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Teacher Working Preferences Related to the Performance of Schools

-an Empirical Study on the Stockholm Elementary Schoolteacher Labor Market

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Abstract:
The Swedish school system is in a state of crisis. From having been one of the top nations in international reports regarding both knowledge and equality between schools, the results have been deteriorating for more than a decade. The teaching profession is screaming for highly skilled workers, but the teacher education program is one of the lowest ranked educations in Sweden today. The educational system has been under scrutiny in research and various reports where factors such as socioeconomic aspects and teacher quality and characteristics have been the main focus. This report opens a black box in the Stockholm teacher labor market, where the teacher supply is investigated through an examination of the preferences of teachers at the ten highest and ten lowest performing schools in the municipality of Stockholm. Through ordinary least squares estimations on the answers from a survey sent to all grade nine teachers in the selected schools, it is our aim to increase the knowledge of the driving forces behind teacher labor supply. When the educational market is moving toward a dichotomy between high and low performing schools and high and low quality teachers, it is important to understand the driving forces behind teacher labor decisions in order to optimize the allocation of teacher resources.

Key Words: Education, Inequality, Teacher Preferences, Teacher Labor Market.
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"The development is ensured. We can with good reason establish that the Swedish schools of today give the students worse possibilities to acquire knowledge than 15 years ago. As a matter of fact, much indicates that the level of knowledge in the Swedish elementary schools was at its highest in the mid 1990's- before the big reforms were implemented"

Per Thullberg,

Former director general of the Swedish education authority, *Skolverket*

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Introduction

The gap between high and lower performing schools have increased drastically in Sweden over the last fifteen years. Students attending the high performing ones reach increasingly good results whereas the students in low performing ones leave elementary school with less and less knowledge. Teacher influence is, according to numerous studies, said to have the largest impact on children learning (Grönqvist & Vlachos 2008), and it is therefore alarming to see that the inflow of skills on the teacher labor market is deteriorating.

This thesis aims to shine further light on teacher preferences in the Stockholm labor market. By addressing the question whether teachers working within the borders of the municipality of Stockholm have a preference for working in better performing schools it is our hope to answer some of the big issues protruding in the Swedish educational system today.

Most extensive research can be found on the U.S. teacher labor market, but also the Norwegian one has been under scrutiny. Research on these markets has shown that teachers prefer working in schools with low proportions of minorities and less challenging students. In combination with a current low and homogenous wage structure in Sweden, this leads us to believe that the teacher labor force in Sweden has the same sort of preferences. The country's wage structure does not create any incentives to start working at the more challenging schools and we believe that these two factors will lead to an uneven match where high quality teachers end up working at high performing schools and low quality teachers end up working at low quality schools. The long term effect of this could be a further increase in the gap between high and low performing schools, making the vicious circle turn faster.

Short History of the Swedish Educational System

Since the start of the current school system, grundskolan, the primary school system in Sweden was one of the most successful among countries (Fjelkner, 2012). In international reports such as PISA (Program for International Student Assessment), TIMMS (Trends in International Mathematics and Science Study) and PIRLS (Progress in International Reading Literacy Study), Sweden was in the top rankings. When the first PISA report came in 2000 Sweden was one of the higher performing countries. Both when it came to equality across schools as well as high results, Sweden performed outstandingly. Sweden, Finland and Iceland where the countries with the least differences between schools and the test results of Swedish primary schoolchildren were above the OECD average. The following PISA-reports (2003 & 2006) however, showed that the equality in the Swedish system was deteriorating. In the most recent PISA report (2009) Sweden performed below average in natural sciences, on the average in reading and math, and the equality between schools had dropped to the levels of an average OECD country.

Inequality in itself is not per say a bad thing. If compensated with better teacher sorting and student-teacher matching this might even be positive. Different students have different needs, which match better or worse with different teaching styles and characteristics (Grönqvist & Vlachos, 2008). If it does not result in better matching it is a problem, however, and with the tendencies on the Swedish teacher labor market today with no pecuniary incentives in place to regulate for this situation (lönerapport, 2011), it could have severe effects. A further discussion on the wage structure on the Swedish teacher labor market is to follow in the section "Institutional and Theoretical Considerations." There is research indicating that students are highly influenced by their surroundings as well, and if the entire school is performing worse the students become less motivated (Hattie, 2009).

The Swedish educational system is in a crisis. Numerous reports have dealt with the issue (Skolverket 2006, 2011, Böhlmark & Lindahl 2012), the debate is in full storm (DN, 2013,

SVD, 2013, SVT, 2013), and both the educational system (2010/11: UbU5) as well as the teacher education program (U2010/259/S) have been under reform in the last couple of years. What the effects of these reforms will be lies in the future to tell, however there is a rich assessment of the current state, and it is from this future knowledge can be built.

Skolverket, the Swedish education authority, published a report, *Likvärdig utbildning i svensk grundskola?*, describing the current state of the Swedish educational system (2011). The report concluded that the equality of schools including their relative performance had worsened in the last 15 years. Higher performing schools have ever since 1998 increasingly improved their results whereas the lower performing schools have continued to lag, and thus the gap between schools has increased.

The Gap Between Elementary Schools in Sweden

Since the end of the 1990's the difference between schools has more than doubled, and according to both the Swedish education authority, Skolverket, and the international PISA reports the differences between results lie at an eighteen percent level (PISA, 2009, Skolverket 2011). This tells us that the average difference between final grades between schools have increased with almost ten percentage points since 1998 when it lay at 8,8%. Other reports indicate a slightly lower difference between schools, eight to ten percent (Böhlmark & Holmlund 2011). The variation in results has been most profound on the interschool level. The overall variation, including variation between classes within the same school and between municipalities, has increased as well (Skolverket, 2011).

Interschool variability has according to some increased due to the system introduced in Sweden in 1992, which enables schoolchildren to choose other schools than the one closest to their home (Östh et al. 2011, Böhlmark & Holmlund 2011). Another effect has been increased segregation between schools. In the three biggest cities, Stockholm, Göteborg, and Malmö, the segregation has increased with five percentage points when looking at schools' composition of immigrants versus children born in Sweden. The segregation based on parents' level of education has remained stable according to some (Skolverket 2011) and increased according to other reports (Gustafsson & Yang Hansen, 2011, Böhlmark & Holmlund 2011, Fredriksson & Vlachos 2011).

Teaching quality between schools is a measure that has been put under scrutiny as well. It is unclear whether class sizes or teacher density has an effect (Skolverket 2011, Böhlmark & Holmlund 2011). Skolverket has furthermore examined if there is a gap in teacher quality between schools. When evaluating teachers, the report used teachers' average grades from upper secondary school. It was found that the average grades were higher in schools composed of fewer immigrants and students whose parents have higher incomes. The analysis could not show that the trend had grown stronger or weaker over time. It is worth considering that using teachers' grades from upper secondary school is a poor measure of teacher quality (Grönqvist & Vlachos, 2008; Hanushek & Rivkin, 2012).

Teacher Effects

Current research shows that teachers have among the largest effects on student learning (Rockoff 2004, Rivkin et al 2005, Hanushek 2012, Fredriksson & Öckert 2007). Hattie's (2009) meta study of over 800 studies underscores this and states that different teacher aspects are concluded to have the largest impacts on students result.

There is however no general consensus regarding which teacher characteristics would lead to higher performance of the students' results (Grönqvist & Vlachos 2008, Fredriksson & Öckert 2007, Hanushek 2012, Clotfelter et al 2004). The only characteristic that with significance can be said to have a general higher effect on student intake is experience

(Hanushek, 2012, Clotfelter et al 2004). Apart from that, the research in the field is more and more focusing on student and teacher matching and the effect of this, where different teacher characteristics are better or worse depending on the individual student who is to learn (Grönqvist & Vlachos 2008, Hanushek 2012, Clotfelter et al 2004).

Furthermore, based on Hattie's research (2009), how teachers act in the classroom has amongst the largest effects on children's learning. Methods such as video analysis of the teaching process, the clearness in teaching, teacher-student relationships, professional stimuli, no titles, quality of education and expectations of the teacher, have the largest positive effects on learning. Traditional measures such as teacher education and knowledge of the subject taught have a very small effect on the learning process according to Hattie's report.

To conclude, the large impact teachers have on student learning is a crucial aspect to take into account when assessing differences across schools. If teachers tend to prefer working in schools with higher performing students the emerging gap between schools in Sweden could have a severe effect on the future of the Swedish educational system. In order to determine this we will in this paper first look at previous studies on teacher preferences followed by some institutional and theoretical aspects specific for the Swedish and Stockholm market that will be enlightened before describing and assessing the data. We will further show our empirical evidence and end with some concluding remarks.

Previous Studies on Teacher Labor Markets

In order to understand teacher preferences and their effect on the elementary school system in Sweden we have to look at the teacher labor market as a whole. Both the supply and demand side explain various aspects as to why some teachers end up teaching in specific schools and others elsewhere.

Teacher Labor Markets

Supply

As in most other labor markets, both compensation and working conditions seem to explain a large part of where and why teachers choose to work at certain schools and for how long.

It is important to investigate the inflow of skills to the teacher market as a whole since this will determine the market's future and how strong the impacts our findings will have. What can be observed is that incentives to become a teacher have decreased with both lower relative wages in comparison to other professions as well as a decrease in other forms of compensation such as longer breaks during summer (Fredriksson & Öckert, 2007). This is a worldwide phenomenom, but research shows that the relative decline in wages have been particularly dramatic in Sweden (Lakdawalla 2001, OECD, 2002).

Working conditions play an important role in teacher labor markets. Particularly the type of students in the schools seems to determine teacher preferences. Lankford, Loeb & Wyckoff (2002) show that teachers working in low performing schools and in schools with high poverty levels perform worse on teacher tests, have lower levels of education, and are not as certified as the average teacher. Further research (Hanushek, Kain, & Rikvin, 2004; Hanushek & Rivkin, 2004; Lankford, Loeb & Wyckoff, 2002), finds that teachers prefer working in schools with higher achieving students and less proportion of minority students. Most studies are performed on the U.S. market where differences between high and low performing schools and different propensities of minorities are particularly evident. There is research done on the Norwegian teacher labor market as well, where the conditions are more similar to those of Sweden with a interschool variability that is much smaller than the one in the United States. In accordance with U.S. research, the Norwegian one shows that teachers prefer schools with native students (Bonesrönning, Falch, & Ström, 2003).

In the United States' National Center for Education Statistics (NCES) report from 2007, teachers who had changed working locations listed why they had done so. Opportunity for a better teaching assignment was ranked highest with 38.1% of the respondents naming it as a reason for their switch. Dissatisfaction with support from administrators at previous school with 37.2% was also an important factor in their decision. In third place, with 33.7% of the teachers giving it as a reason for the change of work location, came dissatisfaction with workplace conditions at previous school. As it turns out 26.2% indicated closeness to home as an important factor to the move. Higher job security, dissatisfaction with changes in job description or responsibilities, dissatisfaction with opportunities for professional development in previous school, and not enough autonomy over classroom at previous schools all got between 10-20% of the teachers listing them as important factors in their decision to move work location.

Regarding the compensation part, current studies on the U.S. market conclude that higher wage has a significant impact on where teachers choose to work (Goldhaber, Destler & Player, 2010; Lazear, 2003; Barlevy & Neal, 2012). Between 2003-2004 in the United States, seventeen percent of the teachers moving between schools reported an increase in wages as very important or important as to why they chose to change work location. More than three quarters of the teachers leaving the profession named low salaries as one of the reasons for doing so (NCES, 2007).

Demand

It is more than teacher preferences and movements that affect the teacher labor market. The supply side plays an important part, but the demand side is also of importance in this job matching process.

In a perfect market, principals would have all the information needed in order to make an optimum matching decision. This is not the case, however. Principals are for example able to assess the best and worst teachers, but are not able to accurately judge the teachers in between these extremes (Jacob and Lefgren, 2006). Furthermore the workplace rarely gets to observe the teacher actually teach before the hiring process is over (Liu and Johnson, 2006). This also leads to the teachers in themselves not having an accurate impression of the workplace before starting work, and a case of principal-agent problem of information asymmetry can arise (Bishop, 2009).

Country specific characteristics determine a large part of what the demand side looks like. In for example Norway, the market is strictly regulated where a principle hires teachers on the basis of education and thereafter experience. In the United States, school district authorities are involved in the hiring process (Bonesrönning, Falch, & Ström, 2003). The Swedish system has regulations which depend on whether the school is public or private, but is fairly similar in both cases (Skolledarna.se, 2013). A further discussion of the Swedish scenario follows in the section "Institutional and Theoretical Considerations, Demand, Principals." It is not only these aspects that need to be adjusted to the setting's specific characteristics, and therefore a discussion regarding these aspects follow in the next section.

Institutional and Theoretical Considerations

Current research within the field of teacher labor market and how teachers' decisions influence the educational environment have been brought forth. As may have been noted, most studies are conducted on the U.S. labor market. This is a market separate from the Swedish one, and in order to conduct a study with feasible results the setting-specific characteristics need to be taken into consideration. This section examines some important aspects when assessing the Swedish elementary schoolteacher labor market.

Furthermost, a study on the Swedish teacher labor market is very relevant today since it is in a period of change. Historically, the Swedish elementary school system has been unique much thanks to the high levels of equality between schools. With low immigration before the 1990s (Nilsson, 2004) and an even distribution of performance across schools, the same measures on teacher labor markets as the ones conducted in the United States have not been applicable to the Swedish market. With the protruding gap in interschool performance together with the shortage in supply of good teachers, the Swedish market is an excellent country in which to study teacher supply forces. In this section, the characteristics of the Swedish, and foremost Stockholm, elementary schoolteacher labor market will be described to create a base for the future study.

Schools Becoming Part of the municipalities

In 1992, the different municipalities in Sweden became responsible for the elementary schools, meaning they were given free reins when it came to budgeting and wage decisions whereas this had been a responsibility of the state prior to this. This is also the period when private schools were introduced at the elementary school level and children and their parents were allowed to choose other schools than the one nearest home (Fjelkner, 2012).

All of these aspects have crucial effects on the specific characteristics of the Swedish school market. More schools and the availability for children and their parents to choose which school to attend increased the competition among the educators. It could be argued that this is one of the reasons why the gap between the performances of schools has increased (Skolverket, 2011).

Stockholm

Schools situated in the municipality of Stockholm have been selected for our study out of two reasons. To begin with, there are differences in trends across varying sorts of regions. Big cities are the regions with the biggest differences between schools (Skolverket, 2011) and hence Stockholm is a good object of study. It is also difficult for teachers to move across municipalities due to the principle of "first in last out" that is applicable within a municipality but not across (representative from Lärarnas Riksförbund, 2013), why Stockholm and no other of the three biggest cities has been examined.

Supply

Hedonic models

A hedonic wage model is a method in which characteristics of different workplaces are compensated through pecuniary incentives. If, for example, teachers prefer working in schools in the inner parts of a city, a hedonic wage model will adjust the wage levels of the teachers working in the suburbs so that they receive higher pay and thus brings the preferences to an equal stage (Goodman, 1978).

Classic hedonic wage models typically used in U.S. studies, where it is assumed that wages reflect the different working conditions of the teachers, are not applicable on the Swedish

market. This approach, where non-pecuniary aspects of the teaching job are supposed to reflect the wage structures across schools, requires an assumption of close to perfect market conditions, something not in place on the Swedish teacher labor market. Even though the legislation in Sweden has opened up for more individually set wage levels, it has in practice turned into a more homogenous state where the wages are becoming more and more similar (Lärarförbundet, 2008). Hence, teachers will not be compensated for differences in non-monetary aspects. There are very small differences between teacher wages in the public sector, but the gap between the public and private is more extensive. Teachers in the private sector at the elementary school-level earn 500 SEK less than their public equivalents and at secondary school-level the difference is on average 1700 SEK. These differences are not correlated to different settings of the schools or differences in job descriptions and can therefore not be ascribed to a hedonic model (Lärarförbundet, 2013).

The Swedish wages are not as strictly set as those in Norway either, where they are set at a country wide level, strictly based on education and experience. For this reason the extensive research done in Norway by Bonesrönning, Falch, & Ström (2003) cannot be applied to the Swedish setting.

The teacher unions have a strong position on the Swedish market. They put much emphasis on teacher education in the hiring process and in wage structures but less on adjusting market forces and preferences (Fjelkner, 2012). A study of hedonic wage model is not suitable for the Swedish elementary schoolteacher labor market since the compensatory systems in Sweden do not take into account the factors necessary for such a study.

Wage Levels and inflow of teachers on the market

The teacher education program has reached very low levels and as recently as this spring reports of teachers getting granted to the program with as low scores as 0.1, which is worse than arbitrarily choosing answers, on the Swedish equivalent to SAT's (DN, March 2013) indicates a decrease in supply of teachers, which is partly due to the return to education for teachers deteriorating in comparison to other professions since 1968 (Fredriksson & Öckert 2007). The teacher union *Lärarförbundet* has in several reports showed that young students are not attracted to the teacher programs at universities. Even the ones already attending the program are considering alternative routes in the work-life due to the low wages (Lärarförbundet, 2012). Sweden is currently ranked 23rd out of 32 OECD countries when it comes to teacher wages, that is in real wage equivalent to the levels in Slovenia (Lärarförbundet, 2008). Noteworthy, is that the real price level of Slovenia is sixty-four percent compared to that in Sweden (the Economist, January 2013). The wage levels for elementary schoolteachers within Sweden lie at the same level as for those without higher education, giving the teachers barely any pecuniary incentives to choose a three to five years long teacher education program.

With a low inflow of high skills to the teacher labor force, in combination with a risk of the current skills quitting, there lies a risk of lowering its standards even more in the future.

Demand

Principals

How the labor is hired is regulated differently depending on what sort of school is observed. Public schools follow regulations and hire on basis of education, followed by subject specific characteristics, and thereafter a personal assessment made by the principal (skolledarna.se/kommunalt, 2013-05-07). The private school sector is not under the same regulation but in practice the two sectors do not hire that differently (skolledarna.se/privat, 2013-05-07).

The choice is at large in the hands of the principals. They cannot assess the candidates accurately however, unless it comes to the highest or lowest performing teachers (Jacob and Lefgren, 2006). If the inflow of skills will maintain its current low level the differences between high and low performing teachers will become more apparent over time. This means that principals will be able to make better and better assessments and the better performing teachers will to a higher degree get the work environment they prefer. If the elementary schoolteachers on the Stockholm labor market prefer high performing schools, it will leave the principals of the low performing schools with no choice but to hire low performing teachers. Hence, a study of teacher preferences on this market is of great need in order to come to terms with the current situation.

Summary and hypothesis formulation

To summarize, Sweden, and the Stockholm elementary schoolteacher labor market is in a period of change. The gap between the performance of different schools is increasing in Stockholm and the country is performing less end less well in international studies. In combination with a low inflow of skills to the teacher labor market, the most important factor of learning for students, Sweden is a country well suited for research in the educational area. By looking at research on the teacher labor market conducted in other countries, it is evident that teacher preferences in these settings are biased toward high performing schools with low proportions of minorities. With these facts in hand, it is interesting to see whether the Stockholm labor market has the same tendencies as the US and Norwegian one, and it raises the question:

Do elementary schoolteachers in the Stockholm labor market prefer working at high performing schools?

To investigate the teacher preferences, a survey is sent out to teachers at the ten schools whose grade nine students received the highest average final grades and the ten schools with the on average lowest final grades in the municipality of Stockholm. By addressing the survey directly to these groups of teachers, answers to questions regarding how much they were looking forward to start at the specific school where they are teaching, what characteristics they perceived the school to have before starting, and what characteristics of a school they find important in general when applying for a job can be found. These answers help us open a black box in the teacher labor market since it is a first attempt to study the underlying causal effects on the teacher preferences on the Stockholm elementary school teacher labor market. By going further than solely observing teacher movements we are able to get access to the thoughts behind these movements and therefore be able to make more valid predictions about the future of the Stockholm teacher labor market. By choosing this method, we also lay a path for future research in the field where a better understanding of compensatory incentives can be created.

The results are analyzed in three ways. First, an average desire to start is computed for both the high performing group of schools and the low performing one to see if there are any general differences across the high and low performing sectors. Factors such as gender, age, subjects taught, and time of hire are controlled for. Second, in order to see what has an effect on the desire to start, two ordinary least squares estimations are run. In both cases desire to start is the dependent variable. In the first regression, the perceived characteristics are analyzed to see what effect they have on desire to start. In the second regression, the desired characteristics of a workplace are run against desire to start. Last, a comparison between the rankings of desired characteristics and perceived ones is made. This gives an idea of how satisfied the teachers are in general, and gives better indications of which characteristics differ the most between the two sectors.

Our hypothesis is that teachers prefer working at higher performing schools. Previous research in the field together with a changing school environment in Stockholm today, makes it reasonable to hypothesize that the Stockholm setting should be similar to that of other countries.

Data

Once addressing the need of a study on teacher preferences in the Stockholm elementary schoolteacher labor market, an accurate method of assessing these has to be found. We decided on conducting a survey studying the teachers in the ten highest performing schools and ten lowest performing schools in the municipality of Stockholm providing us with a cross-sectional dataset of 190 observations. The two extremes enable us to compare the perceptions of these groups of schools and compare those to wanted characteristics in the same schools. It also enables us to test if the elementary schoolteacher labor market in Stockholm is homogenous or if there are two separate groups of teachers, one group wanting to start at high performing schools and the other at low performing ones.

Another way of studying teacher preferences would have been checking data on the hiring process in the city of Stockholm, with the possibility of observing number of applicants to every open spot in the municipality. This approach would not have the same bias as a survey since the actual movements of teacher labor in this instance would have been observed in contrast to the perceived reasons in a survey. The survey's largest drawback is this tendency for bias in answers if teachers do not want to reveal their true reasoning when it comes to delicate issues such as labeling schools as better or worse (Schwarz, 2007). Looking at teacher hiring processes was not possible however, mostly due to the data being biased toward uncertified teachers and only covering the last two years and thus giving us a too small sample. A study of teacher movements would not give any insights into the motives behind these movements, which is a core aspect of this paper.

Research already conducted has studied teacher movements and what sort of teachers work in the different schools (Skolverket, 2011). It has measured the inflow of skills to high and low performing schools as number of teachers with high grades from secondary school applying for different positions at the schools in Sweden. The main drawback of this method is the definition used to assess good quality teachers. As shown, education and grades are a poor measure and should be avoided (Grönqvist & Vlachos, 2008).

By using a survey to observe teachers own stated preferences we are able to avoid the problem of defining good and bad teacher characteristics. Instead of using a measure that is arguably treacherous, teacher preferences show how the supply side of the teacher labor market wants to move. If all of the supply is biased toward better performing schools and the principals themselves are able to detect highly skilled teachers the study will have an increased quality if we avoid categorizing the teachers. Hereby, we can make use of the argument of supply and demand instead of focusing on defining the indefinable and thus have better chances of making valid assumptions regarding the teacher labor market of Stockholm.

Another reason for choosing a survey over the methods of observing movements, is that a survey uncovers causal aspects rather than just correlations as in the case with studying the teacher hiring process. If a teacher him or herself states the reasons for choosing a particular school it gives us more insight into the aspects underlying the outcomes of teacher supply. By looking at their own stated preferences a new, deeper, understanding of the teacher supply can be made.

The Survey

The survey was conducted in consideration to the different reasons for teacher movement listed in the United States' National Center for Education Statistics (NCES) report from 2007 described in the section of "Previous studies on Teacher Labor Markets, Teacher Labor Markets, Supply." It is formed as a selection between different alternatives and short open questions. It is short and concise to enable the teachers to quickly respond to the questions. Since it was sent to them during spring, a hectic period full of final grade setting and national standard tests, the survey should not take longer than two minutes to fill in. It was sent to all

ninth grade teachers working at the twenty schools selected. The survey was formed on the Qualtrics website and sent as a link to all the respondents. In order to increase the rate of response, the mail was written personally to all teachers, addressing them by name. After two weeks, the email was again sent out to all the teachers to remind them to answer it.

The survey in itself can be found in the Appendix, Figure I, and consists of eleven questions. Some questions are for the sole purpose to see if there are any general differences between groups such as sex, age, subjects taught, and education. Others are in place in order to find more directs answers to our research question.

Gender, year of birth, name of school, and time of hire are the first four questions, which together with question 7, asking the teachers to sate if they are certified; question 8, specifying which subjects they teach; and question 9, if you are certified within your subjects are in place to control the future regressions for other aspects than characteristics of the schools. A question asking whether they teach ninth graders or not is asked in order to only take into consideration the teachers who actually affect the final results of the students. By filtering the respondents who do not teach this grade the results become more relevant.

There are three main questions to the survey. Firstly, the teachers are asked to rate to which degree they were looking forward to start at the school before applying to the position. Here they can fill in a scale from 0-100% so and OLS regression later can be conducted probably. Lastly, there are two questions where the respondents rate different school characteristics from a scale 1-5, where 1 is "strongly disagrees" and 5 is "completely agrees". The characteristics given are; good reputation, high performing students, teaching staff focused on high performance among students, teaching staff focused on students' personal development, committed parents, well structured organization, good management, good premises, access to good teaching equipment, near home, and good work hours. The first four characteristics are used as proxies for high performing schools and are aspects closely correlated to this (Henderson & Mapp, 2002; MacLeod & Urquiola, 2009). In the first of the two questions the teachers are asked to specify how they perceived the school when applying for the position. The second question asks the respondents how important the different characteristics are when applying for a job at an elementary school in general. Two further characteristics are added in this case, public school and private school to see if these two sectors play an important part when choosing a workplace.

In the case of perceived characteristics of a school there is a sixth option where the respondents can fill in that they did not know the characteristic of the school. To begin with, some of the teachers started working at their workplace quite some time ago, there is a possibility they do not remember how they perceived the school. Further, if they did not have an opinion on a certain characteristic it is better that they do not reply than give a false answer. The drawback is that teachers who do not want to reply to a certain question have an easier time to do so, but the risk of arbitrary answers from teachers not remembering is a worse scenario and the sixth option is included.

Wages and minorities

Wages could have had an effect on the teacher preferences, but is a factor that we chose not to include in our survey. The main reason for this is the homogenous state of the wages across public schools. As will be shown in more detail under the section "Selected Schools," none of the low performing schools were private, but a majority of the high performing ones was. This means that even though the teachers might have wage preferences, it only makes any eventual findings of ours modest. This since lower wages at high performing schools should weaken the desire to start there, which contradicts our hypothesis.

Since several studies emphasize teachers choosing to leave or never starting at schools with high proportions of minorities represented in the student base it may affect the results in our regressions (Antos & Rosen, 1975; Levinson, 1988; Goldhaber et al., 2010). Especially since many of the schools in the bottom end of the performance scale have high proportions of minority students (Figlio 1997; Ballou &Podugorsky 1998; Hanushek et al., 1999, Skolverket, 2011). To separate whether teacher preferences are caused by a large proportion of minority students or if it is caused by the schools being low performing is difficult, and perhaps not even evident to the teachers themselves. It is also very delicate to ask these questions straight out in a survey as teachers may not want to answer, or give correct answers to a question of that character. It is noted that in our survey when we ask whether the schools where the teachers work are characterized by good reputation almost twenty percent of the teachers working at low performing schools chose not to answer. Furthermore, a high propensity of minorities is closely intertwined with low performing schools (Skolverket, 2011) and would therefore cause multicollinearity problems. For these reasons we chose not to include a question concerning minorities.

Selected Schools

In order to see if there is a difference between high performing and low performing schools, these have to be selected. It is of importance that these trends are stable over time since teachers would choose arbitrarily if the high and low performing schools are different each year. The high and low performing schools were selected on a basis of final grades from the elementary schools. Since there is a possibility of difference in inflation in grade setting between schools, we have controlled for this by adjusting for the correlation between final grades in ninth grade and the results on the standard national tests (Skolverket, 2013), shown in Table I. The adjustment is computed as a weighted average where number of students and how large the difference in grades versus test results matter. There is no way to know if the schools would have maintained the same correlations in other subjects than the three core subjects tested in the Standard National Tests, Math, Swedish, and English, and thus the adjustment of grades only affect the points for these subjects accordingly. Under the assumption that the higher or lower grades are only differing one step up or down, for example from passed to passed with distinction, a total of 15 points have been affected.[*] The adjustment is computed as a weighted average where number of students and how large the difference in grades versus test results matter. The fifteen points have been multiplied with the average correlation between final grades and test results to give us a new total average of final grades subtracted by fifteen points and thereafter adding the computed new correlated 15. An example of the computation is provided in the Appendix, Table I. By using this method we have adjusted the grades in the most precautious way possible.

The correlation between grades and results on the National Standard Tests has been documented since 2005. The on average lowest and highest performing schools during the period 2005-2012 were hence selected. Since good reputation, a characteristics entwined with high performing schools (MacLeod & Urquiola, 2009), is a matter of top of mind where schools without particularly good nor bad reputation are easily forgotten (Gruber, 1969), the focus is on the ten top and ten bottom schools in the municipality of Stockholm. For us to be able to tell if the teachers made an active choice toward either a high performing or low performing school it is important that they are aware which sector the school belongs to. There is also a need to select data from enough teachers in order to conduct our survey. If less than twenty schools had been selected there would have been the risk of too few respondents, causing a risk of imprecise estimations together with threats of validity of confidence intervals and hypothesis tests (Stock & Watson, 2012, p. 519). Furthermore, when moving

[*] One change in grading affects 5 points

further away from the top and bottom schools the variability in their performances increases. The ranked eleventh highest performing school (after the adjustments explained in the next paragraph), for instance, got ranked twenty-nine from the top out of 102 one of the years and the eleventh lowest performing school got ranked thirty-eight one of the years. The ten lowest performing schools are arguably more varying in their results and there were several schools around the line of tenth from the bottom that had similar averages across the years. However, for comparative reasons ten schools from each group are selected. Out of the ten highest performing schools there were three public ones whereas all of the lowest performing schools were public.

For various reasons, some schools have been omitted from the comparison. Balettakademien has only had ninth graders for the last year (Skolverket, 2013), and though high performing it has been removed. Since we were not able to reach the teachers at Carlssons skola, this school was also omitted from the comparison. St:Örjans skolor is a resource unit specialized on children with special needs (Stockholms stad, 2013), for this reason it is not a good ground for comparison and has been omitted. Bredbyskolan is about to shut down (Eidman, 2013) and has been omitted from the comparison. Hjulstaskolan had missing data for two of the years (Skolverket, 2013), but in order for it not to be placed amongst the lowest ten, it would have had to perform sixty-third from the bottom two years in a row, and with its current fourth from the bottom at best we ruled this as highly unlikely. Hence, Hjulstaskolan was not omitted.

A comparison between the schools' average performance over the eight years are shown in Table I. As can be seen, the difference between the last selected school from the bottom ranking's only differed with an average of 0.04 lower results than Smedhagsskolan, which was the last school not to be selected. The difference between Mälarhöjden, the last school selected among the high performing schools, and Äppelviksskolan, ranked twelfth from the top and hence not slected, was also very low, 0.12. The differences between these schools are not very large in general. Both Lillhagsskolan and Smedhagsskolan are public schools. Lillholmsskolan has 449 students, 7.3 students per teacher and sixty-one percent of the students in grade nine state that they can work in a peaceful and quiet environment (stockholm.se/lillholmsskolan, 2013-05-07). Smedhagsskolan has 287 students, a student/teacher-ratio of 10.4 and seventy-three percent of the students perceive it to be a calm study environment (stockholm.se/smedhagsskolan, 2013-05-07). As can be seen, the two schools are fairly similar, Lillholmsskolan is bigger and the students are a bit less satisfied, but they both lie in the same sort of suburbs characterized by a large proportion of minorities and a general economic situation below average (Skolverket, 2011). The same arguments can be applied to Mälarhöjdens skola and Äppelviksskolan. Both lie in fairly well-to-do suburbs with a student/teacher-ratio of 14.4 and 14.7 respectively (stockholm.se/malarhojdensskola, 2013-05-07; stockholm.se/appelviksskolan, 2013-05-07). Sixty-three percent of the students at Mälarhöjden think they can work in a peaceful and quiet environment compared to fifty-eight percent in Äppelviksskolan. It is hence not evident that the line should be drawn between these two schools, but we find the argument of top of mind with consideration to a big enough sample size to be reasonable for making the distinction here. When moving further away from the top and bottom the differences between schools will become even smaller.

Table I, *Elementary Schools' Performance*

Ranked from the bottom			Ranked from the top		
1	S:t Örjans skolor[a]	1.25	1	Enskilda gymnasiet	1.63
2	Hjulstaskolan	2.25	2	Musikskolan Lilla Akademien	4.50
3	Rågsvedsskolan	4.00	3	Franska Skolan/Ecole francaise	5.00
4	Husbyskolan	6.17	4	Fredrikshovs slotts skola	5.38
5	Rinkebyskolan	7.88	5	Carlssons skola[a]	5.88
6	Bredbyskolan[a]	10.13	6	Europaskolan på Södermalm	5.98
7	Hagsätraskolan	11.88	7	Adolf Fredriks musikklasser	6.50
8	Bredängsskolan	13.25	8	Maria Elementarskola	9.25
9	Grimstaskolan	14.75	9	Höglandsskolan	9.25
10	Hässelbygårdsskolan	16.38	10	Rödabergsskolan	9.25
11	Nytorpsskolan	16.63	11	Mälarhöjdens skola	11.88
12	Smedshagsskolan	17.25	12	Äppelviksskolan	12.00
13	Lillholmsskolan	17.29	13	Engelska Skolan Norr	14.57
14	Sätraskolan	17.50	14	Engelska skolan i Enskede gr	15.75
15	Kvickenstorpsskolan	17.57	15	Kulturskolan Raketen	17.71
16	Hökarängsskolan	18.62	16	Tornadoskolan	36.88

Note; The average performance of elementary schools in the municipality of Stockholm. [a]Ommitted from the comparison, to see why, read the section "Selected Schools," paragraph 4.

Table II, *Variable Definition*

Variable	Variable Name	Variable Definition	Observations
P.REP	Good reputation	Teachers' perception of the schools' reputation when they applied for the position at the school	161
P.HIGHPERF	High performing students	Teachers' perception of the student performance at the school when they applied for the position at the school	161
P.FPERF	Focus on student performance	Teachers' perception of how focused the teaching staff was on performance among students when applying for the position at the school	160
P.FSOCIAL	Focus on students' personal development	Teachers' perception of how focused the teaching staff was on students' personal development when applying for the position	153
P.PARENTS	Committed parents	Teachers' perception of how engaged the parents were in their children's' education when they applied for the position at the school	162
P.ORG	Well structured organization	Teachers' perception of how well structured the organization was when they applied for the position at the school	148
P.MGMT	Good management	Teachers' perception of how good the management was when they applied for the position at the school	155
P.PREMISES	Good Premises	Teachers' perception of the how good the premises were when they applied for the position at the school	156
P.MATERIAL	Good material	Teachers' perception of how their access to good teaching equipment was when they applied for the position at the school	151
P.NHOME	Near home	Teachers' distance between their homes and work place when they applied for the position at the school	179
P.HOURS	Good work hours	Teachers' perception of the work hours when they applied for the position at the school	162
D.REP	Good reputation	Teachers' desire of good reputation when they apply for a new position	184
D.HIGHPERF	High performing students	Teachers' desire of high performing students when they apply for a new position	183
D.FPERF	Focus on student performance	Teachers' desire of the teaching staff being focused on performance among students when they apply for a new position	185
D.FSOCIAL	Focus on students personal development	Teachers' desire of the teaching staff being focused on students' personal development when they apply for a new position	185
D.PARENTS	Committed Parents	Teachers' desire of engagement of parents in their children's' education when they apply for a new position	185
D.ORG	Well structured organization	Teachers' desire of well structured organization when they apply for a new position	183
D.MGMT	Good management	Teachers' desire of good management when they apply for a new position	184
D.PREMISES	Good Premises	Teachers' desire of working in good premises when they apply for a new position	184
D.MATERIAL	Good material	Teachers' desire of access to good teaching equipment when they apply for a new position	184
D.NHOME	Near home	Teachers' desire of working close to their homes when they apply for a new position	181
D.HOURS	Good work hours	Teachers' desire of good work hours when they apply for a new position	183
D.PUBLIC	Public school	Teachers' desire of the school being a public one when they apply for a new position	184
D.PRIVATE	Private school	Teachers' desire of the school being a private one when they apply for a new position	176

Empirical Evidence

This section is where the empirical evidence to either prove or discard our hypothesis is presented. In order to analyze the teacher preferences, three approaches in how to deal with the data are put forth. To begin with, the average desire to start at a school for the two different groups will be looked into. This gives us a general idea of how satisfied the teachers were with their workplace before getting hired. If, as we suspect, teachers in low performing schools on average were looking less forward to starting at their schools there is partial evidence for our hypothesis here.

This is however not enough to prove our hypothesis. Other factors such as general level of stress, desire to work as a teacher, and desire to work may affect the average desire to start. In order to see if teachers prefer higher performing schools the underlying motives for desire to start have to be investigated. Hence, two such ordinary least squares estimations are run. One where the perceived characteristics of a school is run against the desire to start there and another where desired characteristics of a workplace are run against desire to start. If our hypothesis is true, factors such as good reputation, high performing students, focus on students performance, and committed parents should have a high effect on desire to start. These are also the four factors that we mainly focus on in the regressions, with the other characteristics in place to see whether they might have higher implications than these four and if there may be no significance to our hypothesis. If it turns out that the magnitudes of the coefficients belonging to these four factors are fairly high, further proof of our hypothesis can be put forth.

Due to a low R-squared, there lies a risk of omitted variable bias which could mislead the results. Therefore, a third approach is also presented; how important a characteristic is when applying for a job is subtracted by the ranking of the perception of that characteristic before the teacher got hired at their current work place. This gives a measure of how satisfied the respondent is with their work. If the teachers in high performing schools are more satisfied in general, further proof of our hypothesis will be presented and the results of the regressions can either be confirmed or questioned.

Average desire to start at a given school

By comparing the different averages of to which degree the respondents were looking forward to start at a specific school, a general picture of the situation can be formed. The averages are first divided into high and low performing schools and thereafter a comparison between gender, subjects taught, age and time of hire creates a discussion of to what extent the performance of a school has on the willingness to start can be held.

The average desire to start at the schools where they now work was, among all teachers, 71.93%. When comparing the average desires to start at high versus low performing schools, the teachers of high performing schools had an average desire of 78.07% in comparison to an average of 63.83% for teachers in low performing schools. This is to be compared with standard deviations of 25.40 and 27.13 respectively. When conducting a hypothesis test the null hypothesis of the two averages being equal to one another can be rejected at a 99% level.

When controlling for gender there are no noticeable differences, women have a slightly higher desire to start with one percentage point's average above that of men's. When controlling for age the results are similar with variations of one percentage point. Subject taught is also controlled for with the variations across subjects lying between one to two percentage points. Teacher in physical education is the only group differing substantially from the rest with a mean of 76.00%. Noteworthy is the small sample group of seventeen teachers in this case and hence no general conclusion regarding the population can be drawn.

Time of hire is the control-group that has the most impact with a difference of 7.19 percentage points. Teachers starting after 2003 were only looking forward to starting at their schools with 68.68% whereas teachers starting before this time were looking forward to their hire with 75.87%. The results remain stable when dividing into high and low performing schools, meaning there is a trend that teachers were in general looking more forward to start working before 2003. A hypothesis test confirms the significance of these findings at a 99% level. There are a number of possible explanations to this, for example teachers who stay for such a long time could be more satisfied with their work than the ones moving. This might also lead them to look back at their decision ten years ago or longer with uncritical eyes and make them answer how satisfied they are now. There is a possibility that they are beautifying their decision (March & Olsen, 1975).

In this first step, where the average desire to start at the different schools is presented, one can clearly see that there indeed seems to be a difference among the two groups of schools. Teachers starting at high performing schools are on average looking more forward to work than their counterparts in low performing schools. These findings are robust when controlling for gender, age, subject taught, and time of hire. There lies no general proof of the hypothesis in these findings however. Differences across the schools, such as high performing ones generally being situated in the inner parts, or wealthier suburbs, of Stockholm, whereas the lower performing schools are in less well-to-do suburbs in the municipality of Stockholm, a higher share of private schools among the high performing schools as well as socioeconomic aspects such as propensity of minorities may also influence the differences found (Antos & Rosen, 1975; Levinson, 1988; Goldhaber et al., 2010). It was therefore necessary to move on with a regression which reflects different characteristics of the schools and their effect on the teachers desire to start.

School characteristics relation with teachers' desire to start at a workplace

Perceived Characteristics
There are several reasons for running a regression of perceived characteristics against desire to start. It gives an indication of which characteristics are important for average desire to start at a workplace but also differences between high and low performing schools.

Table III describes the regression between the perception of the four proxies for high performing schools and desire to start at a specific school. As can be seen, they are all significant at the 99% level. With magnitudes ranging from 5.367 for high performing students to 7.620 for good reputation they all have a positive impact on the desire to start at a school. The adjusted R-squared for the different characteristics are fairly low, ranging from 7.3% for focus on student performance to 16.1% for good reputation. Several explanatory variables are hence omitted from the regression and could result in the presented regressions in Table III to suffer from omitted variable bias. The omitted variables could both be other characteristics of a school as well as other aspects of the teacher profession in general. How stressful the profession is as a whole may affect the desire to start at any given school and will not affect the preferences for one school or the other. This study does not focus on teacher desire to start at a specific school in general, but whether certain characteristics of a school are of importance for the elementary schoolteachers. Therefore, the aspects of general desire to start are not taken into consideration when creating the regressions. School characteristics are what affects teachers' willingness to start at a specific school and a regression where other school characteristics are added in order to see if they explain more of the desire to start than the four proxies.

When creating the ordinary least squares regression of desire to start at a high performing school, focus lies on the four proxies. It is the magnitudes and strengths of these four regressors, which help explain whether teachers have a preference for high performing

schools. When constructing a multivariate regression however, consideration of multicollinearity has to be taken. Therefore, the correlations between these four characteristics are first analyzed, where the variables causing multicollinear issues are excluded. Thereafter, the other characteristics from the survey are tested to see if they add any additional explanatory power. The variables that increase the goodness of fit without causing multicollinearity problems are added to the regression. Factors such as age, gender, and time of hire may cause omitted variable bias if neglected and are controlled for in order to ensure that conditional mean independence holds in the created ordinary least squares estimations. The dataset is also sorted to make sure there are no differing results caused by a continuosly decreasing number of observations. Since some teachers have chosen not to rank some characteristics, the responses rating all characteristics are the only ones included when constructing the regressions. The regression is given as follows:

$$Desire\ to\ start = \beta_0 + \beta_1 * \mathrm{P.REP} + \beta_2 * \mathrm{P.FSOCIAL} + \beta_3 * \mathrm{P.MGMT} + \beta_4 * \mathrm{P.PREMISES} + \beta_5 * \mathrm{P.HOURS} + \mathrm{u}$$

Table IV, Model 1 shows the regression described above. There is a multicollinear problem between all of the four main characteristics, and good reputation was selected for the multivariate regression due to having the largest goodness of fit among these. Good reputation is also the variable with the largest significance, 99%, among the variables selected. Good premises also has a positive impact on desire to start, with a slightly lower significance level of 95%. It improves the general goodness of fit with 2.61%. Its explanatory power is hence much lower than that of good reputation. Good work hours is the third and last regressor of significance, at a level of 90%, adding 1.94% to the goodness of fit. With a total adjusted R-squared of 0.2373 the multivariate regression explains more than good reputation on its own, but none of the other characteristics are equally strong in their explanatory power as is good reputation. As Model 2 shows, the control variables only amplify the importance of good reputation, which increases in magnitude from 5.804 to 6.019.

The multivariate ordinary least squares estimation indicates that our hypothesis might be correct. Teachers in general do seem to have a higher desire to start at a certain school if they perceive it as better performing. However, as Figure I shows, the perceptions of the different schools are subject of subjectivity. If the teachers would have been totally objective, responses of perceived good reputation, high performing students, focus on student performance and committed parents should all be ranked highly in the case of the high performing schools and low in the case of the low performing schools. As seen in Figure I, the perceptions overlap one another, where teachers rank the schools somewhat differently from what objectively can be said to be true.

This does not cloud the results from the regression run on perceived characteristics on desire to start at a specific school. If a teacher perceives a school to have a good reputation then, according to our hypothesis, he or she should have a higher desire to start at that given school. It does however leave many questions unanswered regarding what our findings would lead to on the teacher labor market. If the desire of starting at a school were not subject of any objectivity regarding the performance of a school, no division in skilled teachers between high and low performing schools will protrude. One possible explanation could be the teachers starting before 2003 when the differences across schools were smaller. To deal with this issue another method is applied where desired characteristics of a school are run against desire to start.

***Table III**, Impact of The Perception of Proxies for High Performing Schools*

Characteristics	Model 1 Desire to start	Model 2 Desire to start	Model 3 Desire to start	Model 4 Desirre to start
Good reputation	7.620***			
	(1.381)			
High performing students		5.367***		
		(1.330)		
Focus on student performance			6.507***	
			(1.843)	
Committed parents				5.350***
				(1.297)
Constant	46.44***	54.36***	47.32***	55.69***
	(5.240)	(5.012)	(7.529)	(4.797)
Observations	161	161	160	162
R-squared	0.161	0.093	0.073	0.096

Note; The impact of the perception of proxies for high performing schools on desire to start among teachers in the municipality of Stockholm Ordinary least squares estimations, checked for outliers, of perceived characteristics, ranked 1-5, effect on teacher desire to start, measured in percent, for teachers at the 10 highest and 10 lowest performing elementary schools in the municipality of Stockholm. Robust standard errors in parentheses.*** p<0.01, ** p<0.05, * p<0.1

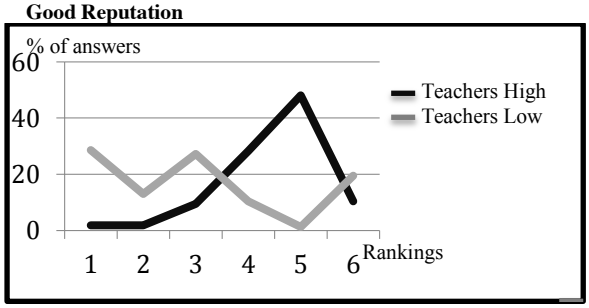
***Table IV,** Impact of Perceived School Characteristics*

Characteristics	Model 1 Desire to start	Model 2 Control
Good reputation	5.804***	6.019***
	(1.466)	(1.677)
Focus on students' personal development	1.935	0.919
	(1.884)	(1.988)
Good management	3.535	3.499
	(2.140)	(2.156)
Good premises	3.499**	3.018*
	(1.576)	(1.615)
Good work hours	-3.303*	-3.401*
	(1.858)	(1.908)
Gender		Yes
Born after 70's		Yes
Hired after 2003		Yes
Constant	35.13***	42.13***
	(9.248)	(9.559)
Observations	114	113
R-squared	0.271	0.289

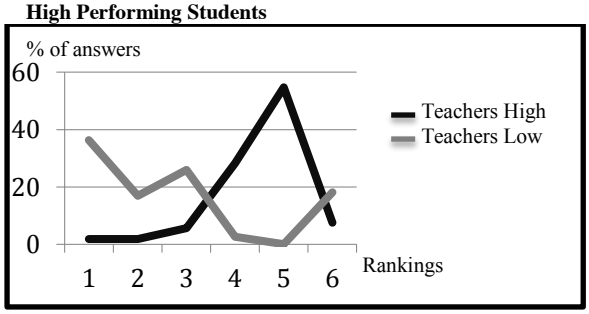
Note; The impact of perceived school characteristics on desire to start among teachers in the municipality of Stockholm. Ordinary least squares estimations, checked for outliers, of perceived characteristics, ranked 1-5, effect on teacher desire to start, measured in percent, for teachers at the 10 highest and 10 lowest performing elementary schools in the municipality of Stockholm. Robust standard errors in parentheses. Yes indicates the control factor being added to the regression.
*** p<0.01, ** p<0.05, * p<0.1

***Figure I**, Rankings of Perceptions*

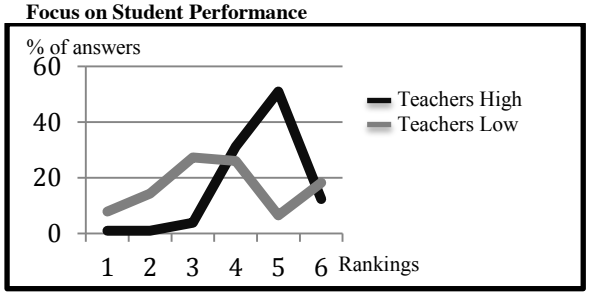
Good Reputation



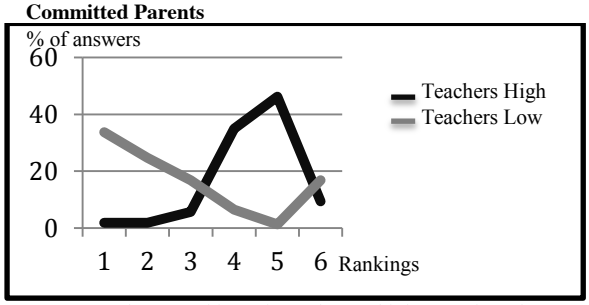
High Performing Students



Focus on Student Performance



Committed Parents



Note; Teachers' rankings from the 10 highest and 10 lowest performing elementary schools in the municipality of Stockholm of the perception for the proxies for high performing schools. The perceptions are ranked from 1-6, where 1-5 states to which extent the teachers agree that the characteristics were applicable to the school when they started working there. 6 is "I don't know." Teachers High stands for teachers working at high performing schools. Teachers Low stands for teachers working at low performing schools.

Desired characteristics

When observing desired characteristics, the general case of desire to start at a given school can be put under further scrutiny. For our hypothesis to be true, the coefficients of the variables describing a high performing school should be positive and the coefficients of the same variables should be negative for the low performing schools. In order to observe if this is the case, the dataset has been split into a high performing and a low performing part. The two regressions are as follows:

$$Desire\ to\ start\ high = \beta_0 + \beta_1 * \mathrm{D.HIGHPERF} + \beta_2 * \mathrm{D.FPERF} + \beta_3 * \mathrm{D.PARENTS} + \beta_4 * \mathrm{P.MGMT} + \beta_5 * \mathrm{D.ORG} + \beta_6 * \mathrm{D.HOURS} + \mathrm{u}$$

$$Desire\ to\ start\ low = \beta_0 + \beta_1 * \mathrm{D.HIGHPERF} + \beta_2 * \mathrm{D.FSOCIAL} + \beta_3 * \mathrm{D.MGMT} + \beta_4 * \mathrm{P.NHOME} + \beta_5 * \mathrm{D.HOURS} + \beta_6 * \mathrm{D.PUBLIC} + \mathrm{u}$$

In Table V, the four characteristics and their effect on desire to start on teachers working in high performing schools are presented. Their coefficients are all positive and all but good reputation are significant at any reasonable level of significance. With the highest magnitude of 9.878 and explanatory power with an R-squared of 13.2%, committed parents is the most important variable in the regression. The findings emphasizes the importance of these characteristics further, and as can be seen in Table VI, the hypothesis holds when observing the low performing schools as well. The significance levels in these ordinary least squares regressions are much lower than in the case of high performing schools. Focus on student performance is the only regresssor with a positive impact on desire to start at a low performing school, but is insignificant. This is a surprising finding. Arguably focus on student performance is the factor with the weakest linkage to high performing schools as well. The staff at a low performing school may still focus on performance, even though research shows that it is to a lower extent than at higher performing schools (Henderson & Mapp, 2002). High performing students is the only variable of significance at a 95% level, a magnitude of -5.943, but a relatively small adjusted R-squared of 5.3%.

Tables V and VI together with the teachers' homogenous preferences which are shown in Figure II give further reasons to believe that teachers do prefer high performing schools, the betas of the four proxies have indicated as much. Yet again there may be other characteristics with better goodness of fit and magnitudes that overthrow the importance of the four characteristics in focus. To see whether the hypothesis holds a multivariate ordinary least squares regression is created on desired characteristics effect on desire to start. The same method as used for the regression with perceived characteristics is once again conducted. Firstly, any issues with multicollinearity are assessed in the case of the four proxies. This is followed by an analysis of the other characteristics where variables are added if they increase goodness of fit without causing problems with multicollinearity. One multivariate regression is created for high performing schools and another for low performing ones.

One alternative method would have been creating a multivariate ordinary least squares estimation with an interaction term for one of the sectors. The problem with this method is the difficulty in selecting appropriate variables with a sample as varying as ours. If our hypothesis is true, the four proxies should have the opposite effect on desire to start, depending on which type of school the respondent works at. Selecting the correct variables for such a regression would thus be utterly complicated and furthermore, unnecessary. The same results are obtained by constructing two different multivariate regressions. This may lead to different variables being selected for the two different regressions, but this does not cause a problem since there is always at least one of the four proxies of high performing schools present in the regression, which enables a comparison between the two cases. A

regression with interaction terms was created and can be seen in the Appendix, Tables II and III.

In Table VII, Model 1, the multivariate OLS estimation of desired characteristics on desire to start of teachers in high performing schools is presented. As in the case of the regression of perceived characteristics, the proxies for high performing schools have the highest goodness of fit with a combined adjusted R-squared of 15.66%. This is to be compared to a total adjusted R-squared of 22.17%. The only significant regressors are high performing students and committed parents, a hypothesis test deems them significant at the 95% level. The results remain stable when controlling for age, gender, and time of hire as shown in Model 2.

Slightly different variables are chosen for the multivariate regression on desired characteristics effects on desire to start in the low performing schools, shown in Table VIII. As suspected, high performing students have a big negative impact on desire to start in this regression, -8.229, and it lies at a significance of 99% when running a hypothesis test. Near home is also negatively correlated with the dependent variable and together with good work hours it is significant at a 90% level. Public School is significant at a 90% level, and has a positive effect on desire to start with a magnitude of 6.351. This would have been surprising were it not for all of the ten schools in the bottom end of the performance rankings being public. This variable can therefore be considered relevant for our sample, but no general conclusion regarding the population as a whole can be drawn from it. High performing students is the variable with the highest goodness of fit among the significant variables. Near home only adds 1.48% to the adjusted R-squared and good work hours only improves it by 1.52%. Once again the proxy for high performing schools has the highest explanatory power, even though it is arguably much lower than in the multivariate regression for the high performing sector. When controlling for gender, age, and time of hire , Table VIII, Model 2, the results once again remain stable.

To see whether the ordinary least squares estimation correctly estimates the magnitudes of the variables, or if the regression inhibits any non-linear aspects, a new regression is run. It is created by keeping the form of an ordinary least squares estimation but transforming the characteristics into dummy variables, taking the value of 1 if they have a ranking of four or five. The results for high performing schools are shown in Table VII, Model 3, and no non-linear effects are found. Table VIII, Model 3 shows the same type of regression for low performing schools. No non-linear effects are found, and we keep the OLS regressions.

Figure II gives us the distribution of rankings among the four proxies for high performing schools. As can be seen they are almost identical across high and low performing schools and have a mean of around three in both cases. With increasing effects on desire to start as shown in Models 3, Tables VII and VIII, the teachers seem to prefer high performing schools. The goodness of fit remains at around twenty percent for both regressions and hence there still lies a risk of omitted variable bias which could overthrow our results, which causes a need to find further proof for our hypothesis. By looking at teacher satisfaction among the teachers in the different segments, further proof of the hypothesis can be presented.

Table V, *Teachers at High Performing Schools' Desire for the Proxies*

Characteristics	Model 1 Desire to start	Model 2 Desire to start	Model 3 Desire to start	Model 4 Desire to start
Good Reputation	2.516			
	(2.907)			
High performing students		5.574**		
		(2.310)		
Focus student performance			8.703***	
			(2.681)	
Committed parents				9.878***
				(2.494)
Constant	68.52***	58.98***	44.45***	43.83***
	(11.48)	(8.378)	(10.70)	(9.013)
Observations	104	105	105	105
R-squared	0.007	0.053	0.093	0.132

Note; The impact of desire of the proxies for high performing schools on desire to start among teachers in the high performing schools in the municipality of Stockholm. Ordinary least squares estimations, checked for outliers, of desired characteristics, ranked 1-5, effect on teacher desire to start, measured in percent, for teachers at the 10 highest performing elementary schools in the municipality of Stockholm. Robust standard errors in parentheses.*** p<0.01, ** p<0.05, * p<0.1

Table VI, *Teachers at Low Performing Schools' Desire for the Proxies*

Characteristics	Model 1 Desire to start	Model 2 Desire to start	Model 3 Desire to start	Model 4 Desire to start
Good Reputation	-1.444			
	(3.094)			
High performing students		-5.943**		
		(2.872)		
Focus on student performance			3.026	
			(3.375)	
Committed parents				-2.935
				(2.758)
Constant	67.38***	77.61***	52.61***	72.23***
	(8.786)	(7.521)	(12.57)	(8.717)
Observations	80	78	80	80
R-squared	0.003	0.053	0.010	0.014

Note; The impact of desire of the proxies for high performing schools on desire to start among teachers in the low performing schools in the municipality of Stockholm. Ordinary least squares estimations, checked for outliers, of perceived characteristics, ranked 1-5, effect on teacher desire to start, measured in percent, for teachers at the 10 lowest performing elementary schools in the municipality of Stockholm. Robust standard errors in parentheses.*** p<0.01, ** p<0.05, * p<0.1

Table VII, *Teachers at High Performing Schools' Desired School Characteristics*

Characteristics	Model 1 Desire to start	Model2 Control	Model 3 Dummy	Model 4 Control Dummy
High performing students	0.0712	-0.361	5.347	4.833
	(2.560)	(2.703)	(5.346)	(5.541)
Focus on student performance	8.356**	8.756**	12.84*	12.61*
	(3.951)	(4.210)	(7.447)	(7.259)
Committed parents	6.873**	6.357**	6.175	7.275
	(3.034)	(2.902)	(4.816)	(4.856)
Good management	-6.902	-7.525	-3.886	-4.782
	(5.362)	(5.207)	(11.13)	(11.33)
Structured organization	5.953	5.689	10.44	10.68
	(4.420)	(4.461)	(8.252)	(8.533)
Good work hours	-3.982	-4.349	-2.885	-4.725
	(2.663)	(2.658)	(4.950)	(5.146)
Gender		Yes		Yes
Born after 70's		Yes		Yes
Hired after 2003		Yes		Yes
Constant	42.90**	49.65***	62.14***	62.91***
	(16.68)	(16.56)	(8.724)	(9.371)
Observations	98	97	98	97
R-squared	0.243	0.278	0.175	0.231

Note; The impact of desired school characteristics on desire to start among teachers in high performing schools in the municipality of Stockholm. Ordinary least squares estimations, checked for outliers, of desired characteristics, ranked 1-5, effect on teacher desire to start, measured in percent, at the 10 highest performing schools in the municipality of Stockholm. The characteristics of model 3&4 are transformed into dummy variables, taking on the value of 1 for high rankings of 4 or 5. Robust standard errors in parentheses. Yes indicates the control factor being added to the regression *** p<0.01, ** p<0.05, * p<0.1

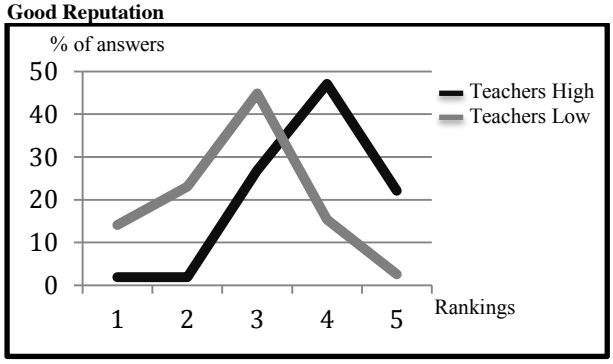
Table VIII, *Teachers at Low Performing Schools' Desired School Characteristics*

Characteristics	Model 1 Desire To Start	Model 2 Control	Model 3 Dummy	Model 4 Control Dummy
High performing students	-8.229***	-8.624***	-14.36**	-16.16**
	(2.831)	(3.006)	(6.717)	(6.886)
Focus on students personal development	5.233	5.265	10.58	13.54
	(3.839)	(3.820)	(8.703)	(8.939)
Good management	6.321	5.794	21.84	20.66
	(4.757)	(4.847)	(13.83)	(14.22)
Near home	-5.332*	-4.113	-17.00**	-15.02**
	(3.078)	(3.558)	(7.200)	(7.436)
Good work hours	4.044*	3.829	10.32	9.838
	(2.113)	(2.443)	(7.208)	(7.376)
Importance of public school	6.351**	6.272**	16.34**	17.44**
	(2.550)	(2.781)	(6.887)	(7.063)
Gender		Yes		Yes
Born after 70's		Yes		Yes
Hired after 2003		Yes		Yes
Constant	13.18	19.08	26.03*	30.56*
	(25.42)	(28.23)	(13.68)	(15.44)
Observations	68	68	68	68
R-squared	0.259	0.267	0.252	0.278

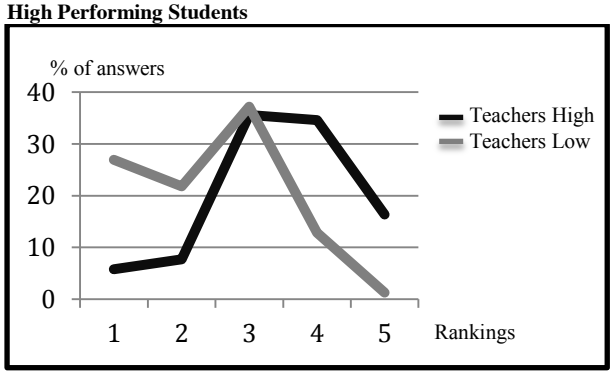
Note; The impact of desired school characteristics on desire to start among teachers in low performing schools in the municipality of Stockholm. Ordinary least squares estimations, checked for outliers, of desired characteristics, ranked 1-5, effect on teacher desire to start, measured in percent, at the 10 lowest performing schools in the municipality of Stockholm. The characteristics of model 3&4 are transformed into dummy variables, taking on the value of 1 for high rankings of 4 or 5. Robust standard errors in parentheses. Yes indicates the control factor being added to the regression. *** p<0.01, ** p<0.05, * p<0.1

***Figure II**, Rankings of Desire*

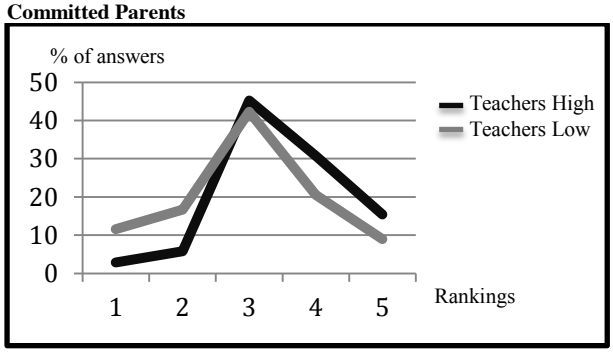
Good Reputation



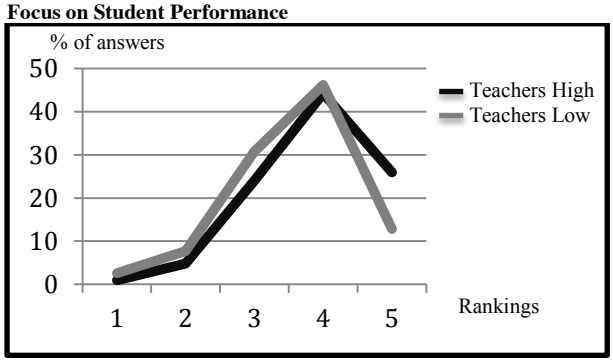
High Performing Students



Committed Parents



Focus on Student Performance



Note; Teachers from the 10 highest and 10 lowest performing elementary schools in the municipality of Stockholm's rankings of desire for the proxies for high performing schools. The perceptions are ranked from 1-5, which states to which extent the teachers agree that the characteristics were applicable to the school when they started working there. Teachers High stands for teachers working at high performing schools. Teachers Low stands for teachers working at low performing schools.

Difference in desired and perceived characteristics

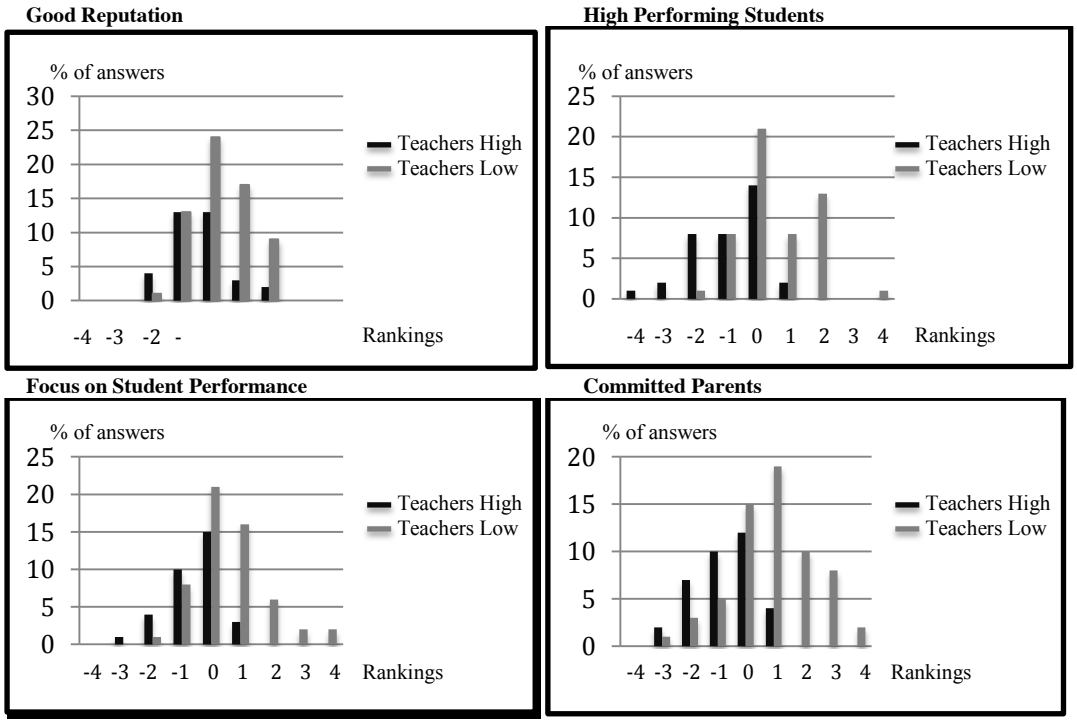
By subtracting the teachers rankings of desired characteristics with their rankings of perceived characteristics of the school where they now work, a measure of satisfaction can be constructed. If the difference is zero they are satisfied since they have exactly what they want, if the difference is below zero they are very satisfied since they work at a school with better qualities than they desired, and if the difference is above zero they work at a school with worse characteristics than they desired.

When comparing these differences across schools the image is clear. Regardless which characteristic is observed, the teachers in high performing schools rate the schools where they work higher or closer to what they wanted than teachers in low performing schools. The latter group more often works in an environment, which they perceive to have characteristics worse than those they find important when applying for jobs.

The results from the differences in the characteristics good reputation, high performing students, focus on student performance, and committed parents are displayed in Figure III. The differences in the other characteristics show a similar picture and can be seen in the Appendix, Figure II. The fact that teachers in high performing schools have a higher rate of satisfaction than those in low performing schools provides further proof of our hypothesis.

To conclude, the higher satisfaction rate of teachers in high performing schools together with the results from the ordinary least squares estimations and the comparison of average desire to start prove our hypothesis to be true. A further conclusion will be provided in the section to follow, “Concluding Remarks.”

***Figure III**, Measure of Teacher Satisfaction*



Note; The measure of satisfaction is conducted from taking the difference in desired minus perceived characteristics at high versus low performing schools in the municipality of Stockholm of the proxies for high performing schools. The perceptions are ranked from -4 to 4. -4 to -1 is when the schools exceed the teachers' desires, 0 when they meet the teachers' desires, and 1 to 4 is when the schools do not meet the teachers' desires. Teachers High stands for teachers working at high performing schools. Teachers Low stands for teachers working at low performing schools.

Concluding Remarks

Interpretation

The empirical evidence confirms our hypothesis that elementary schoolteachers at the Stockholm labor market do indeed prefer working at high performing schools.

When first looking at the average desire to start in the two sectors, the desire to start at a high performing schools was nearly fifteen percent higher than the average desire to start at a low performing elementary schools in the municipality of Stockholm. The findings remain stable for controls of age, time of hire, and gender. Time of hire is the only control factor significantly changing the results, with a general lower desire to start after 2003 held constant over all groups. The result from comparing these averages is a first confirmation of our hypothesis. To further investigate whether the preferences to start at a high performing school indeed was correlated with the specific characteristics of a high performing schools, two sorts of regressions were run.

In the first regression, perceived characteristics of the school where the teachers were about to start were run against desire to start at that specific school. The ordinary least squares estimation showed that the four proxies for high performing schools; good reputation, high performing students, focus on student performance, and committed parents (Henderson & Mapp, 2002; MacLeod & Urquiola, 2009), all were significantly at any reasonable point of significance and positively correlated with desire to start. Since perceptions are a matter of subjectivity, another regression providing objective results was put forth.

An OLS estimation measuring the effect of desired characteristics of a school against the desire to start at the school where the teacher works was made. The betas of high and low performing schools should intuitively be different, where the proxies of high performing schools should have a positive effect on desire to start at a high performing school and a negative effect on low performing ones. The data was therefore split into a high and low performing sector, and the findings turned out to further confirm the hypothesis. Furthermore, the same regression but with the characteristics turned into dummy variables instead of the previous rankings showed that there is a non-linear relationship between the desired characteristics and desire to start. The betas increased in magnitude if the teachers had high preferences for any of the significant variables. In combination with the teachers at high and low performing schools having homogenous preferences in the various characteristics with high rankings for all of the proxies for high performing schools, this provides further proof of the hypothesis.

As a last control, teacher satisfaction was put under scrutiny. The difference in desired characteristics and perceived ones was examined and compared for the two teacher groups. It turns out that the teachers at the high performing schools in general are working at locations that meet or exceed their desires, whereas teachers working at low performing schools to a larger extent are unsatisfied with their workplace. By looking at the picture protruding from these findings, it is clear that teachers on the Stockholm elementary schoolteacher labor market prefer working at high performing schools rather than low performing ones.

Implications

The Stockholm school market today is characterized by a growing gap between high and low performing elementary schools. In combination with a decreasing inflow of skills to the teacher labor force (Fredriksson & Öckert 2007), a divergence between better and worse teachers is expected to protrude. If, as Jabob's and Lefgren's findings (2006) show, principals are able to assess the best and worst teachers from the labor market and the division between these grows further, then the principals who get to choose from a larger pool of applicants in their interviews will also be able to elect the better teachers.

According to our report, teachers have a higher preference toward high performing schools, which leads us to assume that when they apply for jobs they will look to fulfill these preferences. When following their preferences they will thus to a larger extent apply to higher performing schools, enabling the principals at high performing school to select from a larger group of applicants and thereby be able to chose high quality teachers. As a result, the Stockholm elementary schoolteacher labor market might face a future where high performing teachers work at high performing schools and low performing teachers work at low performing schools.

With research showing the important role of teachers for schoolchildren's intake of knowledge (Hattie, 2009), the divergence of skills should enhance the growing gap between the performance of schools even further. An implication being that the equality of elementary schools decrease even further.

This per say does not have negative economic effects, but if we study the strongest shining star on the educational market today we find Finland with top results in all international reports (PISA, 2009; TIMMS, 2011; PIRLS, 2011). One of the characteristics of Finland's educational system is an outstanding equality between different schools.

Furthermore, if we examine Sweden's labor market it is a high skilled one (Edin & Topel, 1997). Therefore Sweden, and the municipality of Stockholm with 9.2% of the country's population (Statistiska Centralbyrån, 2013), most definitely needs a broad high skilled labor supply. If the educational system cannot provide a supply with a wide range of high skills Sweden is, to say the least, in trouble. When considering both the success of Finland's equality together with our need of a broad and highly skilled labor supply, a decrease in equality, which teacher preferences leads to, is a troubling finding.

Validity of results

The findings of this report show trends but do not provide any absolute answers. This section aims to discuss how valid and robust the findings are, in both the studied area but also other geographical ones.

By first looking at the constructed regressions there is an issue with potential omitted variable bias. With a low adjusted R-squared in all of our regressions there lies a substantial risk of omitted variables, which lie in the error term and are correlated to the variables in the regression. For this reason, no absolute conclusions regarding the magnitudes of our proxies can be drawn. We do find that along with a comparison of average desire to start as well as the general higher satisfaction among teachers at high performing elementary schools, we can conclude that the general trends found in our regressions are applicable to the Stockholm elementary schoolteacher labor market.

When looking at the cross-sectional data there are some teachers starting at their workplace long before the equality of the schools deteriorated. We checked for the differences before and after 2003 and noticed that a general decrease in desire to start could be noticed across all groups after this year. It could be argued that they could be beautifying their decision in aftermath, or that only the teachers wanting to work at that particular workplace stay for such a long time. The responses from the teachers starting before 2003 should be handled with caution since the gap between schools were smaller then. By including these teachers in the regression the results should, if differing, only make our results more modest. With this argument we would like to underscore the validity of our results.

The data is to be considered fairly small, especially when considering the questions not receiving any responses. In the section of perceived characteristics, only fifty-four complete

answers from the low performing schools were used for the estimation. Since the significance levels of our proxies were high and there was an increase in responses in the low performing sector when running the regression on desired characteristics, an increase to seventy-two respondents, we find reason to believe that the dataset was big enough.

There are two other considerations in need of discussion when regarding the dataset. Firstly, even though the survey was sent out by mail to all the teachers of grade nine students working in the selected schools, there is no way to control who in the end replied to the survey. It may be that a certain type of teacher chose not to answer the survey and thus causing risk of bias in the responses. The response rate of the schools is in general high, between sixty-four and one-hundred percent, which leads us to believe that our findings are relevant regardless. If the majority of the labor market have preferences for high performing schools, then the implications of the results hold even though a part of the labor market have different preferences.

Secondly, there is the issue of top of mind. As discussed when selecting the dataset the schools further away from the bottom or top of the scale were more similar to the schools just outside of the selected group than the ones at the absolute top or bottom. One way of correcting for these issues of top of mind would have been to look at the four top and four bottom schools in all of the three big cities in Sweden, Stockholm, Göteborg and Malmö. This would lead to a need to control for inter-municipal differences. Together with the fact of the vast differences between the bottom schools and the top schools we do not see this issue as a cause of problem to our results but rather a suggestion for future research in the field. There is also further research that our report opens up for.

Suggestions for future research

Our findings of teacher preferences open up for two areas of research, one area focusing on further mapping preferences and labor movements on the teacher labor market, another exploring various solutions to the implications of the results from our report. This section will discuss the two different approaches research can take.

In our research, focus has been on teacher preferences, therein implying that the preferences in turn will lead to movements on the teacher labor market of Stockholm. Another approach would be to study the effects more directly. Using the assumption of homogenous preferences that our study finds, it is possible to examine number of applicants per open spot at different schools. Instead of using the poor method of teacher final grades from upper secondary school as Skolverket has done (2011), the same supply and demand forces as applied in our research can be used. By studying the movements, different trends can be monitored over time. A study of this sort could help see whether the teacher preferences are put into action or not.

The other area of interest is to see what approaches would be successful in order to deal with the different teacher preferences. One way would be to study if larger discrepancies between schools could lead to better student and teacher matching and how to create market forces that optimizes this match. As Grönqvist & Vlachos (2008) and Hattie (2009) find, different children are in need of different characteristics of teachers. If the schools in the municipality of Stockholm is moving toward a more homogenous student base within schools it could be of interest to see how teacher preferences could be regulated so that an optimal match of students and characteristics of teachers are made. This is an approach we do not recommend, since research shows that students are affected by their surroundings, and when surrounded by a low performing environment they will in general perform worse themselves (Hattie, 2009).

Another way is to examine how to regulate the teacher preferences in order to decrease the gaps between schools. A hedonic wage approach where teachers are compensated differently depending on in which setting they work could have an effect on the preferences. Obvious difficulties with an approach like this one would be the strong teacher unions opposed to wage structures which do not focus on levels of education and years of experience (Fjelkner, 2012).

It is also important to take other cities into consideration. If the market is correcting for the situation in the big cities, how are the smaller cities and rural areas affected? A future line of research could look into aspects of this sort to see what the optimal solution for the country as a whole should be. Disregarding other areas than the highly populated ones comes with risk of sub optimization.

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Appendix

Figure I, *The Survey*

Hej!
Nedan följer några korta frågor angående din tjänst vid en av Stockholms grundskolor. Vi är oerhört tacksamma för dina uppriktiga svar som kommer ha en avgörande betydelse för vår kandidatuppsats inom nationalekonomi på Handelshögskolan i Stockholm.

Tack på förhand!
Anna Edding Heijde och Malin Werin

Kön

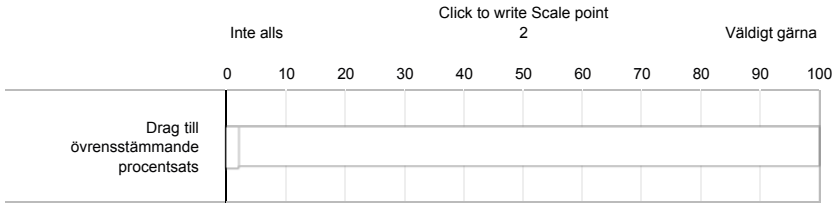
- Man
- Kvinna

Födelseår

Namn på den skola jag jobbar på

Vilket år började du jobba på skolan?

Är det en skola du gärna ville jobba på innan du sökte tjänsten?



Jag undervisar årskurs 9

- Ja
- Nej

Är du behörig lärare?

- Ja
- Nej

Note; The survey is in Swedish since it is conducted at the Swedish labor market. Questions translated into English, from the page top-down, gender, birth year, name of school, starting year, rate how much you were looking forward to start at the school on a scale 0-100%, teaching in year 9, certified teacher.

Inom vilka ämnen undervisar du?

- ☐ Matematik
- ☐ NO
- ☐ SO
- ☐ Språk
- ☐ Gymnastik
- ☐ Övrigt

Är du utbildad inom de ämnen du undervisar i?

- ○ Ja
- ○ Nej
- ○ Delvis

Uppfattade karaktäristika för skolan när jag sökte mig till den:

	Stämmer inte alls	Stämmer till viss grad	Stämmer delvis	Stämmer till hög grad	Stämmer helt	Vet ej
Bra rykte	○	○	○	○	○	○
Högpresterande elever	○	○	○	○	○	○
Lärarkår fokuserad på höga prestationer bland eleverna	○	○	○	○	○	○
Lärarkår fokuserad på elevers personliga utveckling	○	○	○	○	○	○
Engagerade föräldrar	○	○	○	○	○	○
Välstrukturerad organisation	○	○	○	○	○	○
Bra skolledning	○	○	○	○	○	○
Bra lokaler	○	○	○	○	○	○
Tillgång till bra undervisningsmaterial	○	○	○	○	○	○
Nära till jobbet	○	○	○	○	○	○
Bra arbetstider	○	○	○	○	○	○

Note; The survey is in Swedish since it is conducted at the Swedish labor market. Questions translated into English, from the page top-down, what subjects are you teaching – math, natural sciences, social sciences, language, physical education, other. Educated in the subjects teaching, perceived characteristics of the school working at before starting, ranked between 1-5 6 don´t know - good reputation, high performing students, teaching staff focused on high performance among students, teaching staff focused on students' personal development, committed parents, well structured organization, good management, good premises, access to good teaching equipment, near home, and good work hours.

Vad är viktigt för dig när du söker dig till en skola?

	Stämmer inte alls	Stämmer till viss grad	Stämmer delvis	Stämmer till hög grad	Mycket viktigt
Bra rykte	○	○	○	○	○
Högpresterande elever	○	○	○	○	○
Lärarkår fokuserad på höga prestationer bland eleverna	○	○	○	○	○
Lärarkår fokuserad på elevers personliga utveckling	○	○	○	○	○
Engagerade föräldrar	○	○	○	○	○
Välstrukturerad organisation	○	○	○	○	○
Bra skolledning	○	○	○	○	○
Bra lokaler	○	○	○	○	○
Tillgång till bra undervisningsmaterial	○	○	○	○	○
Nära till jobbet	○	○	○	○	○
Bra arbetstider	○	○	○	○	○
Kommunal skola	○	○	○	○	○
Friskola	○	○	○	○	○

> >

Note; The survey is in Swedish since it is conducted at the Swedish labor market. Questions translated into English, from the page top-down, desired characteristics, rated from 1-5, when applying for a new position at a school – good reputation, high performing students, teaching staff focused on performance among students, teaching staff focused on students' personal development, committed parents, well structured organization, good management, good premises, access to good teaching equipment, near home, good working hours, public school and private school.

Table I, *Adjusted Final Grades*

		Results from Standard National Test, Swedish									
			share of (%)								
Schools	#students	#students with test results and final grades	lower grades than test results	same grades as test results	higher grades than test results	weighted average, "new grade"	Same procedure for Maths, English , and Swedish as second language	Average final grades	Average adjustment	New "15 points"	New average grades
Abrahamsbergsskolan	83.0	82.0	1.2	85.4	13.4	0.878		248	0.887	13.3	246.3
Adolf Fredriks musikklasser	184.0	182.0	2.2	90.7	7.1	0.951		542	0.910	13.6	540.6
Akalla grundskola F-9	.	0.0	.	.	.	1.000		138	0.964	14.5	137.5
Al-Azharskolan	.	0.0	.	.	.	1.000		156	0.865	13.0	154.0
Alviksskolan	65.0	58.0	3.4	81.0	15.5	0.879		207	0.879	13.2	205.2
Alzahraa Idealiska akademi	.	0.0	.	.	.	1.000		113	0.964	14.5	112.5
Aspuddens skola	94.0	94.0	3.2	75.5	21.3	0.819		287	0.774	11.6	283.6
Bäckahagens skola	82.0	73.0	4.1	89.0	6.8	0.973		198	0.869	13.0	196.0
Bagarmossens skola	30.0	29.0	6.9	93.1	0.0	1.069		145	0.890	13.3	143.3
Björkhagens skola	93.0	88.0	9.1	78.4	12.5	0.966		271	0.871	13.1	269.1
Blommensbergsskolan	100.0	93.0	4.3	79.6	16.1	0.882		268	0.724	10.9	263.9
Bredängsskolan	.	0.0	.	.	.	1.000		124	0.871	13.1	122.1
Bredbyskolan	.	0.0	.	.	.	1.000		104	0.885	13.3	102.3

Note; The relationship between the results on the standard national test and the final grades, year 2012 at the schools starting with a letter A or B in the municipality of Stockholm. If we take the example of Abrahamsbergsskolan we see that there are 82 students with test results from the standard national tests in Swedish as well as final grades in the subject. Of these, 1.2% had lower grades than test results, 85.4% same grade as result, and 13.4% higher grades than test result. By taking 1- 0.012-0.134 we obtain an average weighted new grade of 0.878 times the five points representing a change in the grade of Swedish. This is done for the subjects Math, English and Swedish as second language. In total the final grade should be adjusted by 15-13.3 points and the new final average grade is computed to 246.3 instead of 248 (out of 320).

Table II, *Interaction, Perceived*

Characteristics	Desire to start
Good reputation	6.888*
	(3.600)
Focus on students personal development	3.007
	(3.594)
Good management	2.304
	(3.040)
Good premises	1.475
	(2.848)
Good working hours	-1.839
	(2.377)
Low performing school	5.326
	(22.47)
Interaction P.REP	-2.837
	(4.961)
Interaction P.FPERF	-1.182
	(4.995)
Interaction P.MGMT	2.068
	(4.187)
Interaction P.PREMISES	3.689
	(3.959)
Interaction P.HOURS	-2.997
	(3.636)
Constant	31.73*
	(17.77)
Observations	114
R-squared	0.285

Note; Ordinary least squares estimations, checked for outliers, of perceived characteristics' impact on teachers' desire to start at a elementary school in the municipality of Stockholm. To see the effect on desire to start if the teacher works at a low performing school, an interaction regression is run with low performing school as a dummy variable**.** Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

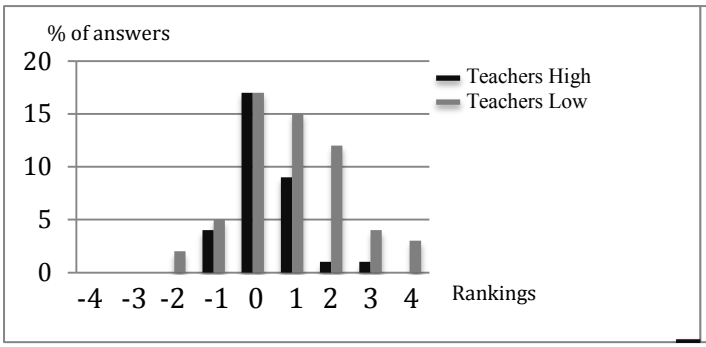
Table III, *Interaction, Desired*

Characteristics	Desire to start
Good reputation	-2.636
	(3.287)
Focus on student performance	10.32***
	(3.599)
Focus on students personal development	1.237
	(3.796)
Near home	-1.328
	(2.244)
Low performing school	8.180
	(26.52)
Interaction D.REP	1.520
	(4.708)
Interaction D.FPERF	-11.57**
	(5.104)
Interaction D.FSOCIAL	6.089
	(5.943)
Interaction D.NHOME	-3.632
	(3.692)
Constant	48.90***
	(16.39)
Observations	166
R-squared	0.186

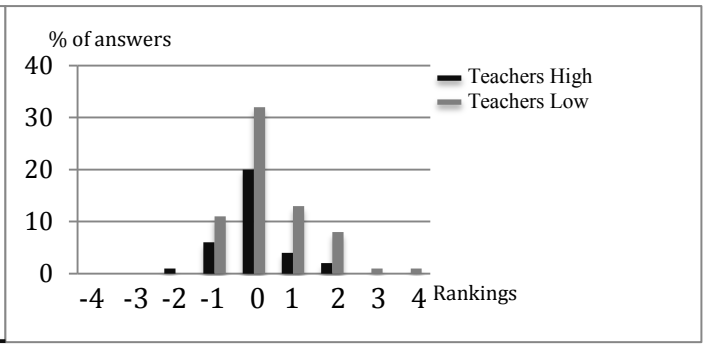
Note; Ordinary least squares estimations, checked for outliers, of desired characteristics' impact on teachers' desire to start at a elementary school in the municipality of Stockholm**.** To see the effect on desire to start if the teacher works at a low performing school, an interaction regression is run with low performing school as a dummy variable**.** Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Figure II, *Measure of Teacher Satisfaction*

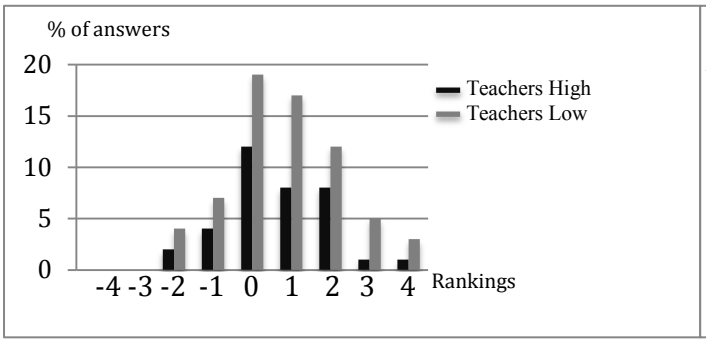
Structured Organization



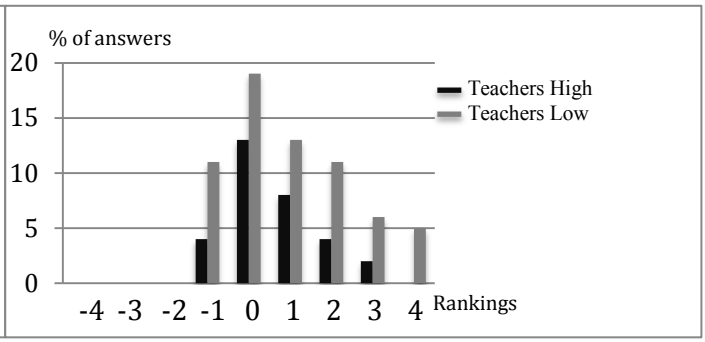
Focus on Students Personal Development



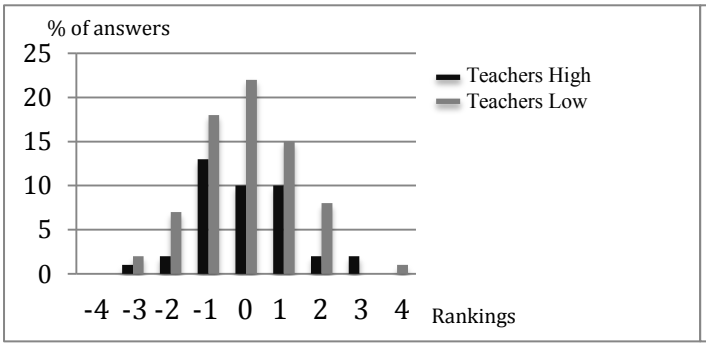
Good Premises



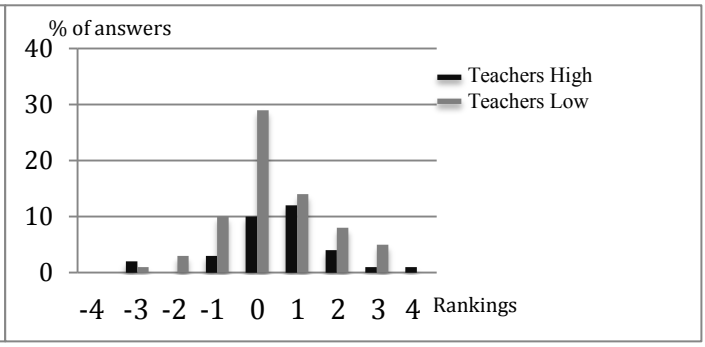
Good Management



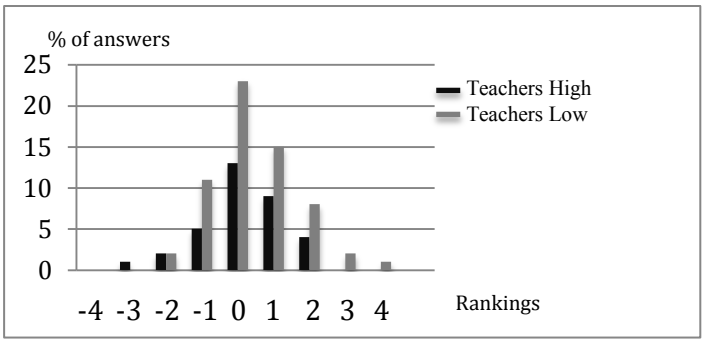
Near Home



Good Work Hours



Good Material



Note; The satisfaction measure is conducted from taking the difference in desired minus perceived characteristics at high versus low performing schools in the municipality of Stockholm. The perceptions are ranked from -4 to 4. -4 to -1 is when the schools exceed the teachers' desires, 0 when they meet the teachers' desires, and 1 to 4 is when the schools do not meet the teachers' desires. Teachers High stands for teachers working at high performing schools. Teachers Low stands for teachers working at low performing schools.