td>
</tr>
</tbody>
</table>

¹ These programs were initially overlooked and are only included in some of the analyses.
Figure A1 The association between the size of the university and the share non-traditional students, 2016

Note: The shares are out of all registered students during the Autumn semester 2016.

Years included: The Autumn semester 2016.
Universities included: The 20, as in Figure 2.
Figure A2 The association between the size of the university and relative representation of students with parents with higher education, 2016

Note: The figures concern students without previous university studies (new-comers), limited to new-comer students younger than 35 years.


Years included: The Autumn 2015/Spring 2016 school year.

Universities included: The 20, as in Figure 2.
**Figure A3 Change of the relative representation of students with parents with worker occupations by university, 2001–2007**

![Graph showing the change in relative representation of students with parents in worker occupations by university from 2000 to 2008.](image)

**Notes:** The occupational background of the parents was based on information from the population and housing census of 1990. The figures concern students without previous university studies (new-comers), limited to new-comer students younger than 35 years. The series show the figures for a school year for the later calendar year, i.e. 2007 shows the figures for the Autumn 2006/Spring 2007 school year.

**Source:** [http://statistik.uka.se/statistiksidor/nyckeltal.html](http://statistik.uka.se/statistiksidor/nyckeltal.html) \(\Rightarrow\) Utbildning på Grund- och avancerad nivå \(\Rightarrow\) Jämförelsetal, arbetarbakgrund (Accessed September 21, 2017).

**Years included:** Autumn semester 2000–Spring semester 2007.

**Universities included:** 19: Göteborgs universitet, Högskolan Dalarna, Högskolan Väst, Högskolan i Borås, Högskolan i Gävle, Högskolan i Halmstad, Högskolan i Skövde, Karlstads universitet, Linköpings universitet, Luleå tekniska universitet, Lunds universitet, Mittuniversitetet, Målardalens högskola, Stiftelsen Högskolan i Jönköping/Jönköping University, Stockholms universitet, Södertörns högskola, Umeå universitet, Uppsala universitet, Örebro universitet.
Figure A4 Change of the relative representation of students with immigrant background by university, 2001–2016

Notes: The figures concern students without previous university studies (new-comers), limited to new-comer students younger than 65 years. The series show the figures for a school year for the later calendar year, i.e. 2016 shows the figures for the Autumn 2015/Spring 2016 school year. There are no data for the year 2009 and 2010. The lines have been interpolated between 2008 and 2011.


Universities included: The 20, as in Figure 2.
Figure A5 The association between the size of the university and relative representation of students with immigrant background, 2016

Note: The figures concern students without previous university studies (new-comers), limited to new-comer students younger than 35 years.


Years included: The Autumn 2015/Spring 2016 school year.

Universities included: The 20, as in Figure 2.
Figure A6 The association between the relative representation of students with parents with higher education and the share non-traditional students, 2016

Notes: The figures regarding parental education concern students without previous university studies (new-comers), limited to new-comer students younger than 35 years. The figures on non-traditional students concern all registered students during the Autumn semester. The size of the bubbles is determined by the number of students in economics/administration.


Universities included: The 20, as in Figure 2.
Figure A7 The association between the relative representation of students with immigrant background and the share non-traditional students, 2016

Notes: The figures on immigrant background concern students without previous university studies (new-comers), limited to new-comer students younger than 65 years. The figures on non-traditional students concern all registered students during the Autumn semester. The size of the bubbles is determined by the number of students in economics/administration.


Universities included: The 20, as in Figure 2.
Figure A8 The share of admitted students without previous university education (new-comers) aged 25 years or older, Sweden, 1998–2017

Note: The plotted figures include all admitted university students in Sweden for each autumn semester.


Universities included: All universities in Sweden.
Figure A9 The average age of different groups of students in Sweden, 1998–2017

Note: Admitted students during each autumn semester.

Universities included: All universities in Sweden.
Figure A10 The association between the unemployment rate and the number of students starting university studies for the first time, Sweden, 2006–2015.

Notes: The index for the unemployment rate of a year is matched to the index for the new-comers in the “school-year” starting that year, i.e. the unemployment rate for 2006 is matched to the new-comers in 2006/07. This is in line with an assumption that the unemployment rate influences the entries into university studies, rather than the other way around.


Universities included: All universities in Sweden.
Figure A11 The share of students in Sweden registered for less than full-time studies, autumn semester 1993–2017

Note: The shares are out of all registered students each year.


Universities included: All universities in Sweden.
Figure A12 The association between the number of applicants per place and the credit increment of the last accepted student, autumn semester 2016

Notes: The figure plots the association between the number of qualified first choice applicants per place and the credit increment of the last accepted student in admission round one at 45 bachelor’s programs in business and economics, autumn semester 2016. The size of the bubbles is determined by the number of admitted students per program (see source below). The programs included are listed in Table A1.


Years included: Autumn semester 2016.

Universities included: The 22, as in Figure 9.
**Figure A13** The association between the number of students in economic disciplines and the result from the Swedish SAT of the last accepted student, autumn semester 2016

**Note:** The programs included are listed in Table A1.

**Source:** The programs included are the ones in Table A1. Result from the Swedish SAT: Own calculations on data from the Swedish Council for Higher Education, [https://www.uhr.se/studier-och-antagning/Antagningsstatistik/soka-antagningsstatistik/](https://www.uhr.se/studier-och-antagning/Antagningsstatistik/soka-antagningsstatistik/) => Urval 1 => Antagningspoäng (Urvalsgrupp HP). Number of full-time equivalent students = SV. Helårsstudenter (Hst): UKÅ, [http://statistik.uka.se/](http://statistik.uka.se/).
The average of the sometimes slightly different figures from Hst per studieform och ämnesdelområde fr.o.m. läsåret 2007/08 [Ämnesdelområde = Ekonomi/administration] and Hst per ämnesdelområde och utbildningsnivå fr.o.m. läsåret 2007/08 [Ämnesdelområde = Ekonomi/administration].

**Years included:** Autumn semester 2016.

**Universities included:** 17: Göteborgs universitet, Högskolan Dalarna, Högskolan Väst, Högskolan i Borås, Högskolan i Gävle, Högskolan i Halmstad, Högskolan i Skövde, Linnéuniversitetet, Luleå tekniska högskola, Lunds universitet, Mittuniversitetet, Mälardalens högskola, Stockholms universitet, Södertörns högskola, Uppsala universitet, Örebro universitet.
Figure A14 The association between the number of students in economic disciplines and the difference in result from the Swedish SAT from the last accepted (round 1) and last admitted student, autumn semester 2016

Note: The programs included are listed in Table A1.


Years included: Autumn semester 2016.

Figure A15 The number of applicants per place for programs in economics and business administration at different levels, autumn semester 2007–2016

Note: The applicants per place are estimated using a regression summarizing the applicants per place at each type of program for all universities and years. The regressions included fixed effects for the type of program, universities and years. The number of applicants per place was allowed to change differently over time for the different types of programs. The average number of applicants per place was allowed to vary across the different types of programs. The thick black is the average number of applicants per place weighted across the program levels by their respective share of the students. Very few students follow a “SV. Magister” program after the introduction of the Bologna process.

Source: Swedish Higher Education Authority: Program levels, Bachelor’s, SV. Magister and Master’s: Own calculations based on data from http://statistik.uka.se/ => Sökandetryck fr.o.m. HT 2007 Bachelor’s: SV. Programtyp = Kandidatprogram, Bachelor of Economics and Business Administration: SV. Utbildningsprogram = Kandidatexamen, ekonom; SV. Magister: SV. Programtyp = Magisterprogram, Former Swedish four-year degree in Economics and Business Administration: SV. Magisterexamen, ekonom; Master’s: SV. Programtyp = Masterprogram, Master of Economics and Business Administration: SV. Masterexamen, ekonom. Program level, SV. Civilekonom: Own calculations based on data from http://statistik.uka.se/ => Utbildning på grundnivå och avancerad nivå => Sökande => First choice applicants (SV. Förstahandssökande till yrkesexamensprogram) => Degree of Master of Science in Business and Economics (SV. Civilekonomexamen) and Utbildning på grundnivå och avancerad nivå => Nybörjare => university entrants to programmes leading to a professional qualification (SV. Yrkesexamensprogramnybörjare per program) => Degree of Master of Science in Business and Economics (SV. Civilekonomexamen). The applicants per place calculated using this method seem to become different from the aggregate one the UKÄ presents for all Degree of Master of Science in Business and Economics programs.
Notes to Figure A15 continued.

*Years included:* Autumn semesters 2007–2017.

*Universities included:* 26: Blekinge tekniska högskola, Chalmers tekniska högskola, Göteborgs universitet, Handelshögskolan i Stockholm, Högskolan Dalarna, Högskolan Kristianstad, Högskolan Väst, Högskolan i Borås, Högskolan i Gävle, Högskolan i Halmstad, Högskolan i Skövde, Karlstads universitet, Kungl. Tekniska högskolan, Linköpings universitet, Luleå tekniska universitet, Lunds universitet, Malmö högskola, Mittuniversitetet, Mälardalens högskola, Stiftelsen Högskolan i Jönköping/Jönköping University, Stockholms universitet, Sveriges lantbruksuniversitet, Södertörns högskola, Umeå universitet, Uppsala universitet, Örebro universitet. I only included university-program observations for which there was information on more than two years.
Figure A16 The admission rate among students with previous university studies, by age, Sweden, 2007–2016

**Notes:** The admission rate is the number of people admitted divided by the number of qualified, first choice applicants. The students included are students applying and being admitted to programs in economic disciplines at the introductory (bachelor’s) level.


**Years included:** Autumn semesters 2007–2017.

**Universities included:** All universities in Sweden offering education in economic disciplines at the introductory level.
Figure A17 The difference in the average age between the admitted students and the applicants, Sweden, 2007–2016

![Graph showing the difference in average age between admitted students and applicants from 2007 to 2016.](image)

**Note:** The difference presented is based on the average age of applicants and admitted students respectively, with (“Returnees”) and without (“New-comers”) previous higher education.


**Years included:** Autumn semesters 2007–2016.

**Universities included:** All universities in Sweden.
"The government withdraws a criticized bill that would have increased the requirements of university colleges and universities to reduce social imbalances in higher education.

'We have received referrals from our university colleges and universities and there are many who think that it is an unclear proposal that does not clearly indicate that what matters most to me and the government is that it is through a higher quality of education that we will be able to cope with both widened recruitment and widened participation', says Helen Hellmark Knutsson, Minister of Higher Education and Research.

Most agree that changes are needed in order to make the level of education of the parents less influential than today, when a young person chooses, or opts out of higher education. Nevertheless, the criticism was fierce against the government's proposal to amend the Higher Education Act.

It is believed that the now scrapped bill for a new legislative text, proposing that universities should promote a widened participation in higher education risks lowering the quality of education in order for more students to complete their studies. Uppsala University, for example, thought that the proposal shifted the responsibility to pass an education from the student to the university." [italics added]

The Swedish original as published on the website of Ekot, Sveriges Radio:

"Efter kritik drar regeringen tillbaka en lagskärpning som skulle öka kravet på högskolor och universitet att minska den sociala snedrekryteringen till högre studier.

– Vi har fått remissvar från våra högskolor och universitet och det är många som tycker att det är ett otydligt förslag som inte tillräckligt tydligt pekar på det som är viktigast för mig och regeringen, att det är genom en högre kvalitet i utbildningen som vi ska klara både breddad rekrytering och breddat deltagande, säger Helen Hellmark Knutsson, minister för högre utbildning och forskning.

Att förändringar behövs för att inte föräldrarnas utbildningsnivå ska styra så mycket som det gör i dag, när en ung människa ska välja, eller välja bort högre studier, är de flesta överens om. Ändå blev kritiken hård mot regeringens förslag att ändra i högskolelagen.


The following are quotes (in Swedish) from official reports and previous research illustrating the perception that widened participation in higher education risks leading to lower quality of the education. I include the quotes to show that the perception is presented as a perception rather than an empirically based fact. All quotes are in Swedish.

SOU (2017, 99):

"En diskussion som ofta förs är hur en alltmer heterogen studentgrupp påverkar undervisningen och dess kvalitet. Samtidigt som det brukar föras fram att studenterna har olika förutsättningar att tillgodogöra sig utbildningen och att det därför ställer andra högre krav i dag på lärarna och den pedagogik som används, så anser också många lärosäten att en mångfald bland studenterna medför nya perspektiv och bredare erfarenheter."

SOU (2017, 172–73):

"I utredningens möten med enskilda personer, myndigheter och andra organisationer och i enkäten till universitet och högskolor, har vi ställt frågor kring vad som fungerar bra med dagens bestämmelser och som därför kan vara värt att behålla, och vad som fungerar mindre bra. En relativt entydig bild har växt fram. ... När det gäller breddad rekrytering har lite olika synpunkter framförts ... En annan synpunkt är att med breddad rekrytering kommer också personer med lägre nivå på kunskaper in."
SOU (2017, 220):
"Det är inte ovanligt att företrädare för universitet och högskolor uttrycker åsikter om studenternas förkunskaper. Ofta handlar det om att förkunskaperna har försämrats, men emellanåt lyfts det också att förkunskaperna inte har försämrats utan snarare förändrats, det vill säga att studenterna kan delvis andra saker i dag än tidigare."

UKÄ (2014, 7):

UHR (2016, 146–47):
"Efter en genomgång av hundratals artiklar visar denna översikt att samma typ av sakfrågor och farhågor debatteras såväl internationellt som i Sverige. Likheterna är så pass tydliga att diskursen inom breddad rekrytering om kvalitet, högskolans identitet och samhällsfunktion kan förstås som ett internationellt fenomen. I centrum står en tydlig konflikt mellan vilka som antas vara akademiskt lämpliga och vilka som inte antas vara det. Utgångspunkten för konfliken tycks vara synen på högskolans roll, antingen som producent av excellent forskning eller som inkluderande pedagogisk miljö. *Det uttrycks återkommande rädslor för att breddad rekrytering ska sänka kvaliteten på utbildningen.* [italics added]"

Cliffordson and Gustafsson (2007, 43):
"Den kraftiga expansionen av högre utbildning innebär att nya grupper med helt olika förutsättningar och syften med sina studier har rekryterats. Detta har förmodligen också inneburit sänkta förkunskapskrav och en större heterogenitet i studerandegrupperna. Högskolornas ekonomiska resurser har samtidigt minskat. Sammantaget bör detta innebära att det krävs stora ansträngningar för att bibehålla kvaliteten i högskolan." [italics added]

Cliffordson and Gustafsson (2007, 58):
"Avslutningsvis kan vi konstatera att expansionen av grundutbildningen skapar flera målkonflikter som behöver belysas ytterligare genom forskning. En sådan avser relationen mellan kvantitet och kvalitet. En ökad kvantitet innebär att nya grupper av studenter med delvis annorlunda bakgrund och relativt sämre förkunskaper antas, vilket också kan komma att utgöra hot mot kvaliteten i utbildningsresultaten, och i synnerhet då som resurstilldelningssystemet i huvudsak styr enligt kvantitativa kriterier."