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Are schools in Ireland engines of sex inequality? Institutional structures which impact student's choices.

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Abstract

Examining the factors underlying gender differences in third level field of study is important to understand gender inequalities in society with direct social policy implications, including the gender pay gap. This study aims to explore if, and to what extent, Irish schools constrain choices for students, in ways that later influence their third level fields of study. The study uses *Growing Up in Ireland* data to investigate how different school-level factors relate to student subject and field of study choices. Findings show that the most significant variable connected to less gender stereotypical educational choices is attending a fee-paying school, which encourages students to choose less stereotypical subjects at upper secondary school level and third level fields of study. The impact of single sex schools is less clear cut, which is an interesting finding considering recent efforts to faze them out of Ireland. Sex proportions within coeducational schools are connected to choices, particularly the impact which a large proportion of boys has. Findings also show that the number of subjects offered to students in schools impacts their choices, highlighting the impact that offering less non-stereotypical choices can have, contradicting existing literature and research.

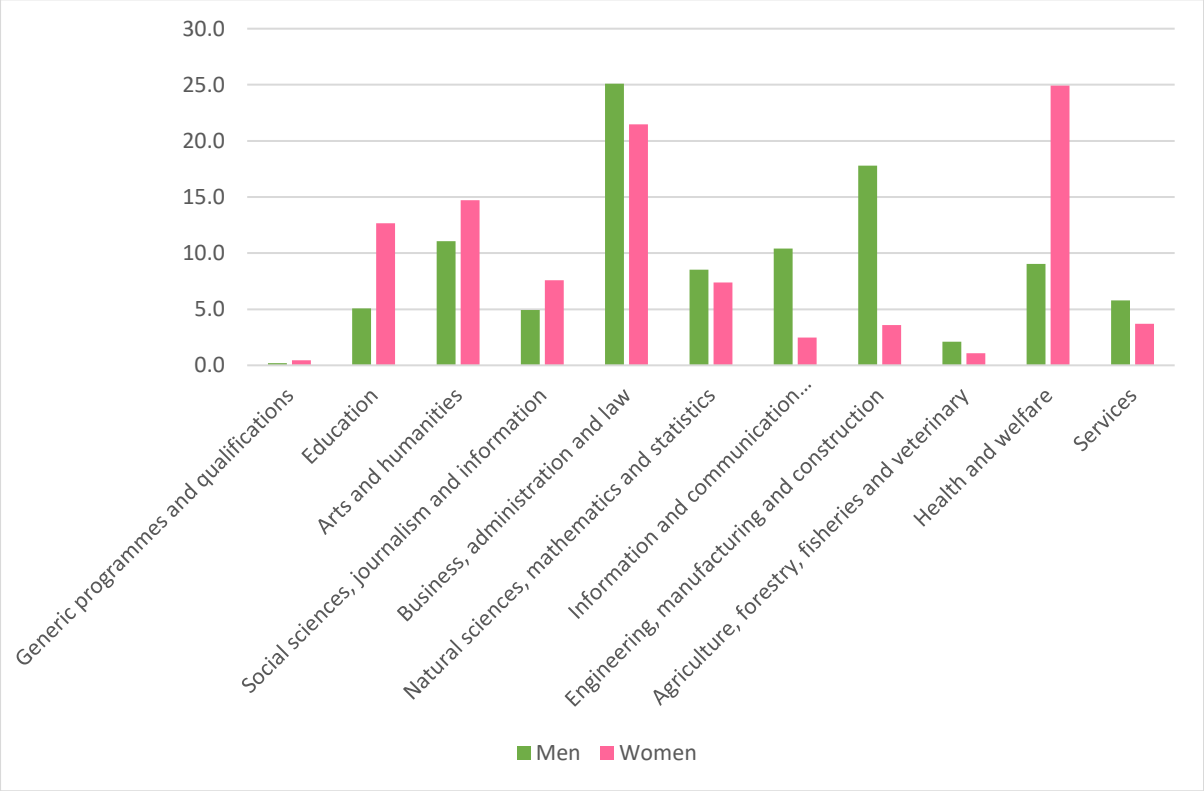
Contents

1. Introduction

In recent decades there has been a 'revolutionary' change in the level of female participation in third level education. This trend is evident in Ireland as the proportion of women with a third level qualification increased 10 percentage points between 2008 and 2018 from 50.1 to 59.9% (CSO, 2019). Along with increasing numbers of women in tertiary education, women's employment participation has increased significantly, and the gender pay gap fell slightly as women entered more highly paying occupations and worked more continuously (England, Privalko and Levine, 2014). Despite these major trends toward gender equality, scholars have observed a strong gender-typed persistence across fields of study in Ireland, as well as in other high-income countries (Charles and Bradley, 2009).

In their seminal study, Charles and Bradley (2009) differentiate between the vertical axis, which refers to tertiary level (ranked in relation to duration, status and rigor) and the horizontal axis, which refers to field of study. Horizontal segregation is still visible in statistics of Irish graduates, with one in four female graduates in the fields of Health and Welfare and one in four male graduates in Business, law and administration. For example, in Ireland in 2017, 80% of Engineering, construction and manufacturing and ICT were male while 75% of graduates in both Health and welfare and Education were female.

Graph 1: Third level graduates in Ireland by field of study 2017



(CSO, 2019)

Previous research in the area of horizontal segregation points to various reasons why gender patterns across fields of study are concerning. Firstly, gender segregation perpetuates gender inequality (Buschor et al., 2014). Economic inequality is maintained as stereotypically 'male' occupations are better paid, more powerful and perceived as higher status (Weisgram et al., 2011; Schneeweis & Zweimuller, 2012; Charles and Bradley, 2009). This means that gender segregation is one of the key factors sustaining the gender wage gap (Schneeweis & Zweimuller, 2012; Moorhouse, 2017). As well as individual consequences, there are societal impacts, as technical and scientific fields suffer shortages, leading countries to be less innovative and damaging their economic growth (Brenøe and Zölitz, 2020; Charles and Bradley, 2009). This has led to a demand for an increased number of women in STEM which means that research in this area is crucial (Buschor et al., 2014).

Secondly, the persistent horizontal segregation in education and the labour market reinforces gender-essentialist beliefs about the 'natural fit' for men and women (Makarova, Aeschlimann and Herzog, 2019). These beliefs are significant in many domains including attitudes towards family roles, occupations, and perceptions of self. Essentialist stereotypes connected to participation in certain fields affects career choices, as individuals choose careers based on gender instead of aptitudes or interests, which in turn reinforces stereotypes and gender gaps in choices and interests (Makarova, Aeschlimann and Herzog, 2019; Charles and Bradley, 2009; Weisgram et al., 2011).

To date, the literature has provided insufficient evidence on how school level factors shape student's field of study choices. Institutional structures have been argued to be central to segregation across fields of study. For Barone, persistent segregation means that "educational institutions still work as engines of gender inequality" (2011, p. 157). Also, institutional organisation is important as it is within policymaker's scope, unlike individual level factors (motivation, ability, background) (Görlitz and Gravert, 2018). However, the role of institutional factors, in explaining sex-typed school choices remains unclear. This is because existing research does not show indisputable school level factors which encourage or constrain less gender stereotypical choices.

The present study examines the impact of certain organisational features of Irish secondary schools on student's choices. By looking at subject choices made at upper secondary school and subsequent higher education field in areas of research, this study contributes to literature and policy at various levels. First, there is limited research on the relationship between differences in gender outcomes and educational structure even though education systems are viewed as a central way to increase gender parity in occupations (Bradley, 2000). Specifically, research rarely looks at national education systems as an explanation for different field choices as individual level explanations are focused on (Jacob et al., 2020). Taking these limitations and omissions into account this study will aim to show if and how Irish schools constrain student choices, focusing on subjects and course choices. In this way relational and normative structures will be controlled for but not investigated.

Second, the mechanisms through which atypical choices are encouraged or constrained are studied here by looking at the relationship between secondary school characteristics and higher educational field of study (Jacob et al., 2020). There is also a lack of research in this area, with Charles and Bradley (2009) calling for systematic comparative research to identify the organisational features of education systems which influence gender distribution in higher education. This is because institutions may have the power to "extend or limit experiences that may alter orientations, preferences that in turn may affect actual choices" (Jacob et al., 2020, p. 74). Identifying these aspects of the education system which limit choice allows policymakers to reduce gendered patterns of horizontal segregation and the present study will cover this gap in the Irish context to find meaningful policy recommendations, focusing on the way different types of school link to and limit choice.

Third, there are limited studies which research men and women's atypical aspirations (Buschor et al., 2014). Research has concentrated on female representation in STEM, whereas the underrepresentation of men in certain fields is often neglected, even though it is the opposite side of the same coin (Van Houtte, Vanderwegen and Vermeersch, 2014). The present study examines the choices of women, but also men to avoid the much-investigated women-STEM direction and provide a broader gender perspective.

Fourth, the present study contributes to existing debates surrounding single-sex (SS) schools as a possible solution to undermining gender stereotypical behaviour. Studies in this area have found mixed evidence. Ireland provides a unique case study to test their impact due to the very high percentage of SS schools in the country (Doris, O'Neill and Sweetman, 2013). Therefore, studying the Irish system allows the actual effects, if any, of attending SS schools and coeducational schools on students' field of study.

Lastly, the present study adds to the literature on gender stereotypical fields of study by examining the role of having attended a fee versus a non-fee-paying school. There are no studies which research the impact of feepaying schools on students' gender typical or atypical choices, even when previous research has shown that fee paying schools have unequal financial returns for men and women which may be connected to gender stereotypical fields of study being chosen (Imberman, 2006). This study fills the important gap in the literature, investigating how fee-paying schools in the Irish context relate to stereotypical subject and field of study choices.

This study uses micro-level data from the *Growing Up in Ireland* (GUI) study, which provides rich information on many of the key variables of interest for a large representative sample of the Irish population. Looking at how subject choices and fields of study relate to school types, this study will attempt to answer the following question: Is evidence found that Irish schools enable or constrain choices for students in a way that results in more, or less, equal gender proportions across fields of study?

The thesis is structured as follows. Chapter II will review the existing literature in the areas of gender stereotypical choices, national education systems, and types of schools, as well as reviewing theoretical contributions seeking to understand and explain these relationships across other areas. Chapter III will expand on this previous literature by creating a conceptual framework to inform hypotheses. Chapter IV will explain the methodology used to test these hypotheses, guided by existing research documented in Chapter II and III. Chapter V will communicate the findings of this paper. And finally, Chapter VI will conclude this paper by discussing the results and showing its contribution to both theory and policy.

2. Literature Review

2.1 Theoretical Explanations

Three key frameworks have been used to explain academic choices of men and women which result in horizontal segregation (1) micro level explanations (2) macro level explanations and (3) institutional explanations (Yazilitas et al., 2013). These three frameworks are relevant to the present study as they allow the institutional explanations to be studied while controlling for other explanations.

Micro level explanations focus on subjective value and self-efficacy. For example, Eccles' (1984) general model of academic choice argues that students' interpretations contribute to the subjective value attached to achievements, influencing their behaviour, choice, and performance. Individuals also use schemas which are culturally based when making academic decisions (Eccles, 2005). Gottfredson's theoretical framework also acknowledges the impact of gender stereotypes on decisions, specifically the gender images of occupations (Makarova, Aeschlimann and Herzog, 2019; Schulstok and Wikstrand, 2020). Gottfredson's (2002) theory of circumscription and compromise studies the way individuals often sacrifice fulfilling their 'unique selves' to gain a job consistent with their prestige and gender expectations. Dimensions closest to self-concept are relinquished last, so people will compromise on field of work, then prestige then sex-type (Gottfredson, 2005). Gottfredson also argues that the more options available, the more individuals will experience, allowing people to recognise and consolidate their interests, attitudes, values, and capabilities "and thereby identify more genetically congenial activities and social niches" (2002, p. 126).

Researchers have also argued that rational decision making explains gender patterns across fields of study (Stoet and Geary, 2018). This means students side-line gender stereotypes and norms (Barone, 2011) and maximise their utility by considering their subjective probability of success, considering both absolute and relative achievement (Barone, 2011; Uerz, Dekkers and Be´guin, 2004). However, the comparative advantage hypothesis within the framework of rational choice theory is questioned for two reasons (1) girls have just as much chance for success in STEM and (2) scientific fields usually have higher returns (Barone, 2011). Alternatively, anticipated family obligations may cause women to opt for fields which make it an option to combine family and work (Moorhouse, 2011). However, there are many fields with high rates of female participation which do not follow this reasoning (e.g., nursing) (Barone, 2011).

According to social cognitive theory (SCT) self-efficacy regulates motivations through setting goals and outcome expectations and plays "a key role in shaping the courses lives take by influencing the types of activities and environments people choose to get into" (Bandura, 2001, p. 10). Likewise, social cognitive career theory (SCCT) argues that when people are forced to compromise on preferred choices, this will be done based on self-efficacy beliefs, job availability and outcome expectations. This model recognises gender as a moderating variable which impacts expectations and self-efficacy (Lent et al., 2002).

However, these individual level explanations of gendered choices do not fully understand gendered patterns as students make choices within institutional and social constraints. For example, in expectancy value theory the outcomes students can expect depend on the societies they are in (Yazilitas et al., 2013). They also underestimate the reality faced by individuals, as choices are viewed to be a result of an interpretation of their environment and their subjective beliefs about perceived options, not recognising the constraining power of educational structures (Eccles, 1984; 1994). This means that the solution from a SCT perspective is to create support building and barrier coping interventions to navigate education environments, rather than questioning the education environment itself (Lent et al., 2002). Thus, expectancy value theory and SCT cannot explain if students' confidence and interest in a subject they want to pursue results from options or constraints in the school they attended (Hübner et al., 2017).

Macro level theories address gender socialisation and socioeconomic context (Yazilitas et al., 2013). Many scholars view socialisation as a central process in decision making, shaping choices through role models, social support, and feedback (Buschor et al., 2014; Abbiss, 2009). Barone (2011) noted the limitation of focusing solely on socialisation as the structural developments of service economies reinforce essentialist ideologies. This implies that weakening socialisation will not decrease segregation if economic and educational systems work contrarily.

Evolutionary arguments contend that the rising level of female participation in education will lead to gender differences' gradual elimination (Bradley and Charles, 2009). Inglehart and Norris argued that "gender roles converge in postindustrial societies due to the cultural shift in attitudes toward women and the structural revolution in the paid labour force, in educational opportunities for women, and in the characteristics of modern families" (2003, p. 79). However, existing patterns do not support this argument as many key indicators of gender equality have slowed or even stalled in recent decades (England, Privalko and Levine, 2014). Also, Charles and Bradley (2009) distinguished between developing or transitional and advanced industrial societies, displaying different processes which generate gender inequality. Their research on 44 countries showed that developing/transitional societies had a positive relationship between sex segregation and GDP. This pattern reached a point so that in advanced industrial societies this relationship was no longer visible. They argue this pattern is due to the different effects of materialist compared to postmaterialist values in each and different causal mechanisms, GDP in developing/transitional societies and affinity for mathematics in advanced industrial societies.

Institutional explanations emphasise the differences which are caused by different characteristics of education systems, recognising that school contexts are associated with educational choices. Institutional perspectives investigate interactions previously ignored by micro and macro-level studies, making up "part of the puzzle" in explaining gendered processes in fields of study (Yazilitas et al., 2013, p. 533).

The present study takes this approach, focusing on characteristics which differ within the education system in Ireland, subject provision within schools and types of schools, SS schools compared to coeducational schools, and gender composition within them, feepaying schools, compared to non-feepaying schools and the level of choice students have within schools. By considering these institutional factors, this dissertation will ascertain the degree to which boys' and girls' choices made in the context of schools prescribe future consequences in their future fields of study.

2.2 Structures and Stereotypes

Recent perspectives from social scientists have argued that women's lack of representation in STEM is due to disinterest and the choice to pursue other fields (Cundiff et al., 2013). Individual level explanations for these choices includes gendered values, perceptions of subjects, comparative advantages, expectations, and aspirations (Van Houtte, Vanderwegen and Vermeersch, 2014; Makarova, Aeschlimann, and Herzog, 2019; Uerz, Dekkers and Be´guin, 2004; McDaniel, 2010). However, focusing on individual's choices neglects the role of social context as educational choices are made within a context of "structured alternatives that lead to future trajectories that enable or restrict future choice" (Cundiff et al., 2013; Bradley, 2000, p. 11). In this way, Bradley argued that ideas of gender relations and roles form educational choices, with gender operating on "the chooser, the choice, and the implications of choice" (2000, p. 12).

Reviewing the literature, a few studies have acknowledged the structural constrains which have the potential to impact educational choices. Charles and Bradley's (2009) argued that horizontal forms are less contested than vertical segregation as they can be reconciled with Western values of self-expression and self-realisation. Also, certain structural features of education systems after modernisation are encouraging gendered career dispositions and expectations. First, larger system size decreases the 'elite identity' needed to transgress gender norms. Second, structural diversification of subject choice may allow expressive choice, which has historically aimed to create female domains within education, with essentialist understandings of feminine interests, aptitudes, and roles. This is visible in the case of two-year programs in specific fields which led to increased horizontal segregation. Through a combination of gender essentialism, self-expressive value systems and material security a system that results in high levels of gender segregation is created (Charles and Bradley, 2009).

Other scholars have also noted these two characteristics of higher education. Firstly, the diversity and volume of higher education programs available to students may increase options in higher education, leading to a potential reinforcement of horizontal segregation (Moorhouse, 2017). Secondly, the degree of participation of women in tertiary level education also affects segregation as women were more likely to be channelled into existing programs. When women became a larger group, they were accommodated through new programs being established or existing ones being expanded in line with traditional gender

ideologies and increased horizontal segregation (Moorhouse, 2017). However, other studies argued that women's participation has led to an increase in female access to non-stereotypical fields (Fo and Wotipka, 2001; Jacob et al., 2020).

The persistence of essentialist stereotypes is a recurring theme. Barone's (2011) study found that gender segregation in higher education has not changed greatly in recent years and patterns are largely similar in the EU countries. This is surprising as patterns are similar across varying labour markets, educational institutions, and welfare regimes, supporting theories which emphasise the persistence of stereotypes and structural developments which have reinforced them. Moorhouse (2017) supported these findings as past segregation in higher education was found to explain current segregation more than characteristics of the tertiary education system of countries. This point is echoed by Van Houtte, Vanderwegen and Vermeersch (2014), who note that gender compositions of fields themselves are another factor which may influence enrolment. This suggests that norms and attitudes are persistently powerful and resistant to changes that have taken place (Moorhouse, 2017; Barone 2011).

2.3 Education Systems

Research on fields of study and subject choices have generally focused on microlevel processes with the role of national education system being rarely considered (Jacob et al., 2020). Jacob et al.'s (2020) article focused on the requirements of Germany, Ireland, and Scotland's secondary school curriculum and entry requirements, and how they may contribute to gendered choices in tertiary level education. They found that across all countries women were less likely to enrol in STEM, with a level of subfield variation. Taking STEM subjects at school predicts STEM enrolment and is a necessary but not sufficient condition as there is a consistent gender gap. The effect of STEM subjects in schools varied across countries, suggesting that experience mattered rather than exposure to science subjects. Jacob et al. (2020) argued that a broader conceptual framework is needed which takes account of labour markets, school structures and individual experiences.

The degree of choice in education systems is also relevant. Different studies have found evidence that limiting students' freedom of choice reduces gendered patterns in educational choices (Yazilitas et al. 2013). Jacob et al. (2020) used the example of exposure to STEM in school to illustrate the consequences of education systems. If students are exposed to STEM in school, interest and competencies in this area may be enhanced, resulting in higher enrolment rates. Conversely, if studying STEM is not compulsory students may pursue subjects in which they are more interested and predict they are more likely to succeed in. This may lead to lower enrolment, especially if students are disqualified from fields if they have not taken certain subjects. Regarding gender choices, greater choice may lead to more gendered as students behave consistently with gender norms. However, if choices are restricted, it enhances women's choices which may lead to higher enrolment. Empirical evidence in this is inconclusive (Jacob et al., 2020).

Abbiss' (2009) article studies the gendered patterns in New Zealand's ICT subject choices and curriculum. Gender socialisation and construction of identity are pointed out to be the driving force behind gender patterns so that choice and flexibility are issues as they sustain gender differences and potential inequalities. Abbiss defines this as the 'paradox of choice', when "the outcome may restrict options and possibilities for students rather than open new horizons for ICT involvement and education" (2009, p. 353). Lee, Groninger and Smith (1997) also found that US high schools which offer a narrow set of academic subjects have positive effects regarding equity.

Reforms dealing with the level of student's choice have shown mixed results. Görlitz and Gravert (2018) used Germany's curriculum reform, which restricted the choices of students in high schools, to study causal effects of curriculum changes. They found the reforms increased the probability of choosing STEM for men, but not women. Hübner et al. (2017) examined this reform and concluded that restricting the choices of students does not automatically change the reasons women have for not choosing maths subjects. On the other hand, Homer, Ryder and Donnelly (2013) studied English reforms which introduced more flexibility to encourage students to study science. They also found that boys were continuously overrepresented showing that reforms increasing more choices and subjects can result in less equitable gender participation.

2.4 School-level Characteristics

Research on the impact of schools commonly focuses on academic achievement. However, there is increasing interest and debate about the influence of schools on subject take up (Smyth and Hannan, 2006). Studies have shown that schools vary in their provision of subjects, and how they are made available as schools make assumptions about the needs and abilities of their students, which directs the provision and access of courses offered. Schools also have an indirect influence as the way subjects are 'packaged', for example through timetable requirements, can cause gendered choices.

Smyth and Hannan (2006) studied take up of science subjects in Irish schools and hypothesised that schools "may facilitate or constrain the choice of certain subjects" (Smyth and Hannan, 2006, p. 307). Their main findings showed that student's prior success in a subject influences subject take up at upper secondary school level, with this being more important for girls. The subjects that schools provided also influenced take up. Girls were more likely to choose Chemistry if Physics was also an option in the school. The way subjects were provided was another important factor as boys were more likely to take Chemistry if it clashed in a set with Biology. Students also tended to choose Biology if it was a facilitated option (if it is a core subject or available in different sets).

School level factors have also been found to influence the decisions of students when making decisions about tertiary education. Van Houtte, Vanderwegen and Vermeersch (2014) studied a broad range of factors to explain gender typical and atypical choices and found that the most important predictor for both men and women in typically masculine fields was the hours of maths completed in school. This relationship was slightly stronger for men, explaining why women did not choose 'masculine' fields to study in higher education. This finding showed the influence and importance of choices made by students in schools as hours of maths was found to be a more important predictor than family background.

While the research above indicates the importance of school subject choices and experiences on subsequent decisions, the literature focuses on STEM subjects and enrolment. The present study will extend this research area by considering how all the stereotyped subjects which students' study impact university choice. Studying these persistent patterns across fields of study policy and research have tended to dichotomize STEM and non-STEM majors (Ganley et al., 2018). Ganley et al. (2018) point out that fields defined as STEM lack consensus which leads to an oversimplification of majors and exclusion of other factors which relate to gendered choices. Even within STEM 'male subfields' need to be acknowledged (Bradley, 2000). Also, some courses are interdisciplinary in nature, so the dichotomy does not recognise the complexity of students' choice, missing the big picture. As there is a gender imbalance evident in fields other than STEM, researchers should look beyond STEM when studying gender patterns and looking for answers (Ganley et al., 2018). Barone (2011) pointed out that the humanistic-science divide only explained half of the association between college major and gender in eight European countries and argued that the 'care-technical' divide is just as important. Structural changes have sustained gender stereotypes through the creation of 'care niches' in both the labour market and education (Barone, 2011).

2.5 Types of Schools

There is an ongoing debate regarding the impact of single sex (SS) schooling on horizontal segregation in higher education. In general, studies in this area show a trivial difference in the effects of SS schools when controlling for selection bias with some authors arguing SS schools make little difference in gendered patterns across science subjects (Sohn, 2016; Sikora, 2014). However, there is a large amount of variation between studies, which Sohn (2016) argues is due to the primary fact that schools are different. In this way it is crucial to understand the potential mechanisms which drive SS schools' effects, if there are any (Sohn, 2016).

Different researchers have found positive effects of SS schools. Doris, O'Neill and Sweetman's (2013) article discusses how single-sex classes in coeducational schools could attempt to confront the gender gap in maths. Maths proficiency has been shown to have high returns and may be a barrier for girls entering STEM. Literature points to different potential mechanisms for this gender gap, including different attitudes about competition, different approaches to learning and peer effects. Sohn (2016) pointed out gender peer effects, which

is the pervasive belief that students, especially girls, learn better with same sex peers. Peer's may also affect behaviour and choices through sexist attitudes in coeducational schools, with academics noting that choices become more gender typed in coeducational settings. As well as research suggesting students are less distracted in SS schools, research shows that students chose less stereotypical fields (Sohn, 2016). This means that SS schools may be seen to reduce gendered behaviour (Charles and Bradley, 2009).

Evidence supporting this side is found by Delaney and Devereux (2021) who used Irish data to study if maths and English rank in school affects college STEM enrolment and found that mixed schools had a larger STEM gender gap (25 percentage points compared to 16 percentage points for SS schools). Smyth (2010) discusses previous studies in the UK which have pointed to performance gains for lower achieving students in single sex schools. Students also achieved better results in less gender stereotypical subjects in single sex schools (Smyth, 2010). Irish studies showed girls had slightly lower maths achievement in mixed schools. Smyth (2010) concluded by arguing that there is little evidence that there are clear achievement differences between the two types of schools but that attitudes seem to be slightly less stereotyped in single sex schools. This may be due to the way SS schools curb the effects of gender essentialist arguments which sustain systematic gender inequalities as students may feel less pressured to enact gendered identities in SS schools and this results in them choosing activities which are stereotypical incongruent with gender (Sikora, 2014).

On the other side of the argument there are many scholars who argue against SS schools as it may result in unintended consequences and the rationale behind them give rise to essentialist assumptions (Bradley and Charles, 2009). In this way SS schools increase stereotyping through lack of familiarity and legitimise sexism (Doris, O'Neill and Sweetman, 2013; Sikora, 2016; Sohn, 2016). Sohn (2016) also points out that SS schools may have less resources. Arguing against the evidence found in favour of SS schools, Smyth and Hannan (2006) point out that there is little evidence that schools affect gendered patterns when the selective nature of such schools are considered.

Halpern et al. echo this argument, stating that there "is no well-designed research showing that single-sex (SS) education improves students' academic performance, but there is evidence that sex segregation increases gender stereotyping and legitimizes institutional sexism" (2011, p. 1706). They note that different outcomes apparent in the two types of schools disappear when pre-existing differences are accounted for. Reforms of curriculum are argued to have only short-term positive consequences as Halpern et al. argue positive reports of SS education are due to sample bias, novelty-based enthusiasm, and anecdotal accounts. Halpern et al. argue that evidence shows that SS schools promote prejudice and inequality and remove the opportunity for students to work together. By contrast, coeducational schools prepare children for mixed-sex workplaces. Halpern et al. also do not support the argument that SS schools produce choice as there is no evidence to suggest it is beneficial for any group. Similarly, Doris, O'Neill and Sweetman's (2013) found that single sex schooling in no way decreases the gap, and instead may do the opposite.

While attention has mostly focused on comparisons between SS and coeducational schools, little research has considered the phenomenon whereby the sex ratio of coeducational schools is disrupted by the creation of SS schools (Lavy, Victor, and Schlosser, 2011). There is the common belief that gender composition plays an important role in career choice, however there is very little academic work on that matter. Research on achievement points to the significant positive impact a large proportion of girls can have (Lavy, Victor, and Schlosser, 2011).

Brenøe and Zölitz (2020) investigated how gender composition affected STEM enrolment in higher education using Danish register to follow participants for 20 years. They found that women with a high proportion of female peers were less likely to enrol in STEM. Men were less affected but also behaved more stereotypically with more female peers. Possible mechanisms cited include how peers affect student performance, impacting students' preparedness for STEM and parental background. Composition of peers also has long run effects, with a 10% increase in the proportion of female peers in school resulting in a 4% lower probability of working in STEM and a 5% increase in the gender wage gap. They note that these effects are hard to disentangle from those of fertility. Although some studies show that students perform better when exposed to female peers the authors actually show that manipulating the gender composition of environments "through affirmative action policies to achieve gender balance may have adverse and unintended consequences for fertility, gender segregation in college majors, and the labor market" (Brenøe and Zölitz, 2020, p. 1046).

To conclude, the literature concerning the impact of SS schools and coeducational schools (and gender composition within them) on gender stereotypical choices in fields of study is inconclusive. As the gender gap in science continues to be visible in subject choices, the continued constraining influence of gender stereotypes is visible. As stereotypes may vary across local and historical contexts, to answer if SS schools are a possible mechanism to decrease gender stereotypes studies should account for country and regional context (Sikora, 2014). The present study will research the effects of school type by looking at its impact on subject take up and field of study, specifically in Ireland. Also, the gender composition of coeducational schools will be considered as research seems to indicate that this is a significant factor.

2.6 Fee-paying Schools

There are relatively few studies which focus on the impact of institutional type (public compared to private) and gender on field of study. Using an intersectional approach, Ma and Savas (2014) discuss two competing hypotheses. On one side, students from lower class may be more risk averse, so chose less remunerative, less risky fields. Alternatively, students may take a more instrumental approach so choose more lucrative fields. Research supports this view. While these arguments on SES are useful for this study, there is very little research which investigates the returns to private education.

Imberman (2006) found that both men and women have higher educational attainment and attend more years in education, however, these differences are greater for men. This unequal return was also found by Bell (2010) who found that there was a difference in the average salaries of women compared to men who attended a private institution, although the same was visible if graduating from a public institution. This wage gap is widened when individuals attend private institutions, which means that women receive less returns to investment in private institutions. This research shows the importance of considering gender when evaluating institutional type.

To date, how fee-paying schools impact student's choices regarding subject take up and field of study has received no attention. Charles and Bradley's (2009) argument would contend that those from privileged backgrounds would indulge their 'gendered selves. However, if families from higher socioeconomic backgrounds hold more gender egalitarian view, we would expect to see more gender atypical choices. This is a question which this study can answer in the Irish context.

2.7 Gender Equality in Education

Some authors argue that essentialist stereotypes are moderated by the level of gender egalitarianism in a society and point to the role of laws and institutions to guarantee equal rights and protections to support people's choices (Bradley, 2000; Moorhouse, 2017). Alternatively, Stoet and Geary (2018) identified the educational-gender-equality paradox, whereby some of the countries with the largest gender gaps in STEM in both secondary and tertiary education were countries with the highest level of gender equality. Mechanisms which may cause this include student's own rational decision making and social factors connected to countries economic opportunities and risks as countries with high levels of gender equality tend to be welfare states. Falk and Hermle (2018) also support this perspective as their findings supported the resource hypothesis, that gender differences will increase with development and gender equality. This is because self-expression is fostered by social and material resources, so that intrinsic preferences can be manifested and accepted.

Defining gender equality and the goals set will have consequences for the way gender is addressed. For example, looking at the field of business as 'successful' as segregation has decreased, Bradley questions "whether and where gender difference may prevail without provoking concern. Is the utopian vision, monitored closely by movements in overall segregation indices, gender proportionality across all fields?" (2000, p. 12). Different explanations and mechanisms have been put forward to explain and solve gender segregation in education. If the issue is stereotypes of maths and science, then the solution is to change the image of these subjects and cease reinforcing stereotypes (Makarova, Aeschlimann, and Herzog, 2019; Bradley and Charles, 2009). This links to student's perceived gender bias (which may differ compared to actual gender proportions), which Ganley et al. (2018) found was the strongest predictor of gender segregation in fields at third level. Alternatively, if students

choose courses and subjects based on their comparative advantages so that relative, not just absolute achievement is a motive, this needs to be considered in research and policy (Uerz, Dekkers and Be´guin, 2004). This is applicable to debates surrounding types of as institutional mechanisms need to be understood to equalise education.

Bradley (2000) discussed programs aiming to increase the enrolment of women in science as following the 'female deficit model'. These efforts have had limited success and some women's advancement may be to the detriment of others (Bradley, 2000; Schulstok and Wikstrand, 2020). Literature on policy formation in Ireland shows that this 'deficit model of disadvantage' is prevalent (Maxwell and Dorrity, 2010). Focusing on efforts to widen women's access to education assumes that once barriers are removed women's choices will be like men's and also does not take account of men's choices. For Bradley, however, "the embedded nature of these choices in culturally proscribed future consequences that transforms gender difference into gender inequality" (2000, p. 12). This definition of inequality will be at the heart of this study through examining if types of schools constrain choices which result in unequal consequences for men and women.

3. Hypotheses

In Chapter III the hypotheses for the study will be presented. The hypotheses elaborate on existing theoretical perspectives and empirical research in the four key areas which may impact gendered choices in fields of study (1) attendance in SS versus coeducational schools (2) coeducational schools' gender composition (3) fee versus non-fee-paying schools and (4) subject provision in secondary schools.

First, as noted in the literature review there are various arguments for and against both SS and coeducational schools. Some authors argue that there are trivial differences after accounting for selection bias. Others argue that SS schools encourage students to make non gender stereotypical choices, supported by evidence from Delaney and Devereux (2021) and Smyth (2010). However, others argue SS schools increase stereotyping shown in Halpern et al.'s (2011) research and Doris, O'Neill and Sweetman's (2013) paper. This debate shows the need for an empirically focused perspective, studying the effect of school attended on choices. Differences between the two types of schools in subjects and fields chosen is not an opinion but something that can be studied quantitatively. Taking recent political and social developments in Ireland into account the first hypothesis tests the actual impact of coeducational schools on choices. Expecting findings in line with Halpern et al.'s (2011) research, the present study anticipates that:

H1: *Attending a coeducational school instead of a SS school increases the likelihood that students choose non gender stereotypical subjects and fields.*

The existing research also points to the impact of sex composition within schools. Brenøe and Zölitz (2020) findings in their causal study argue against studies claiming that a higher proportion of girls in classes has a non-gender stereotypical effect, showing that higher levels of girls within schools increases the probability of students making more gender stereotypical choices, particularly among female students. Consequently, this study expects that:

H2: *Within coeducational schools, schools with a greater proportion of girls increases the likelihood that students choose gender stereotypical subjects and fields.*

Research on the impact of fee-paying schools on gender stereotypical subjects has not yet been carried out. Related studies indicate unequal economic returns for women, compared to men, after attending US private colleges. The relationship involved is debatable as fee paying schools may enable students to 'indulge their gendered selves', so that their choices are more gender stereotypical or facilitate 'elite identities' so that choices are less gender stereotypical. In short, the present study expects to see that fee-paying schools will encourage gender non-stereotypical choices through access to resources that may provide opportunities to students to challenge gender stereotypical choices, confronting Stoet and Geary (2018) and Falk and Hermle's (2018) arguments, so that:

H3: *Attending a fee-paying school increases the likelihood that students choose non gender stereotypical subjects and fields.*

As noted in the literature review some scholars argue that increased choice has caused more segregation. This is Charles and Bradley's (2009) reasoning when they speak about diversification, which is supported by empirical evidence (Moorhouse, 2017). Jacob et al. (2020) also argue in a similar way as restricting choices may result in less gendered outcomes, the 'paradox of choice' (Abbiss, 2009). Ultimately this perspective argues that a high degree of choice facilitates the expression of gendered preferences. However, looking at micro level theories the importance of self-efficacy and previous achievement is highlighted. In this way the present study expects that a higher level of choice within schools will facilitate students to choose less gender stereotypical fields of study. This is because students may have a higher chance of opting for non-gender stereotypical subjects in their schools, leading to higher chances of not choosing gender stereotypical fields later in their education. As a result, the hypothesis put forward is:

H4: *More non-stereotypical subject choices available to students in schools decrease gender stereotypical third level choices.*

4. Methodology

4.1 Data and Sample

To understand the institutional impact of schools on student's choices, data collected by *Growing Up in Ireland* (GUI) is analysed (ERSI, 2018). GUI is a longitudinal study of children in Ireland and the data analysed in this paper is the third wave of the '98 cohort. Data was collected for this wave between April 2015 and August 2016 when the participants were 17/18 years old. In the first wave of data collection (August 2007 - May 2008) a two-stage sampling design was employed by first selecting a random sample of primary schools and then sampling 9-year-old children from these schools to eliminate spatial bias. Data was collected through CAPI (Computer Aided Personal Interviewing) and CASI (Computer Assisted Self Interviewing) methods. The sample studied mainly compromised of 4,853 cases, though this varied as certain data was unavailable. When carrying out GUI, respondents were asked for permission to access Central Applications Office (CAO) data, which only 52% gave. This meant that in the present study, third level data only studied 2,815 individuals.

4.2 Dependent Variable

The dependent variables include (1) subjects chosen at the upper secondary school level and (2) field of study chosen at third level. Gender typical fields and subjects were defined as those with more than 65% of one gender. This showed broad trends, as the GUI data did not capture finer differences between fields, which may affect the conclusions drawn (Barone, 2011). Dependent variables were dichotomised by coding subject and field choices as either chosen or not chosen: 'yes' or 'no'. Also worth noting is that the variable used to capture fields of study was the student's first choice preference which is not necessarily the course they would be offered. This was done so as to capture students' preferences rather than their academic ability or courses supply and demand.

4.3 Controls

Control variables were chosen to take account of (1) family background and (2) previous achievement. Family background variables included: social class, parental education and employment, mothers' employment, the marital status of the parents, language spoken at home and migrant status. The analyses control for previous school achievement is measured with the grades obtained in the Junior Certificate Maths, Irish and English exams. These three subjects were included to measure the relative, as well as the absolute success across subjects (Uerz, Dekkers and Be´guin, 2004).

4.4 Independent Variables

The first independent variable of interest is the type of school attended, whether the student attended a SS or coeducational school. Second, the proportion of girls and boys within schools is studied. This is captured by measuring the proportion of girls in coeducational schools. Data are recoded so that schools with an equal number of students were compared to those with more than 50% girls and less than 50% girls. Thirdly, the impact of feepaying schools was investigated, using a dummy variable separating feepaying and non-feepaying schools. Lastly, the provision of subjects within schools is studied. This is done by counting the number of stereotypical and non-stereotypical subjects offered, defined by the 65% cut-off point. The most common number of stereotypical subjects provided is used as the reference category, 4 for stereotypically male subjects (22% of all schools) and 3 for stereotypically female subjects (70% of all schools).

4.5 Empirical Strategy

To test the four hypotheses proposed (see Chapter III) this study applies logistic regression. To test the first hypotheses two logistic regression models are used. The first does not control for any other variables, simply testing the relationship between the dependent and independent variables. The second model introduces the controls previously described, including the variables of family background and previous achievement. JC grades are used again as there is insufficient data collected on LC grades. The type of school (SS compared to coeducational as well as feepaying compared to non-feepaying) attended was also included as a control in the second model. The second hypothesis did not control for whether the school was SS or not as only coeducational schools were studied. To test the fourth hypothesis, a variable counting the number of stereotypical subjects offered in the school attended was created (see Appendix for more information). This was possible as GUI collected information from the principal of the school which the participant attended.

5. Findings

5.1 Descriptive Statistics

Table 1 presents the sex proportions within school subjects and Table 2 the sex proportions within fields of study. At the secondary school level, ten subjects are identified which have gendered patterns. For boys, non-stereotypical subjects are Art, Music and Home Economics. For girls the non-stereotypical subjects are Technology, Physics, Economics, Applied Maths, Construction Studies, Engineering and Design and Communication Graphics (DCG). Across fields of study at third level, 12% of women chose atypical fields (Science, Maths & Computing and Engineering, Manufacturing & Construction) and 13% of men chose atypical fields (Education and Health & Welfare).

Table 1: Sex proportions within school subjects

Subject	**Male**	**Female**
Maths	48.55	51.45
Irish	48.09	51.91
English	48.50	51.50
History	53.33	46.67
Geography	53.24	46.76
French	45.11	54.89
German	44.74	55.26
Spanish	43.42	56.58
Art	28.45	71.55
Music	33.00	67.00
Home economics	7.48	92.52
Business	48.41	51.59
Technology	79.02	20.98
Religious Education	47.54	52.46
Classical Studies	58.33	41.67
Biology	39.85	60.15
Chemistry	45.62	54.38
Physics	71.99	28.01
Accounting	53.22	46.78
Economics	68.37	31.63
Applied maths	67.56	32.44
Construction Studies	92.13	7.87
Engineering	94.00	6.00
DCG	83.56	16.44
Agricultural Science	56.00	44.00

Table 2: Sex proportions within field of study

Field of study	**Male**	**Female**
Education	25.51	74.49
Humanities and Arts	44.92	55.08
Social Sciences, Business and Law	51.10	48.90
Science, Mathematics and Computing	64.94	35.06
Engineering, Manufacturing and Construction	82.24	17.76
Agriculture and Veterinary	62.00	38.00
Health and Welfare	21.46	78.54
Services	57.31	42.69
Other	25.45	74.55

Table 3: Sex proportions by school type

Sex	**SS boys**	**SS girls**	**Coeducational**
male	43.94	0.00	56.06
female	0.00	45.86	54.14
total	21.43	23.49	55.08

Table 3 shows the additional distributions across the study sample. Students were approximately equally split between SS and coeducational schools with 21% of students attending a SS girls school, 23% attending a SS boys school and 55% attending a coeducational school. This is slightly different to national figures with 20% of students attending a SS girls school, 15% attending a SS boys school and 64% attending a coeducational school (EDA, 2023). In the GUI data, within coeducational schools, 16% of schools have less than half girls, 4% have more than half and 80% have an equal number. Data are recoded into these three categories and the equal sex proportions was used as the reference category. In this sample a minority of students attend fee paying school, only 11%, with a sex ratio of 57% male and 43% female.

In the Appendices, we can observe the percentage distributions regarding (1) the number of stereotypical subjects in SS compared to coeducational schools (Graph A1 and A2) and (2) the number of stereotypical subjects in feepaying compared to non-fee-paying schools (Graph A3 and A4). As previously mentioned, the gendered subjects provided vary greatly depending on the whether a SS or coeducational schools is attended, however, the pattern is less clear in fee paying compared to non-fee-paying schools.

Finally, Table 4 shows the link between secondary school subjects and fields of study. The explanatory power of the subjects chosen varies between 6-8%, higher for boys than girls except for the field of Engineering, Manufacturing and Construction. Girls were more likely to choose stereotypical fields after choosing gender stereotypical subjects of Home Economic and less likely to choose these fields after choosing DCG. There were no significant relationships between fields and subjects for boys, even though other subjects explained 9-13% of variation. For gender stereotypically masculine fields, similar patterns are visible. Students are more likely to choose these fields after studying subjects like Physics, Technology and Applied Maths. For girls in Engineering, Manufacturing and Construction subjects picked at secondary school explained 20% of variation.

5.2 Gender Stereotypical Choices in Coeducational and SS Schools

In Table 6 logistic regression is used to analyse the data, using two models, one without controls and the other with controls. In the first model there is mixed evidence that boys choose less stereotypical subjects in coeducational schools. Boys make less stereotypical choices as they are more likely to choose Home Economics in coeducational schools (Odds = 2.11; $p < 0.001$) and less likely to choose Economics (Odds = 0.58; $p < 0.001$) and Applied Maths (Odds = 0.84; $p < 0.05$). However, boys make more stereotypical choices in coeducational schools as they are more likely to choose Engineering (Odds = 2.81; $p < 0.001$), Construction Studies (Odds = 1.60; $p < 0.001$) and DCG (Odds = 1.15; $p < 0.05$). Holding previous achievement and family background constant shows different patterns to Model 1 as boys are less likely to choose Home Economics (Odds = 0.59; $p < 0.01$), but also are less likely to study Accounting (Odds = -0.30; $p < 0.001$), DCG (Odds = 0.19; $p < 0.01$) and Construction (Odds = 0.52; $p < 0.001$). In short, while there are statistically significant relationships between the type of school attended and upper secondary school subjects chosen, there is mixed evidence that these subjects are less stereotypical. Thus, the first hypothesis is rejected for boys' subject choices.

According to Model 1, girls in coeducational schools are more likely to choose Art (Odds = 1.44; $p < 0.001$), Home Economics (Odds = 1.35; $p < 0.001$) and DCG (Odds = 7.06; $p < 0.001$), and less likely to choose Physics (Odds = 0.66; $p < 0.01$) and Applied Maths (Odds = 0.56; $p < 0.01$). Again, Model 2 shows different results as girls are less likely to choose Art (Odds = 0.36; $p < 0.01$) (so less stereotypical) but also less likely to study Physics (Odds = -0.36; $p < 0.05$). The staggering figure that girls are more than seven times more likely to choose DCG shows that there are no clear gendered patterns in subject choices according to school type. This pattern is also true when controls are used. This means there are clear patterns that girls make choices which are impacted by the type of school they attend but these are not consistent gendered patterns, therefore the first hypothesis is rejected.

Table 12 and 13 further show differences for fields of study between SS and coeducational schools. Model 1 shows no significant effect of school type on field of study. Using a higher p value there is tentative evidence for the opposite effect as boys in coeducational schools seem slightly more likely to study Engineering, Manufacturing and Construction (Odds = 1.14; $p < 0.1$). Results for girls are more mixed as they seem less likely to study Engineering, Manufacturing and Construction (Odds = 0.63; $p < 0.1$) but more likely to choose Science, Mathematics and Computing (Odds = 1.40; $p < 0.1$). However, this is also a tenuous connection. Ultimately, no significant relationships were found for students' stereotypical choices, so the first hypothesis is rejected for field of study.

5.3 Gender Stereotypical Choices in Schools with Different Gender Proportions

Table 8 and 9 show results on gender stereotypical choices in schools with different gender proportions, including only coeducational schools in the analyses. In Model 1 boys are less likely to make stereotypical choices when there are less girls in a school as they are more likely to choose Art (Odds = 1.67; $p < 0.05$) and Home Economics (Odds = 2.86; $p < 0.001$) and less likely to study Physics (Odds = 0.71; $p < 0.05$) and Economics (Odds = 0.42; $p < 0.01$). A similar pattern is visible for Model 2 as boys are only 22% as likely to study Economics (Odds = 0.22; $p < 0.001$) when there are less girls in a school and nearly four times more likely to study Home Economics (Odds = 3.89; $p < 0.001$). There is no significant relation between subjects chosen and schools with over 50% girls. These results support the hypothesised direction but show that it is not the presence of girls but the absence of them which is important for boys' choices. For girls, there are no significant relationships in Model 1. However, Model 2 shows that girls act more stereotypically with less girls in a school (more likely to choose Art (Odds = 1.87; $p < 0.05$)) and less stereotypically with more girls in a school (less likely to choose Home Economics (Odds = 0.35; $p < 0.05$)). This does not support H2 as a greater number of girls is related to less stereotypical choices.

In Table 7 and 8, for fields of study, there are no statistically significant relationships found for boys in both Model 1 and 2. However, there are clear results for girls which support H2. Girls are less likely to study Education (Odds = 0.19; $p < 0.05$) when they are in the minority and more likely to study Health and welfare (Odds = 2.43; $p < 0.01$) when they are in the majority. This supports the second hypothesis. Similar results are clear in Model 2 as girls are three times more likely to choose Health and welfare (Odds = 3.13; $p < 0.01$) when there are more than 50% girls in the school they attended.

5.4 Gender Stereotypical Choices in Feepaying and Non-Fee-Paying Schools

As seen in Table 6, according to Model 1 boys in feepaying schools make more stereotypical choices as they are more likely to choose Physics (Odds = 1.53; $p < 0.01$), Economics (Odds = 2.63; $p < 0.001$) and Applied Maths (Odds = 3.01; $p < 0.001$). However, they act less stereotypically as they are twice as likely to choose Music (Odds = 1.92; $p < 0.001$) and less likely to choose DCG (Odds = 0.61; $p < 0.05$), Construction Studies (Odds = 0.18; $p < 0.001$) and Technology (Odds = 0.11; $p < 0.01$). There are no boys from fee paying schools studying Engineering. Model 2 found clearer evidence, as boys are less likely to choose Economics (Odds = 0.63; $p < 0.001$), Applied Maths (Odds = 0.69; $p < 0.001$) and Construction Studies (Odds = -1.35; $p < 0.001$). In this way, when controls are added, H3 is supported. Using the first model we can see that the evidence does not reject the hypothesis for girls as they are more likely to choose non-stereotypical subjects in fee-paying schools (Table 7). They are less likely to choose Home Economics (Odds = 0.70; $p < 0.05$), only 70% as likely compared to non-fee-paying schools. Also, they are more than two times more likely to choose Physics (Odds = 2.37; $p < 0.001$), Economics (Odds = 2.26; $p < 0.001$) and Applied Maths (Odds = 2.46; $p < 0.001$). However, there are no statistically significant differences in gender stereotypical subjects when family background, previous achievement and type of school are controlled for.

Using logistic regression analysis in Table 12, a significant relationship is found between fields of study and attending a feepaying school for boys in the field of Health and Welfare (Odds = 1.85; $p < 0.01$). Boys are 85% more likely to choose this field after attending a feepaying school, compared to non-fee-paying schools. This finding does not reject the hypothesis that students attending feepaying schools are more likely to choose non-stereotypical fields of study at third level. However, using Model 2, this finding was no longer statistically significant.

In Table 13, looking at the relationship between girls who attended feepaying schools and fields of study chosen the results do not reject the hypothesis. Girls are less likely to study Education (Odds = 0.34; $p < 0.05$), only 34% as likely compared to those who attend non-fee-paying schools. They are also nearly 4 times more likely to study Engineering, Manufacturing and Construction (Odds = 3.86; $p < 0.001$). These patterns are visible in Model 2, with girls only 28% as likely to study Education ($p < 0.05$) and 2.85 times more likely to study Engineering, Manufacturing and Construction ($p < 0.05$).

5.5 Gender Stereotypical Choices in Schools with Different Subject Provision

Overall, the results of Table 12 and 13 generally support H4. Using Model 1 there is a relationship between Engineering, Manufacturing and Construction and the number of non-stereotypical choices given to boys. When boys are offered only one non-stereotypical subject they are only half as likely to choose this field (Odds = 0.56; $p < 0.05$). This does not support H4 as boys are less likely to choose this stereotypical when they are offered less non-stereotypical choices. For girls the pattern hypothesised in H4 is supported as they are less

likely to choose Engineering, Manufacturing and Construction when they are offered no stereotypical choices (Odds = 0.40; $p < 0.05$). This is also seen when Model 2 is used as girls are less likely to choose the two non-stereotypical fields when only two non-stereotypical subjects are offered in schools. This also shows it is not more choices which encourage less stereotypical behaviour, rather that less choices make non-stereotypical behaviour less likely.

Table 14 and 15 shows that dividing results by school type is also telling, as the subjects which are provided in different schools varies greatly. In non-feepaying schools, boys are less likely to choose Engineering, Manufacturing and Construction when they are offered one non stereotypical subject (Odds = 0.57; $p < 0.05$). This is similar to the result noted without separating apart schools, even if the effect is not evident in non-feepaying schools. This relationship contradicts initial expectations. A new relationship is also noted in Health and Welfare as boys in feepaying schools are less likely to so this field when they are only offered 2 non stereotypical subjects (Odds = 0.19; $p < 0.05$). This supports the argument that less choices impact choices as boys are less likely to choose the non-stereotypical field in fee-paying schools. For girls in feepaying schools, when five non-stereotypical subjects are offered the likelihood of choosing Health and welfare is decreased (Odds = 0.20; $p < 0.05$). This supports H4. However, Model 2 shows in non-feepaying schools that when girls offered no non-stereotypical subjects, they are six times more likely to study Engineering, Manufacturing and Construction (Odds = 6.37; $p < 0.05$). This effect is not seen in Table 8 where the analysis does not separate the school types.

Table 16 and 17 compares SS and coeducational schools, showing that boys in SS schools are four times more likely to study Engineering, Manufacturing and Construction if there are only two non-stereotypical subjects provided, supporting H4 (Odds = 3.83; $p < 0.05$). Among girls in SS schools a below average provision of non-stereotypical subjects is connected to girls being more around three times more likely to choose the stereotypical field of Health and Welfare (Odds = 3.62; $p < 0.05$, Odds = 2.95; $p < 0.05$, Odds = 3.23; $p < 0.05$, Odds = 3.18; $p < 0.05$). Also, a below average provision of non-stereotypical subjects means girls are only 23% as likely to study Engineering, Manufacturing and Construction ($p < 0.05$). This relationship is visible in Model 2, highlighting the impact of fewer choices on later decisions (Odds = 0.20; $p < 0.05$). Results are also similar to those in Table 13, which does not separate the types of schools, showing a similar effect of lack of subject provision, regardless of whether the school is SS or coeducational. Results for Education in coeducational schools are somewhat contradictory as girls in coeducational are 2.8 times more likely to study this field if 3 non stereotypical subjects are provided but also 3 times more likely to study it if 7 non-stereotypical subjects are available, rejecting H4 ($p < 0.05$).

5.6 Discussion of Findings

The first hypothesis (H1) is relevant to the ongoing debate about the impact of SS schools in Ireland. This study found no evidence that coeducational schools promote less stereotypical subject choices, rejecting arguments in favour of coeducational schools reducing gendered behaviour in field of study choices (Halpern et al., 2010). Instead, findings seem to support Sohn (2016) and Smyth's arguments (2010), as choices and attitudes may be more gender typed in coeducational settings.

The second hypothesis (H2) showed that sex compositions in schools is important for choices. The results show the impact of the absence of girls rather than the presence of girls on stereotypical choices for boys. In coeducational schools with a proportion of girls below 50% boys make less stereotypical subject choices. However, the opposite effect is seen for girls as those with less than 50% female peers are more likely to make a stereotypical choice and those with more female peers make less stereotypical subject choices. This shows the contradictory effect that gender proportions have for boys and girls. These findings contradict Brenøe and Zölitz (2020) who argued that students behave more stereotypically with more female peers. Instead, it is the small number of girls which seem to have an effect for boys and a larger number of female peers had no effect. The opposite is seen in the findings surrounding girls' subject choices. However, the findings surrounding girl's field of study choices support H2, in line with Brenøe and Zölitz's (2020) argument.

Findings from the third hypothesis (H3) generally support the expected impact of feepaying schools on stereotypical choices. Findings oppose Charles and Bradley's (2009) argument as girls in fee-paying schools are not seen to 'indulge their gendered selves'. Stoet and Geary's (2018) argument is questioned as students from feepaying schools have more rather than less resources, which does not cause them to express gender-specific preferences. In this way the mechanisms behind the gender-equality-paradox are also challenged. While this study does not cover the financial return to private education, the pattern seems to suggest that there is no 'unequal return' as girls choose less stereotypical fields which are argued to be an important explanation for the gender pay gap (Bell, 2010; Imberman, 2006; Ma and Savas, 2014). Findings for girls overwhelmingly support H3. As previously described, the 'elite identity' may enable students in fee-paying schools to transgress social norms. Or students may feel less pressured to enact gendered identities (Charles and Bradley, 2009; Smyth, 2010). These results point to the importance of finding the mechanisms in feepaying schools which encourage non-gender-stereotypical behaviour, studying how the experience in these schools differs from that of non-feepaying schools, even after controlling for socioeconomic factors and student academic performance (Jacob et al., 2020).

Finally, the fourth hypotheses (H4) also produced relevant findings. Charles and Bradley's (2009) hypothesis is again questioned, as the authors argued that allowing students more choice in education encourages gendered dispositions and expectations. This is not seen as the trend shows the impact of less, rather than more choices, on subsequent gendered field of study decisions. As noted above the general pattern across students and school types is

that when less non-stereotypical choices are provided, fields of study become more stereotypical. In this way, constrained choices result in more rather than less gendered patterns. This undermines Yazilitas et al.'s (2013) argument that limiting individual's freedom reduces gendered patterns and challenges to Abbiss' (2009) 'paradox of choice' as no strong evidence is found supporting a relationship between more non-stereotypical subjects offered and increasingly gendered choices. Also, there is no evidence found to support the idea that non-feepaying schools structurally constrain student's choices in a way which results in more gendered patterns (Lee, Groninger and Smith, 1997; Smyth and Hannan, 2006). Instead, Jacob et al.'s (2020) claim is relevant, which argues that it is experience rather than exposure that is important, given that gender patterns in fields of study suggest that enrolment cannot be fully due to exposure to the subject.

6. Conclusion

6.1 Summary of Study

Even though there has been a growing number of women attending third level education, fields of study are highly segregated with patterns remaining unchanged in the last few decades. This is concerning for two main reasons. Firstly, gender inequality is constantly perpetuated through unequal pay, power, and status. Secondly, persistent segregation, viewed as choice, justifies essentialist beliefs, stereotypes, and gender gaps. This points to the need for informed and effective education policies. However, there are many gaps in the literature, which this study aimed to investigate, specifically focusing on the impact of schools on subject and field of study choice, attempting to answer: Is evidence found that Irish schools enable or constrain choices for students in a way that results in more, or less, equal gender proportions across fields of study?

Reviewing the literature identified gaps in the research, allowed the research hypothesis to be created and informed discussion of the findings. The importance of structures and stereotypes was noted as many scholars argue gender segregation in fields of study is due to the structures in place and the stereotypes which create and maintain institutional structures. Charles and Bradley' (2009) argument is particularly influential, claiming that values of self-expression justify horizontal segregation. As gendered patterns in education have persisted for several decades, the importance of understanding structures is highlighted. This study focused on the education system, which has been neglected in previous studies. Focusing on structures which constrain choice, there is the argument that limiting students' choice reduces gendered patterns. In this way, imposing compulsory subjects allow students to avoid the 'paradox of choice'. A paradox is also visible in the impact of gender egalitarian norms in society, argued to be because liberal values and smaller economic costs amplify the importance of intra-individual strengths in decision making.

To study the Irish education system and the choices it offers/constraints, the differences in schools were considered. These subject decisions in turn influence the field of study students choose. Firstly, the Irish system is unique in the high number of SS schools. This study aimed to contribute to the debate about their impact as there is mixed evidence in existing work. Secondly, within coeducational schools the effect of sex composition is argued to be important, so this study also tested its impact. Thirdly, there is no research on the impact of fee-paying schools in Ireland on student's subject and field of study choices. Fourthly, research has found that schools influence subject take-up, as the subjects schools offer and the way they are offered is different. There is debate about the impact of higher SES on decisions as students may be empowered by their 'elite identity' to transgress social norms. On the other hand, privileged positions may allow individuals to 'indulge their gendered selves'. As a last note on the literature, the definition of inequality is somewhat debatable so for the purposes of this study inequality is when choices are embedded in prescribed future consequences which change difference to inequality.

Also, useful to form and translate questions and answers was the theoretical work done around students' decision making and gender norms. Yazilitas et al.'s (2013) distinction of three frameworks was particularly helpful, explaining the interaction between micro-level, macro level and institutional forces. To explore the impact of institutional forces, the other two levels needed to be understood and controlled for, with previous theories pointing to the importance of past achievement and family background. These theories only explain part of the way individuals make decisions as decision are made in specific socioeconomic and cultural contexts. The focus of this paper was to see (1) the degree to which boys' and girls' choices in schools are embedded to prescribe future consequences and (2) how educational structures link to gender inequality in pay and power.

To answer these questions data from the GUI was analysed. This data was collected in 2015/16 when participants were 17/18 years old. Summarising the data allowed stereotypical choices to be identified, both for subject choices and fields of study, which were those that had 35% or less of either men or women. This cut-off point defined ten stereotypical subjects (three for girls, seven for boys) and four stereotypical fields (two each). Using the literature to guide controls and variables four hypotheses were formed and these hypotheses were tested using logistic regression.

6.2 Main Findings

The findings from this paper contributed to the academic literature in several ways. Firstly, the ongoing debate about SS schools in Ireland was acknowledged and this paper offers empirical evidence, showing the actual effect of schools on choices. Ultimately, the finding reject the argument that coeducational schools encourage less gender stereotyped behaviour. This is because there is no clear relationship found between the coeducational schools and the subjects which students choose at an upper secondary school level. While for some subjects, students make less stereotypical choices in coeducational schools (e.g. boys are more likely to do Home Economics in coeducational schools) there is not sufficient support for this argument as students also make more stereotypical choices (e.g. boys are more likely to study Engineering, Construction Studies and DCG). This is also seen in third level decisions as students are not more likely to choose non-stereotypical fields and evidence, in fact, there is tentative evidence for the opposite effect. This is an important point as there are currently actions being taken to phase out non-fee-paying SS schools in the name of gender equality in Ireland (Ó Ríordáin, 2019).

The impact of gender composition within coeducational schools was also tested. Findings from the present study highlight the different impacts of gender compositions on girls and boys subject and field of study choices. While boys' choices support H2, girls' choices do not. Yet, girls' field of study choices support H2. This contradicts previous research, pointing to the need to study the effect of gender composition in an Irish context, specifically with gender equality in mind.

Fee paying schools also have a significant and substantial impact on the level of gender stereotypical choices students make. While the evidence for boy's choices is mixed, girls make less stereotypical subject choices in fee paying schools. Choices of field of study are overwhelmingly less stereotypical in fee paying schools, for both girls and boys. This is a significant finding as there is little research in this area, compared to the impact of SS schools which have been studied and debated in the Irish context. However, this study stresses that fee paying schools rather than coeducational schools are drivers of gender inequality. These findings are opposed to both Charles and Bradley's (2009) argument, which states that those with less economic risks are enabled to indulge their gendered selves, as well as Stoet and Geary's (2018) mechanisms that they argue explain the gender-equality paradox. These findings point to the idea that non feepaying schools are disadvantaged, compared to feepaying schools, in terms of providing support to equality of choice across genders.

Finally, the evidence relating to the impact of subject provision is significant. Tying all the previous work together, these findings show the importance of choice for students as the limited provision of non-stereotypical subjects has significant impacts on further choices. Relating to the research question, the subjects provided in different types of schools have important consequences for the fields students choose to enter. Allowing students to pick from a wide range of subjects is important to allow equal opportunities across genders, especially in relation to SS schools as, in general, students are even less likely to study stereotypical fields if less non stereotypical subjects are provided. Interestingly, there is no clear evidence found that supported the idea that subjects differed between feepaying and non-feepaying schools in a way which constrained non-stereotypical subjects' choices and subsequent field of study choice.

6.3 Study Implications

There are certain implications for social policy in Ireland taken from these findings. Firstly, as discussed above, the focus on reducing the number of SS schools is not an evidence-based argument. The findings in this study show that students' choices are not constrained in a way which result in more stereotypical choices in SS schools. Secondly, the effect of coeducational schools needs to be understood as they do not result in the significant difference which many scholars argue for as there is no evidence that they result in less gender stereotypical choices. Thirdly, instead of focusing on SS schools, the mechanisms connected to fee paying schools need to be acknowledged as these are the structures that seem to encourage less stereotypical choices, compared to non-feepaying schools, which account for the large majority of schools in Ireland. Fourthly, the way students' choices are constrained needs to be recognised as the subjects they are offered have the potential to result in more stereotypical choices, as opposed to schools with more diversity of choices

Linking these implications to the reasons given above explaining why horizontal segregation is concerning, certain recommendations can be made. As inequalities in status, power and pay related to gendered fields of study are found to be linked to social class and fee-paying schools, research in this area needs to take account of the effect of fee-paying schools in Ireland. This does not seem to be simply a gender inequality issue, but an issue connected to class and income inequality. Future research should seek to understand the mechanisms which encourage less stereotypical choices in feepaying schools, questioning if this is due to the family attitudes, school structures or something else. Research on the impact of fee-paying schools may be able to inform non-feepaying schools of ways to implement changes to encourage less stereotypical choices or show the ways in which choices for students in Ireland are inherently linked to their social origin. Also viewing persistent segregation as choice is problematic as impact of social environment has been demonstrated in this study: whether it is gender composition in a school, or the type of school attended.

6.4 Limitations and Avenues for Future Study

This study presents limitations that must be acknowledged at three main levels. Firstly, the GUI classification of fields of study doubtlessly impacted the results (Barone, 2011). As previously stated, the classification of nine fields did not allow finer differences within these fields to be studied. For example, within the subject of science at secondary school only Physics, and not Chemistry (54% girls) or Biology (60% girls) is heavily gendered and the same is seen in subfields at third level, for example Nursing compared to Human Medicine (CSO, 2019). Secondly, there was incomplete data collected on the Leaving Certificate grades so controlling for previous achievement was not as fine-tuned as preferred. Thirdly, deciding whether subjects and fields are non-stereotypical was done using an ambiguous cut-off point. Compared to Van Houtte, Vanderwegen and Vermeersch's (2014) definition, this study increased the percentage used to specify non stereotypical fields, 35% instead of 25%, to compensate for the first limitation.

Future studies should further study the role of individual and institutional factors in gendered choices in field of study by using data from the Central Applications Office (CAO). These data, unfortunately, are currently only available to established researchers, not to students. The CAO collects rich information on all students' Leaving Certificate grades, subjects, schools attended and courses, creating the perfect dataset to study this area and therefore accessing these data may complement the results from this study with the GUI data. Also, the CAO would be able to supply the dataset needed to effectively study the Leaving Certificate grades and investigate gendered mechanisms of tertiary education choices in Ireland. The present study has provided important evidence of how school characteristics matter to explain gendered fields of study choices in Ireland and hopefully future studies will be able to further investigate this important area of research to understand gender inequalities and roles across educational systems.

References

Abbiss, J. (2009) 'Gendering the ICT curriculum: The paradox of choice', Computers & Education, 53(2), pp. 343–354.

Archive, I.S.S.D. (no date) Home, Irish Social Science Data Archive, Irish Social Science Data Archive. Irish Social Science Data Archive. Available at: https://www.ucd.ie/issda/data/guichild/ (Accessed: 10 January 2023).

Ayalon, H. and Livneh, I. (2013) 'Educational standardization and gender differences in mathematics achievement: A comparative study', Social science research, 42(2), pp. 432–445.

Barone, C. (2011) 'Some things never change: Gender segregation in higher education across eight nations and three decades', Sociology of education, 84(2), pp. 157–176.

Bell, C.M. (2010) Graduate education attainment and salary: An examination of institutional type, major choice, gender, race/ethnicity, parental education and work experience differences. PhD Thesis. Ohio University.

Bem, S.L. (1983) 'Gender schema theory and its implications for child development: Raising gender-aschematic children in a gender-schematic society', Signs: Journal of women in culture and society, 8(4), pp. 598–616.

Bradley, K. (2000) 'The incorporation of women into higher education: Paradoxical outcomes?', Sociology of education, pp. 1–18.

Brenøe, A.A. and Zölitz, U. (2020) 'Exposure to more female peers widens the gender gap in stem participation', Journal of Labor Economics, 38(4), pp. 1009–1054.

Buschor, C. et al. (2014) 'I want to be a scientist/a teacher: students' perceptions of career decision-making in gender-typed, non-traditional areas of work', Gender and Education, 26(7), pp. 743–758.

Charles, M. and Bradley, K. (2009) 'Indulging Our Gendered Selves? Sex Segregation by Field of Study in 44 Countries', American Journal of Sociology, 114(4), pp. 924–976. Available at: https://doi.org/10.1086/595942.

Committee, I.D. of E.E.D. (2005) Moving Beyond Educational Disadvantage: Report of the Educational Disadvantage Committee, 2002-2005. Educational Disadvantage Committee.

CSO - Central Statistics Office (2019). Women and Men in Ireland 2019. Available at: https://www.cso.ie/en/releasesandpublications/ep/p-wamii/womenandmeninireland2019/education/ (Accessed: 10 January 2023).

Cundiff, J.L. et al. (2013) 'Do gender–science stereotypes predict science identification and science career aspirations among undergraduate science majors?', Social Psychology of Education, 16(4), pp. 541–554.

Delaney, J.M. and Devereux, P.J. (2021) 'High School Rank in Math and English and the Gender Gap in STEM', Labour Economics, 69, p. 101969. Available at: https://doi.org/10.1016/j.labeco.2021.101969.

Doris, A., O'Neill, D. and Sweetman, O. (2013) 'Gender, single-sex schooling and maths achievement', Economics of Education Review, 35, pp. 104–119.

Eccles, J.S. (1984) 'Sex differences in mathematics participation', Advances in motivation and achievement, 2, pp. 93–137.

EDA72 - Second Level Schools and Pupils (2023). Available at: https://data.cso.ie/ (Accessed: 31 March 2023).

England, P., Privalko, I. and Levine, A. (2020) 'Has the Gender Revolution Stalled?', The Economic and Social Review, 51(4, Winter), pp. 463–488.

Falk, A. and Hermle, J. (2018) 'Relationship of gender differences in preferences to economic development and gender equality', Science, 362(6412), p. eaas9899.

Fo, R. and Wotipka, C. (2001) 'Slowly But Surely? The Global Expansion of Women's Participation in Science and Engineering Fields of Study', Sociology of education, 74(3), pp. 231–251.

Ganley, C.M. et al. (2018) 'Gender equity in college majors: Looking beyond the STEM/Non-STEM dichotomy for answers regarding female participation', American Educational Research Journal, 55(3), pp. 453–487.

Goffman, E. (1977) 'The arrangement between the sexes', Theory and society, 4(3), pp. 301–331.

Görlitz, K. and Gravert, C. (2018) 'The effects of a high school curriculum reform on university enrollment and the choice of college major', Education Economics, 26(3), pp. 321–336.

Gottfredson, L.S. (2002) 'Gottfredson's theory of circumscription, compromise, and self-creation', Career choice and development, 4, pp. 85–148.

Gottfredson, L.S. (2005) 'Using Gottfredson's theory of circumscription and compromise in career guidance and counseling', Career development and counseling: Putting theory and research to work, pp. 71–100.

Homer, M., Ryder, J. and Donnelly, J. (2013) 'Sources of differential participation rates in school science: The impact of curriculum reform', British Educational Research Journal, 39(2), pp. 248–265.

Hübner, N. et al. (2017) 'Maximizing gender equality by minimizing course choice options? Effects of obligatory coursework in math on gender differences in STEM.', Journal of Educational Psychology, 109(7), p. 993.

Imberman, S.A. (2006) ‘Are There Returns to Attending a Private College or University?’, Available at SSRN 975492 [Preprint].

Inglehart, R. and Norris, P. (2003) Rising tide: Gender equality and cultural change around the world. Cambridge University Press.

Jacob, M. et al. (2020) ‘Secondary school subjects and gendered STEM enrollment in higher education in Germany, Ireland, and Scotland’, International Journal of Comparative Sociology, 61(1), pp. 59–78.

Lee, V.E., Croninger, R.G. and Smith, J.B. (1997) ‘Course-taking, equity, and mathematics learning: Testing the constrained curriculum hypothesis in US secondary schools’, Educational Evaluation and Policy Analysis, 19(2), pp. 99–121.

Lent, R.W., Brown, S.D. and Hackett, G. (2002) ‘Social cognitive career theory’, Career choice and development, 4(1), pp. 255–311.

Ma, Y. and Savas, G. (2014) ‘Which is more consequential: Fields of study or institutional selectivity?’, The Review of Higher Education, 37(2), pp. 221–247.

Makarova, E., Aeschlimann, B., Herzog, W. (2019) ‘The gender gap in STEM fields: The impact of the gender stereotype of math and science on secondary students’ career aspirations’, Frontiers in Education, 4, p. 60.

Maxwell, N. and Dorrity, C. (2010) ‘Access to third level education: challenges for equality of opportunity in post celtic tiger Ireland’, Irish Journal of Public Policy, 2(1).

McDaniel, A. (2010a) ‘Cross-national gender gaps in educational expectations: The influence of national-level gender ideology and educational systems’, Comparative Education Review, 54(1), pp. 27–50.

McDaniel, A. (2010b) ‘Cross-National Gender Gaps in Educational Expectations: The Influence of National-Level Gender Ideology and Educational Systems’, Comparative Education Review, 54(1), pp. 27–50. Available at: https://doi.org/10.1086/648060.

Moorhouse, E.A. (2017) ‘Sex segregation by field of study and the influence of labor markets: Evidence from 39 countries’, International Journal of Comparative Sociology, 58(1), pp. 3–32.

Ó Ríordáin, A. (2019) ‘Labour launch bill to end single-gender school admissions within 10-15 years’, The Labour Party. Available at: https://labour.ie/news/2022/02/15/labour-launch-bill-to-end-single-gender-school-admissions-within-10-15-years/ (Accessed: 14 February 2023).

O’Mahony, P. (2008) ‘Factors determining school choice, report on a survey of the “Attitudes of Parents of Children attending Catholic Primary Schools in Ireland”’, in Council for Research and Development, Irish Catholic Bishops’ Conference.

Polavieja, J.G. and Platt, L. (2014) 'Nurse or mechanic? The role of parental socialization and children's personality in the formation of sex-typed occupational aspirations', Social Forces, 93(1), pp. 31–61.

Scheeren, L., van de Werfhorst, H.G. and Bol, T. (2018) 'The gender revolution in context: how later tracking in education benefits girls', Social Forces, 97(1), pp. 193–220.

Schneeweis, N. and Zweimüller, M. (2012) 'Girls, girls, girls: Gender composition and female school choice', Economics of Education review, 31(4), pp. 482–500.

Schulstok, T. and Wikstrand, F. (2020) 'Gender equality and career guidance in a Nordic context', in Career and career guidance in the Nordic countries. Brill, pp. 51–64.

Sikora, J. (2014) 'Gender gap in school science: Are single-sex schools important?', Sex roles, 70(9), pp. 400–415.

Smyth, E. (2010) 'Single-sex education: What does research tell us?', Revue française de pédagogie. Recherches en éducation, (171), pp. 47–58.

Smyth, E. and Darmody, M. (2009) '"Man enough to do it"? Girls and non-traditional subjects in lower secondary education', Gender and Education, 21(3), pp. 273–292.

Smyth, E. and Hannan, C. (2006) 'School effects and subject choice: The uptake of scientific subjects in Ireland', School Effectiveness and School Improvement, 17(3), pp. 303–327.

Sohn, H. (2016) 'Mean and distributional impact of single-sex high schools on students' cognitive achievement, major choice, and test-taking behavior: Evidence from a random assignment policy in Seoul, Korea', Economics of Education Review, 52, pp. 155–175.

Stoet, G. and Geary, D.C. (2018) 'The gender-equality paradox in science, technology, engineering, and mathematics education', Psychological science, 29(4), pp. 581–593.

Uerz, D., Dekkers, H. and Béguin, A.A. (2004) 'Mathematics and language skills and the choice of science subjects in secondary education', Educational Research and Evaluation, 10(2), pp. 163–182.

Van Houtte, M., Vanderwegen, P. and Vermeersch, H. (2014) '"Now I want to do something interesting, something fun": a mixed-methods study into the determinants of horizontal gender segregation at a Belgian university', AISHE-J, 6(3), pp. 1–20.

Weisgram, E.S., Dinella, L.M. and Fulcher, M. (2011) 'The role of masculinity/femininity, values, and occupational value affordances in shaping young men's and women's occupational choices', Sex roles, 65(3), pp. 243–258.

Yazilitas, D. et al. (2013) 'Gendered study choice: A literature review. A review of theory and research into the unequal representation of male and female students in mathematics, science, and technology', Educational Research and Evaluation, 19(6), pp. 525–545.

Tables

Table 4: Odds ratios of choosing field of study for boys.

	Education	Health and Welfare	Engineering, Manufacturing and Construction	Science, Mathematics and Computing
History	1.67	0.73	1.18	0.82
	(0.52)	(0.20)	(0.20)	(0.16)
Geography	1.91*	0.87	1.28+	1.16
	(0.56)	(0.20)	(0.19)	(0.17)
French	4.38***	1.93*	0.93	1.34+
	(1.57)	(0.52)	(0.15)	(0.22)
German	3.44**	1.72+	1.27	1.33
	(1.44)	(0.54)	(0.25)	(0.29)
Spanish	2.12	2.07*	1.02	1.28
	(1.10)	(0.67)	(0.23)	(0.31)
Art	0.68	0.72	1.14	0.87
	(0.37)	(0.30)	(0.28)	(0.23)
Music	2.00+	1.08	1.21	0.89
	(0.74)	(0.33)	(0.25)	(0.23)
Home Economics	1.28	1.05	1.01	1.05
	(0.81)	(0.58)	(0.42)	(0.51)
Business	0.73	1.20	0.76	0.58**
	(0.24)	(0.29)	(0.14)	(0.12)
Technology	0.78	0.83	1.49	2.15**
	(0.58)	(0.45)	(0.43)	(0.54)
Classical studies	1.00	0.28	0.30	0.53
	(.)	(0.29)	(0.22)	(0.39)
Biology	1.65+	4.60***	1.98***	0.66**
	(0.50)	(1.11)	(0.29)	(0.10)
Chemistry	0.31*	4.06***	2.32***	1.06
	(0.17)	(0.92)	(0.36)	(0.20)
Physics	0.88	1.13	3.10***	3.50***
	(0.35)	(0.29)	(0.49)	(0.57)
Accounting	1.44	0.87	1.25	0.68
	(0.55)	(0.26)	(0.23)	(0.16)

Economics	0.60	0.80	1.15	0.65^{+}
	(0.26)	(0.24)	(0.21)	(0.16)
Applied Maths	1.00	1.24	1.62**	1.28
	(.)	(0.38)	(0.30)	(0.27)
Engineering	1.07	0.52	0.88	2.48***
	(0.49)	(0.22)	(0.21)	(0.42)
Design	0.96	1.44	1.10	2.24***
	(0.41)	(0.39)	(0.20)	(0.35)
Agricultural Science	2.80**	1.17	0.83	1.12
	(0.90)	(0.36)	(0.21)	(0.23)
Construction	1.25	1.28	0.66^{+}	2.43***
	(0.45)	(0.37)	(0.15)	(0.41)
Pseudo R2	0.089	0.137	0.103	0.167
N	2717	3024	3024	3024

Standard errors in parentheses + p < .1, * p < .05, ** p < .01, *** p < .001

Table 5: Odds ratios of choosing field of study for girls.

	Education	**Health and Welfare**	**Engineering, Manufacturing and Construction**	**Science, Mathematics and Computing**
History	0.97	0.82	0.61^{+}	1.03
	(0.20)	(0.12)	(0.17)	(0.39)
Geography	1.29	1.06	1.08	0.64
	(0.23)	(0.12)	(0.22)	(0.24)
French	3.44***	0.90	1.00	0.86
	(0.79)	(0.13)	(0.25)	(0.34)
German	3.86***	0.86	1.10	0.77
	(0.96)	(0.14)	(0.31)	(0.36)
Spanish	2.67***	0.74^{+}	1.04	1.39
	(0.73)	(0.13)	(0.32)	(0.63)
Art	0.77	0.80	0.77	2.03*
	(0.17)	(0.12)	(0.20)	(0.67)
Music	1.44^{+}	1.24	0.75	0.84
	(0.28)	(0.17)	(0.18)	(0.33)

Home Economics	1.47*	1.60***	0.97	0.36*
	(0.26)	(0.19)	(0.21)	(0.18)
Business	0.83	0.77*	0.73	0.68
	(0.16)	(0.10)	(0.17)	(0.27)
Technology	0.54	1.12	1.50	2.59
	(0.56)	(0.61)	(1.14)	(1.83)
Classical studies	0.36	1.45	1.33	2.63
	(0.37)	(0.59)	(0.84)	(1.84)
Biology	1.09	2.56***	1.88**	1.17
	(0.20)	(0.35)	(0.43)	(0.37)
Chemistry	0.41***	2.16***	3.31***	1.25
	(0.11)	(0.28)	(0.67)	(0.42)
Physics	0.45+	1.27	1.76*	6.23***
	(0.19)	(0.25)	(0.48)	(2.15)
Accounting	1.29	0.74+	0.53*	1.39
	(0.31)	(0.13)	(0.16)	(0.53)
Economics	0.97	0.70+	0.67	0.88
	(0.28)	(0.15)	(0.26)	(0.50)
Applied Maths	0.89	0.90	1.72	1.55
	(0.56)	(0.26)	(0.57)	(0.60)
Engineering	1.33	2.01	0.88	3.26
	(1.39)	(1.09)	(0.93)	(2.78)
Design	0.20	0.30*	1.71	5.42***
	(0.20)	(0.16)	(0.75)	(2.23)
Agricultural Science	1.36	1.29	1.60+	0.55
	(0.31)	(0.20)	(0.41)	(0.41)
Construction	1.57	1.43	0.72	0.50
	(0.78)	(0.49)	(0.54)	(0.57)
Pseudo R2	0.061	0.063	0.087	0.201
N	3188	3188	3188	3188

Standard errors in parentheses + p < .1, * p < .05, ** p < .01, *** p < .001

Table 6: Odds ratios of choosing leaving certificate subject choices for boys.

		Art	Music	Home economics	Physics	Economics	Applied Maths	Engineering	Design	Construction	Technology
Model 1	Coeducational school	0.93 (0.07)	1.07 (0.08)	2.11*** (0.37)	0.93 (0.04)	0.58*** (0.03)	0.84* (0.06)	2.81*** (0.28)	1.15* (0.07)	1.60*** (0.09)	0.93 (0.09)
	Feepaying	0.99 (0.22)	1.92*** (0.34)	1.28 (0.45)	1.53** (0.20)	2.63*** (0.36)	3.01*** (0.51)	1.00 (.)	0.61* (0.12)	0.18*** (0.05)	0.11**
Model 2	Coeducational school	-0.20* (0.09)	0.18* (0.09)	0.59** (0.20)	-0.03 (0.06)	-0.43*** (0.07)	-0.17+ (0.09)	0.97*** (0.12)	0.19** (0.07)	0.52*** (0.08)	-0.07 (0.12)
	Feepaying	-0.18 (0.28)	0.30 (0.22)	0.73 (0.46)	0.10 (0.16)	0.63*** (0.17)	0.69*** (0.21)	0.00 (.)	-0.47* (0.23)	-1.35*** (0.34)	-2.59* (1.01)
	N	1561	1535	1516	1570	1565	1511	1328	1565	1570	1570

Standard errors in parentheses + p < .1, * p < .05, ** p < .01, *** p < .001 Reference category: equal gender proportions

Controls for: social class, parental employment, parental education, religion, parental marital status, language spoken at home, migrant status, and previous achievement.

Table 7: Odds ratios of choosing leaving certificate subject choices for girls.

		Art	Music	Home economics	Physics	Economics	Applied Maths	Engineering	Design	Construction	Technology
Model 1	Coeducational school	1.44*** (0.15)	0.91 (0.09)	1.35*** (0.12)	0.66** (0.09)	0.74+ (0.11)	0.56** (0.12)	1.00 (.)	7.06*** (2.66)	1.00 (.)	0.64 (0.24)
	Feepaying	1.01 (0.17)	1.30 (0.22)	0.70* (0.11)	2.37*** (0.43)	2.26*** (0.47)	2.46*** (0.65)	1.00 (.)	1.77+ (0.59)	0.56 (0.41)	1.00 (.)
Model 2	Coeducational school	0.36** (0.14)	-0.16 (0.13)	0.25* (0.11)	-0.36* (0.17)	-0.18 (0.20)	-0.41+ (0.25)	0.00 (.)	2.23*** (0.48)	0.00 (.)	-0.09 (0.57)
	Feepaying	-0.10 (0.23)	-0.05 (0.21)	0.12 (0.20)	0.22 (0.24)	0.35 (0.28)	0.50 (0.32)	0.00 (.)	0.77+ (0.41)	-0.04 (1.06)	0.00 (.)
	N	1528	1514	1528	1514	1484	1484	580	1501	672	982

Standard errors in parentheses + p < .1, * p < .05, ** p < .01, *** p < .001 Reference category: equal gender proportions

Controls for: social class, parental employment, parental education, religion, parental marital status, language spoken at home, migrant status, and previous achievement.

Table 8: Odds ratios of leaving certificate subject choices for boys within coeducational schools by gender proportions within the school.

		Art	Music	Home economics	Physics	Economics	Applied Maths	Engineering	Design	Construction	Technology
Model 1	Less than 50%	1.67*	0.95	2.86***	0.71*	0.42**	0.63	0.88	0.87	1.04	0.83
		(0.39)	(0.22)	(0.81)	(0.12)	(0.12)	(0.19)	(0.16)	(0.16)	(0.16)	(0.28)
	More than 50%	2.25+	0.95	0.63	0.95	0.67	0.99	0.54	0.88	1.30	0.40
		(0.96)	(0.46)	(0.64)	(0.31)	(0.35)	(0.53)	(0.24)	(0.35)	(0.41)	(0.41)
Model 2	Less than 50%	1.37	1.02	3.89***	0.73	0.22***	0.67	1.21	1.04	1.46+	1.00
		(0.47)	(0.31)	(1.48)	(0.16)	(0.09)	(0.26)	(0.29)	(0.24)	(0.31)	(0.80)
	More than 50%	2.73+	1.26	1.35	1.07	0.48	0.24	1.23	0.82	2.21+	0.80
		(1.52)	(0.65)	(1.45)	(0.43)	(0.29)	(0.26)	(0.66)	(0.42)	(0.93)	(0.84)
	Feepaying	1.06	1.31	0.64	0.95	4.66***	2.36*	1.00	0.67	0.27**	0.20
		(0.47)	(0.43)	(0.43)	(0.25)	(1.43)	(0.84)	(.)	(0.22)	(0.11)	(0.21)
	N	861	847	840	869	865	800	772	865	869	848

Standard errors in parentheses + p < .1, * p < .05, ** p < .01, *** p < .001

Controls for: social class, parental employment, parental education, religion, parental marital status, language spoken at home, migrant status, and previous achievement.

Table 9: Odds ratios of leaving certificate subject choices for girls within coeducational schools by gender proportions within the school.

		Art	Music	Home economics	Physics	Economics	Applied Maths	Engineering	Design	Construction	Technology
Model 1	Less than 50%	1.45+	0.81	0.84	0.86	0.50	0.44	2.27	1.74	1.93	1.00
		(0.29)	(0.20)	(0.16)	(0.30)	(0.23)	(0.32)	(1.30)	(0.60)	(0.83)	(.)
	More than 50%	1.13	1.39	0.58+	1.77	0.87	0.95	1.00	0.64	1.15	1.00
		(0.33)	(0.41)	(0.17)	(0.66)	(0.46)	(0.70)	(.)	(0.47)	(0.86)	(.)
Model 2	Less than 50%	1.87*	0.76	0.62+	0.61	0.33	0.46	1.78	0.71	2.31	1.00
		(0.51)	(0.27)	(0.17)	(0.30)	(0.25)	(0.36)	(2.12)	(0.38)	(1.42)	(.)
	More than 50%	1.55	2.16+	0.35*	0.64	0.47	0.33	1.00	0.23	1.18	1.00
		(0.62)	(0.86)	(0.16)	(0.39)	(0.39)	(0.38)	(.)	(0.25)	(1.39)	(.)
	Feepaying	1.03	0.95	0.78	1.78	1.74	2.15	1.00	2.24	0.76	1.00
		(0.34)	(0.34)	(0.27)	(0.77)	(0.91)	(1.33)	(.)	(1.18)	(0.85)	(.)
	N	821	791	821	811	775	790	567	806	672	459

Standard errors in parentheses + p < .1, * p < .05, ** p < .01, *** p < .001

Controls for: social class, parental employment, parental education, religion, parental marital status, language spoken at home, migrant status, and previous achievement.

Table 10: Odds ratios of fields of study for boys within coeducational schools by gender proportions within the school.

		Education	Health and Welfare	Engineering, Manufacturing and Construction	Science, Mathematics and Computing
Model 1	Less than 50%	0.91	1.23	0.80	1.09
		(0.42)	(0.38)	(0.18)	(0.23)
	More than 50%	1.66	1.81	0.66	0.52
		(1.25)	(0.98)	(0.35)	(0.31)
Model 2	Less than 50%	1.13	0.98	1.31	1.21
		(0.66)	(0.37)	(0.35)	(0.36)
	More than 50%	1.71	1.72	1.19	0.62
		(1.84)	(1.05)	(0.67)	(0.47)
	Feepaying	0.96	3.31**	0.74	0.39*
		(0.76)	(1.30)	(0.29)	(0.18)
	N	701	851	869	851

Standard errors in parentheses + p < .1, * p < .05, ** p < .01, *** p < .001

Controls for: social class, parental employment, parental education, religion, parental marital status, language spoken at home, migrant status, and previous achievement.

Table 11: Odds ratios of fields of study for girls within coeducational schools by gender proportions within the school.

		Education	Health and Welfare	Engineering, Manufacturing and Construction	Science, Mathematics and Computing
Model 1	Less than 50%	0.19*	0.67	2.09	0.78
		(0.14)	(0.19)	(1.07)	(0.32)
	More than 50%	1.09	2.43**	0.88	0.47
		(0.52)	(0.67)	(0.90)	(0.34)
Model 2	Less than 50%	0.34	0.58	1.44	0.17+
		(0.25)	(0.22)	(1.20)	(0.18)
	More than 50%	1.15	3.13**	0.91	0.31
		(0.77)	(1.20)	(1.13)	(0.35)
	Feepaying	0.17	0.88	2.96	0.93
		(0.19)	(0.34)	(2.44)	(0.66)
	N	801	821	698	790

Standard errors in parentheses + p < .1, * p < .05, ** p < .01, *** p < .001

Controls for: social class, parental employment, parental education, religion, parental marital status, language spoken at home, migrant status, and previous achievement.

Table 12: Odds ratios of choosing tertiary level fields of study for boys.

		Education	Health and Welfare	Engineering, Manufacturing and Construction	Science, Mathematics and Computing
Model 1	Coeducational school	0.96 (0.13)	0.93 (0.09)	1.14^{+} (0.08)	1.01 (0.07)
	Feepaying	0.35^{+} (0.21)	1.85** (0.43)	1.09 (0.22)	1.07 (0.21)
	0 stereotypical choices	0.91 (0.32)	0.75 (0.19)	1.08 (0.20)	0.80 (0.15)
	1 stereotypical choice	1.00 (.)	1.29 (0.97)	0.35 (0.36)	0.61 (0.46)
	2 stereotypical choices	0.69 (0.71)	0.98 (0.61)	1.19 (0.54)	0.81 (0.40)
	3 stereotypical choices	0.86 (0.36)	0.91 (0.26)	0.83 (0.19)	0.81 (0.17)
	5 stereotypical choices	0.76 (0.28)	0.77 (0.20)	1.01 (0.19)	1.03 (0.18)
	6 stereotypical choices	1.28 (0.45)	0.98 (0.26)	1.45^{+} (0.27)	0.85 (0.17)
	7 stereotypical choices	0.65 (0.49)	0.77 (0.37)	0.82 (0.30)	1.40 (0.41)
	0 non stereotypical choices	1.00 (0.31)	0.83 (0.19)	0.84 (0.13)	0.77 (0.12)
	1 non stereotypical choice	1.50 (0.56)	1.36 (0.37)	0.56* (0.14)	1.05 (0.21)
	2 non stereotypical choice	1.01 (0.30)	1.00 (0.21)	0.83 (0.12)	0.81 (0.12)
Model 2	Coeducational school	0.85 (0.21)	0.96 (0.14)	1.13 (0.14)	0.85 (0.11)
	Feepaying	0.50 (0.32)	1.71^{+} (0.49)	1.04 (0.26)	0.69 (0.18)
	1 stereotypical choice	1.00 (.)	1.94 (1.55)	0.38 (0.40)	0.91 (0.71)
	2 stereotypical choices	1.35 (1.47)	1.19 (0.78)	1.56 (0.75)	0.90 (0.51)

3 stereotypical choices	0.99	0.97	0.93	0.71
	(0.53)	(0.32)	(0.25)	(0.20)
5 stereotypical choices	0.58	0.80	0.96	0.92
	(0.28)	(0.24)	(0.22)	(0.21)
6 stereotypical choices	1.27	1.12	1.24	0.88
	(0.56)	(0.34)	(0.30)	(0.22)
7 stereotypical choices	0.86	0.81	0.50	1.61
	(0.69)	(0.46)	(0.25)	(0.55)
0 stereotypical choices	1.00	0.47	0.63	0.59
	(.)	(0.51)	(0.49)	(0.37)
1 non stereotypical choice	1.18	1.43	0.61	0.84
	(0.70)	(0.53)	(0.22)	(0.27)
2 non stereotypical choice	0.61	0.87	0.92	0.71
	(0.33)	(0.28)	(0.22)	(0.19)
N	1443	1561	1570	1570

Standard errors in parentheses + p < .1, * p < .05, ** p < .01, *** p < .001

Controls for: social class, parental employment, parental education, religion, parental marital status, language spoken at home, migrant status, and previous achievement.

Reference category is the number of stereotypical subjects which the most schools provide. This is four stereotypically male subjects (23% of schools) and three stereotypically female subjects (70% of schools).

Table 13: Odds ratios of tertiary level fields of study for girls.

		Education	Health and Welfare	Engineering, Manufacturing and Construction	Science, Mathematics and Computing
Model 1	Coeducational school	0.85 (0.14)	0.89 (0.10)	0.63^{+} (0.17)	1.40^{+} (0.26)
	Feepaying	0.34* (0.14)	1.16 (0.21)	3.86*** (1.17)	0.82 (0.28)
	0 non stereotypical choices	1.33 (0.34)	1.31^{+} (0.21)	0.47^{+} (0.20)	1.12 (0.30)
	1 non stereotypical choice	1.03 (0.36)	1.11 (0.24)	0.73 (0.39)	0.84 (0.32)
	2 non stereotypical choices	1.30 (0.35)	1.21 (0.21)	0.75 (0.32)	0.78 (0.24)
	3 non stereotypical choices	1.48 (0.40)	1.15 (0.20)	0.86 (0.36)	0.90 (0.27)
	5 non stereotypical choices	1.02 (0.32)	0.99 (0.20)	0.81 (0.38)	1.36 (0.41)
	6 non stereotypical choices	1.19 (0.38)	0.88 (0.19)	0.86 (0.42)	0.97 (0.33)
	7 non stereotypical choices	2.10^{+} (0.83)	0.66 (0.24)	1.00 (.)	0.82 (0.45)
	0 stereotypical choices	1.12 (0.19)	1.23^{+} (0.14)	0.40* (0.16)	1.23 (0.23)
	1 stereotypical choice	0.51 (0.53)	1.11 (0.55)	1.00 (.)	1.46 (1.08)
	2 stereotypical choices	1.03 (0.28)	1.13 (0.20)	0.70 (0.37)	1.13 (0.34)
Model 2	Coeducational school	1.15 (0.40)	1.32 (0.32)	0.31^{+} (0.20)	0.74 (0.33)
	Feepaying	0.28* (0.14)	1.03 (0.24)	2.85* (1.23)	0.53 (0.26)
	0 non stereotypical choices	2.24 (1.69)	1.62 (0.94)	2.50 (2.27)	0.48 (0.55)
	1 non stereotypical choice	0.82 (0.44)	1.27 (0.42)	0.37 (0.31)	0.90 (0.49)

2 non stereotypical choice	1.55 (0.69)	1.57 (0.47)	0.24* (0.17)	0.31* (0.18)
3 non stereotypical choices	2.10+ (0.80)	1.33 (0.35)	0.53 (0.33)	0.81 (0.37)
5 non stereotypical choices	1.15 (0.44)	1.06 (0.27)	0.65 (0.48)	0.98 (0.42)
6 non stereotypical choices	1.08 (0.42)	0.82 (0.22)	1.12 (0.77)	0.95 (0.41)
7 non stereotypical choices	2.03 (0.97)	0.86 (0.37)	1.00 (.)	1.26 (0.77)
0 non stereotypical choices	1.00 (.)	1.00 (.)	1.00 (.)	1.00 (.)
1 stereotypical choice	1.00 (.)	1.29 (0.87)	1.00 (.)	1.67 (1.80)
2 stereotypical choices	0.86 (0.31)	1.08 (0.26)	0.68 (0.53)	1.10 (0.47)
N	1477	1525	1408	1481

Standard errors in parentheses + p < .1, * p < .05, ** p < .01, *** p < .001

Controls for: social class, parental employment, parental education, religion, parental marital status, language spoken at home, migrant status, and previous achievement.

Reference category is the number of stereotypical subjects which the most schools provide. This is four stereotypically male subjects (23% of schools) and three stereotypically female subjects (70% of schools).

Table 14: Odds ratios of tertiary level fields of study for boys, comparing feepaying and non-fee-paying schools.

		Education Nonfee-paying schools	Education Fee-paying schools	Health and Welfare Nonfee-paying schools	Health and Welfare Fee-paying schools	Engineering, Manufacturing and Construction Nonfee-paying schools	Engineering, Manufacturing and Construction Fee-paying schools	Science, Mathematics and Computing Nonfee-paying schools	Science, Mathematics and Computing Fee-paying schools
Model 1	0 stereotypical choices	1.00 (.)	1.00 (.)	1.00 (.)	1.00 (.)	1.00 (.)	1.00 (.)	1.00 (.)	1.00 (.)
	1 stereotypical choice	1.00 (.)	1.00 (.)	1.63 (1.24)	1.00 (.)	0.36 (0.37)	1.00 (.)	0.70 (0.52)	1.00 (.)
	2 stereotypical choices	0.81 (0.84)	1.00 (.)	1.04 (0.79)	0.78 (0.84)	1.31 (0.66)	0.85 (0.92)	0.94 (0.51)	0.50 (0.54)
	3 stereotypical choices	0.84 (0.37)	1.00 (.)	1.01 (0.34)	0.82 (0.45)	0.81 (0.21)	1.09 (0.57)	0.84 (0.21)	0.65 (0.32)
	5 stereotypical choices	0.70 (0.27)	1.05 (1.29)	0.87 (0.26)	0.62 (0.37)	1.00 (0.21)	1.05 (0.55)	1.17 (0.23)	0.51 (0.27)
	6 stereotypical choices	1.24 (0.45)	1.00 (.)	1.14 (0.34)	0.80 (0.53)	1.35 (0.28)	2.71* (1.36)	0.91 (0.20)	0.71 (0.42)
	7 stereotypical choices	0.58 (0.44)		0.93 (0.47)		0.81 (0.31)		1.52 (0.46)	
	0 non stereotypical choices	0.69 (0.71)		0.79 (0.58)		0.27+ (0.19)		0.72 (0.34)	
	1 non stereotypical choice	1.61 (0.62)	1.00 (.)	1.48 (0.45)	1.41 (0.95)	0.57* (0.15)	0.43 (0.45)	1.09 (0.23)	0.75 (0.58)
	2 non stereotypical choice	1.20 (0.37)	1.00 (.)	1.20 (0.28)	0.47 (0.23)	0.77 (0.13)	1.27 (0.48)	0.79 (0.13)	0.90 (0.34)
Model 2	1 stereotypical choice	1.00 (.)		1.61 (1.28)		0.42 (0.44)		0.86 (0.66)	
	2 stereotypical choices	1.58 (1.74)		1.02 (0.80)	2.76 (3.98)	1.81 (0.97)	1.10 (1.34)	1.39 (0.81)	1.00 (.)

3 stereotypical choices	1.17 (0.64)	0.83 (0.33)	2.04 (1.96)	0.89 (0.27)	1.56 (1.15)	0.71 (0.23)	0.87 (0.62)
5 stereotypical choices	0.58 (0.31)	0.74 (0.25)	0.78 (0.54)	0.96 (0.25)	1.01 (0.65)	1.06 (0.26)	0.39 (0.29)
6 stereotypical choices	1.53 (0.71)	1.06 (0.36)	4.19 (3.98)	1.20 (0.31)	1.44 (1.13)	1.03 (0.28)	0.26 (0.29)
7 stereotypical choices	1.02 (0.82)	0.82 (0.48)		0.49 (0.25)		1.74 (0.62)	
0 stereotypical choices	1.00 (.)	0.55 (0.58)		0.52 (0.40)		0.83 (0.48)	
1 non stereotypical choice	1.86 (0.86)	1.48 (0.51)	1.21 (1.36)	0.50* (0.17)	0.33 (0.43)	1.17 (0.31)	0.39 (0.50)
2 non stereotypical choice	0.93 (0.38)	1.17 (0.33)	0.19* (0.15)	0.78 (0.16)	0.90 (0.57)	0.91 (0.19)	0.89 (0.53)
N	1182	1328	226	1318	216	1337	197

Standard errors in parentheses + p < .1, * p < .05, ** p < .01, *** p < .001

Controls for: social class, parental employment, parental education, religion, parental marital status, language spoken at home, migrant status, and previous achievement.

Reference category is the number of stereotypical subjects which the most schools provide. This is four stereotypically male subjects (23% of schools) and three stereotypically female subjects (70% of schools). Blank spaces mean that there are no schools which fall into this category (e.g. there are no fee paying schools which provide 7 stereotypically male subjects).

Table 15: Odds ratios of tertiary level fields of study for girls, comparing feepaying and non-fee-paying schools.

		Education Nonfee-paying schools	Education Fee-paying schools	Health and Welfare Nonfee-paying schools	Health and Welfare Fee-paying schools	Engineering, Manufacturing and Construction Nonfee-paying schools	Engineering, Manufacturing and Construction Fee-paying schools	Science, Mathematics and Computing Nonfee-paying schools	Science, Mathematics and Computing Fee-paying schools
Model 1	0 non stereotypical choices	0.80 (0.50)		1.53 (0.56)		3.36+ (2.42)		0.71 (0.54)	
	1 non stereotypical choice	0.80 (0.29)	5.00 (7.37)	1.24 (0.29)	1.15 (0.99)	1.26 (0.77)	1.00 (.)	0.92 (0.36)	1.00 (.)
	2 non stereotypical choices	1.15 (0.32)	1.09 (1.36)	1.40+ (0.27)	0.69 (0.30)	1.17 (0.62)	0.34 (0.28)	0.90 (0.30)	0.20 (0.23)
	3 non stereotypical choices	1.30 (0.35)	1.46 (1.82)	1.29 (0.25)	0.97 (0.43)	0.94 (0.53)	1.20 (0.77)	0.98 (0.32)	0.55 (0.47)
	5 non stereotypical choices	0.89 (0.28)	1.00 (.)	1.21 (0.26)	0.20* (0.16)	0.94 (0.57)	0.98 (0.73)	1.47 (0.48)	0.78 (0.67)
	6 non stereotypical choices	0.97 (0.31)	1.00 (.)	0.98 (0.22)	3.44 (4.96)	1.44 (0.81)	1.00 (.)	1.02 (0.37)	1.00 (.)
	7 non stereotypical choices	1.70 (0.67)		0.75 (0.28)		1.00 (.)		0.86 (0.49)	
	0 stereotypical choices	2.57 (2.83)		1.00 (.)		1.00 (.)		1.00 (.)	
	1 stereotypical choice	0.48 (0.49)		1.13 (0.56)		1.00 (.)		1.42 (1.05)	
	2 stereotypical choices	1.00 (0.27)	1.00 (.)	1.18 (0.22)	0.73 (0.80)	0.94 (0.50)	1.00 (.)	1.05 (0.33)	4.02 (4.55)

	0 non stereotypical choices	1.37 (0.74)		6.37* (5.34)		0.71 (0.77)	
	1 non stereotypical choice	1.21 (0.36)	1.00 (.)	0.98 (0.77)	1.00 (.)	1.27 (0.62)	1.00 (.)
	2 non stereotypical choices	1.37 (0.34)	0.90 (0.50)	0.64 (0.47)	0.34 (0.33)	0.49 (0.23)	1.00 (.)
	3 non stereotypical choices	1.21 (0.30)	0.98 (0.59)	1.12 (0.74)	1.07 (0.89)	1.08 (0.44)	0.94 (1.46)
	5 non stereotypical choices	1.36 (0.37)	0.09+ (0.11)	0.45 (0.40)	0.66 (0.93)	1.05 (0.48)	0.80 (1.48)
	6 non stereotypical choices	0.95 (0.27)	1.00 (.)	0.91 (0.66)	1.00 (.)	1.02 (0.45)	1.00 (.)
	7 non stereotypical choices	0.99 (0.43)		1.00 (.)		1.30 (0.80)	
	0 stereotypical choices	1.00 (.)		1.00 (.)		1.00 (.)	
	1 stereotypical choice	1.52 (1.02)		1.00 (.)		1.58 (1.69)	
Model 2	2 stereotypical choices	1.18 (0.29)	1.58 (1.92)	0.63 (0.49)	1.00 (.)	1.05 (0.44)	1.00 (.)
	N	1360	152	1244	139	1317	58

Standard errors in parentheses + p < .1, * p < .05, ** p < .01, *** p < .001

Controls for: social class, parental employment, parental education, religion, parental marital status, language spoken at home, migrant status, and previous achievement.

Reference category is the number of stereotypical subjects which the most schools provide. This is four stereotypically male subjects (23% of schools) and three stereotypically female subjects (70% of schools). Blank spaces mean that there are no schools which fall into this category (e.g. there are no fee paying schools which provide 7 stereotypically male subjects).

Table 16: Odds ratios of tertiary level fields of study for boys, comparing SS and coeducational schools.

		Education SS	Education Coeducational	Health and Welfare SS	Health and Welfare Coeducational	Engineering, Manufacturing and Construction SS	Engineering, Manufacturing and Construction Coeducational	Science, Mathematics and Computing SS	Science, Mathematics and Computing Coeducational
Model 1	0 stereotypical choices	1.00 (.)	1.00 (.)	1.00 (.)	1.00 (.)	1.00 (.)	1.00 (.)	1.00 (.)	1.00 (.)
	1 stereotypical choice	1.00 (.)	1.00 (.)	1.00 (.)	1.45 (1.12)	1.00 (.)	0.30 (0.31)	2.53 (2.95)	0.37 (0.38)
	2 stereotypical choices	1.00 (.)	1.29 (1.38)	1.46 (1.13)	0.59 (0.62)	2.60 (1.52)	0.53 (0.40)	1.38 (0.78)	0.31 (0.32)
	3 stereotypical choices	0.76 (0.46)	0.97 (0.55)	1.00 (0.39)	0.82 (0.34)	1.22 (0.41)	0.60 (0.19)	0.69 (0.21)	0.97 (0.29)
	5 stereotypical choices	1.16 (0.60)	0.53 (0.28)	1.02 (0.38)	0.62 (0.22)	1.47 (0.46)	0.74 (0.17)	0.82 (0.23)	1.20 (0.28)
	6 stereotypical choices	1.22 (0.65)	1.30 (0.61)	1.06 (0.41)	0.91 (0.32)	2.03* (0.62)	1.09 (0.26)	0.78 (0.23)	0.91 (0.25)
	7 stereotypical choices	1.59 (1.71)	0.40 (0.42)	1.52 (1.18)	0.56 (0.35)	1.00 (.)	0.77 (0.30)	2.40+ (1.19)	1.19 (0.44)
	0 non stereotypical choices	0.64 (0.75)	1.00 (.)	0.64 (0.53)	1.00 (.)	0.30 (0.23)	1.00 (.)	0.67 (0.37)	1.00 (.)
	1 non stereotypical choice	1.28 (0.88)	1.86 (1.39)	1.29 (0.63)	1.31 (0.80)	0.69 (0.27)	0.17+ (0.17)	0.98 (0.34)	0.93 (0.45)
	2 non stereotypical choice	0.89 (0.57)	1.03 (0.51)	1.02 (0.46)	0.77 (0.30)	0.84 (0.28)	0.98 (0.24)	0.77 (0.24)	0.70 (0.19)
Model 2	1 stereotypical choice	1.00 (.)	1.00 (.)	1.00 (.)	3.06 (2.69)	1.00 (.)	0.31 (0.33)	3.37 (4.33)	0.60 (0.65)
	2 stereotypical choices	1.00 (.)	3.58 (4.33)	1.40 (1.14)	0.98 (1.08)	3.83* (2.45)	0.68 (0.54)	1.06 (0.73)	0.49 (0.53)

3 stereotypical choices	0.65 (0.56)	1.28 (0.92)	0.80 (0.40)	1.22 (0.59)	1.36 (0.57)	0.74 (0.28)	0.64 (0.24)	0.84 (0.35)
5 stereotypical choices	0.84 (0.55)	0.43 (0.32)	1.05 (0.43)	0.68 (0.30)	1.23 (0.47)	0.75 (0.22)	0.63 (0.22)	1.25 (0.39)
6 stereotypical choices	1.37 (0.85)	1.26 (0.79)	1.03 (0.47)	1.19 (0.50)	1.76 (0.68)	0.98 (0.30)	0.86 (0.30)	0.94 (0.33)
7 stereotypical choices	2.59 (3.17)	0.63 (0.71)	1.64 (1.43)	0.44 (0.35)	1.00 (.)	0.48 (0.25)	3.98* (2.58)	1.53 (0.66)
0 stereotypical choices	1.00 (.)	1.00 (.)	0.34 (0.41)	1.00 (.)	0.66 (0.58)	1.00 (.)	0.34 (0.27)	1.00 (.)
1 non stereotypical choice	0.94 (0.72)	0.98 (1.12)	1.37 (0.75)	1.28 (0.89)	0.66 (0.32)	0.24 (0.24)	0.66 (0.28)	1.08 (0.65)
2 non stereotypical choice	0.55 (0.40)	0.69 (0.48)	0.97 (0.49)	0.66 (0.30)	0.65 (0.27)	1.20 (0.34)	0.71 (0.27)	0.76 (0.27)
N	555	696	702	859	673	877	710	859

Standard errors in parentheses + p < .1, * p < .05, ** p < .01, *** p < .001

Controls for: social class, parental employment, parental education, religion, parental marital status, language spoken at home, migrant status, and previous achievement.

Reference category is the number of stereotypical subjects which the most schools provide. This is four stereotypically male subjects (23% of schools) and three stereotypically female subjects (70% of schools). Blank spaces mean that there are no schools which fall into this category (e.g. there are no fee paying schools which provide 7 stereotypically male subjects).

Table 17: Odds ratios of tertiary level fields of study for girls, comparing SS and coeducational schools.

		Education SS	Education Coeducational	Health and Welfare SS	Health and Welfare Coeducational	Engineering, Manufacturing and Construction SS	Engineering, Manufacturing and Construction Coeducational	Science, Mathematics and Computing SS	Science, Mathematics and Computing Coeducational
Model 1	0 non stereotypical choices	0.84 (0.66)		3.62* (2.24)		0.66 (0.50)		1.13 (1.15)	
	1 non stereotypical choice	1.00 (0.59)	0.42 (0.43)	2.95* (1.62)	1.09 (0.45)	0.23* (0.16)	1.23 (1.34)	1.41 (1.12)	0.81 (0.61)
	2 non stereotypical choices	1.14 (0.62)	0.65 (0.68)	3.23* (1.71)	1.30 (0.63)	0.26* (0.14)	1.00 (.)	1.20 (0.91)	1.99 (1.30)
	3 non stereotypical choices	1.30 (0.72)	1.44 (0.53)	3.18* (1.71)	0.98 (0.24)	0.36+ (0.20)	0.61 (0.50)	1.54 (1.17)	0.82 (0.35)
	5 non stereotypical choices		1.05 (0.34)		0.89 (0.18)		1.21 (0.63)		1.27 (0.39)
	6 non stereotypical choices		1.22 (0.40)		0.78 (0.17)		1.28 (0.69)		0.90 (0.31)
	7 non stereotypical choices		2.16+ (0.88)		0.59 (0.21)		1.00 (.)		0.76 (0.43)
	0 stereotypical choices		3.07 (3.38)		1.00 (.)		1.00 (.)		1.00 (.)
	1 stereotypical choice		0.57 (0.58)		1.17 (0.58)		1.00 (.)		1.26 (0.94)
	2 stereotypical choices	0.84 (0.51)	1.17 (0.37)	1.44 (0.51)	1.09 (0.23)	1.49 (1.11)	0.53 (0.39)	0.99 (0.73)	1.04 (0.35)

	0 non stereotypical choices	1.47 (1.32)		3.81 (3.54)		1.51 (1.53)		1.69 (2.55)	
	1 non stereotypical choice	0.52 (0.39)	0.91 (0.99)	3.58 (2.82)	0.98 (0.58)	0.26 (0.23)	1.00 (.)	3.37 (3.74)	0.50 (0.58)
	2 non stereotypical choices	0.92 (0.60)	1.87 (2.11)	4.24^{+} (3.21)	1.46 (1.02)	0.20* (0.15)	1.00 (.)	0.90 (0.98)	1.00 (.)
	3 non stereotypical choices	1.23 (0.81)	2.83* (1.27)	3.65^{+} (2.80)	1.01 (0.33)	0.40 (0.29)	0.57 (0.64)	2.33 (2.49)	0.59 (0.40)
	5 non stereotypical choices		1.41 (0.57)		0.93 (0.24)		0.56 (0.42)		1.00 (0.44)
	6 non stereotypical choices		1.45 (0.60)		0.72 (0.19)		0.82 (0.57)		0.97 (0.43)
	7 non stereotypical choices		3.09* (1.56)		0.75 (0.32)		1.00 (.)		1.27 (0.79)
	1 stereotypical choice		1.00 (.)		1.25 (0.85)		1.00 (.)		1.95 (2.13)
Model 2	2 stereotypical choices	0.65 (0.51)	1.01 (0.42)	1.59 (0.77)	0.97 (0.28)	0.82 (0.97)	0.56 (0.59)	1.65 (1.37)	1.06 (0.54)
	N	683	790	701	824	629	603	640	781

Standard errors in parentheses + p < .1, * p < .05, ** p < .01, *** p < .001

Controls for: social class, parental employment, parental education, religion, parental marital status, language spoken at home, migrant status, and previous achievement.

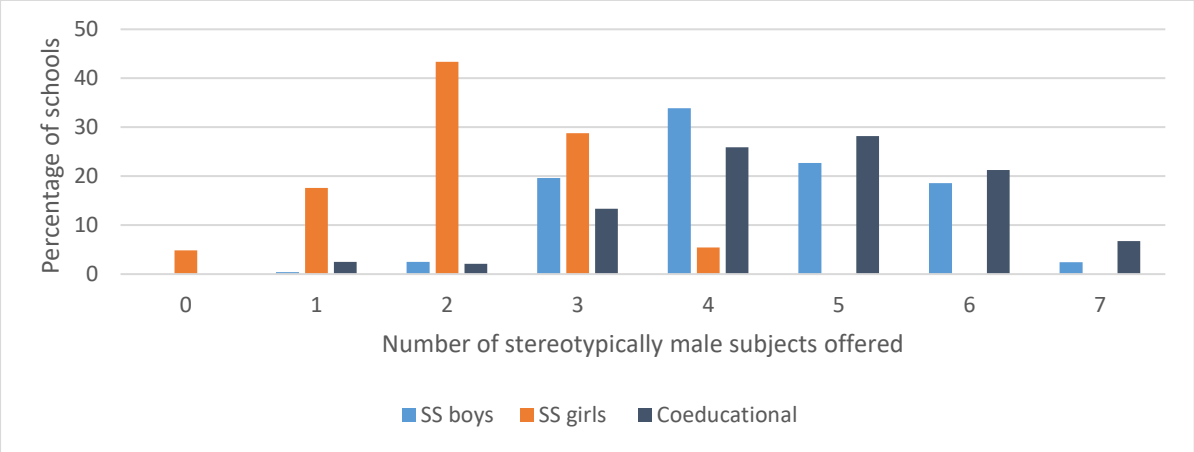
Reference category is the number of stereotypical subjects which the most schools provide. This is four stereotypically male subjects (23% of schools) and three stereotypically female subjects (70% of schools). Blank spaces mean that there are no schools which fall into this category (e.g. there are no fee paying schools which provide 7 stereotypically male subjects).

Appendix

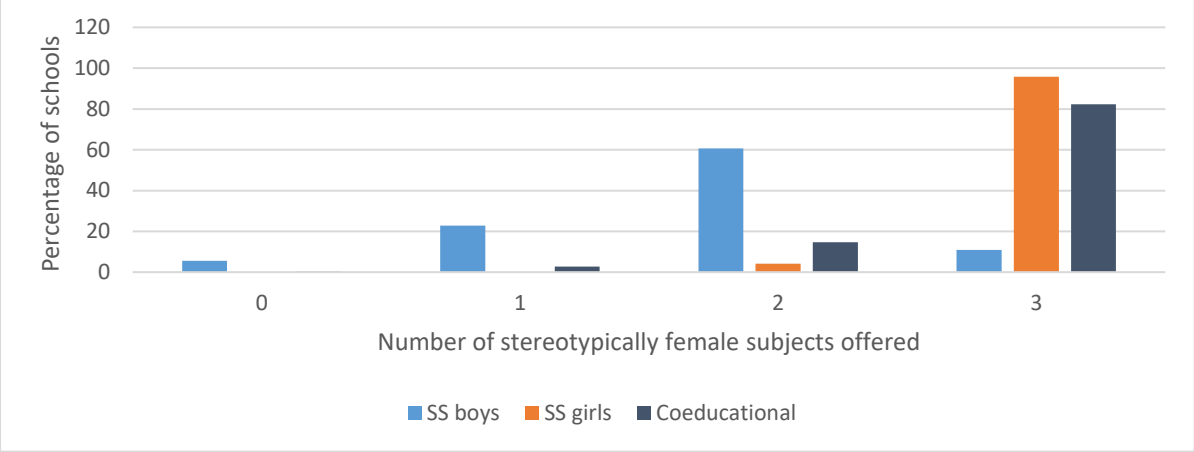
Table A1: Description of variables included in the study.

Variables	Description
Outcomes:	
Subject take-up	Dichotomous variable: 1 = chose the subject for Leaving Certificate
Student background:	
Social class	Categorical: Professional workers, Managerial and technical, Non-manual, Skilled manual, Semi-skilled, Unskilled, All others gainfully occupied and unknown
Language spoken at home	Dichotomous variable: 1 = English spoken at home
Religion	Dichotomous variable: 1 = religious
Migrant status	Dichotomous variable: 1 = born in Ireland
Parental education	Dichotomous variable: 1 = parent one had degree
Parental employment	Dichotomous variable: 1 = parent employed
Mother employed	Dichotomous variable: 1 = mother employed
Father employed	Dichotomous variable: 1 = father employed
Marital status	Dichotomous variable: 1 = married
Junior certificate factors:	
Subject take-up	Dichotomous variable: 1 = chose the subject for Junior Certificate
Prior achievement	Categorical variable: A, B, C, D and E or lower
Fee paying	Dichotomous variable: 1 = attended fee paying school
Subject provision	Categorical variable: Number of male subjects provided ranged from 0-7 Number of male subjects provided ranged from 0-3

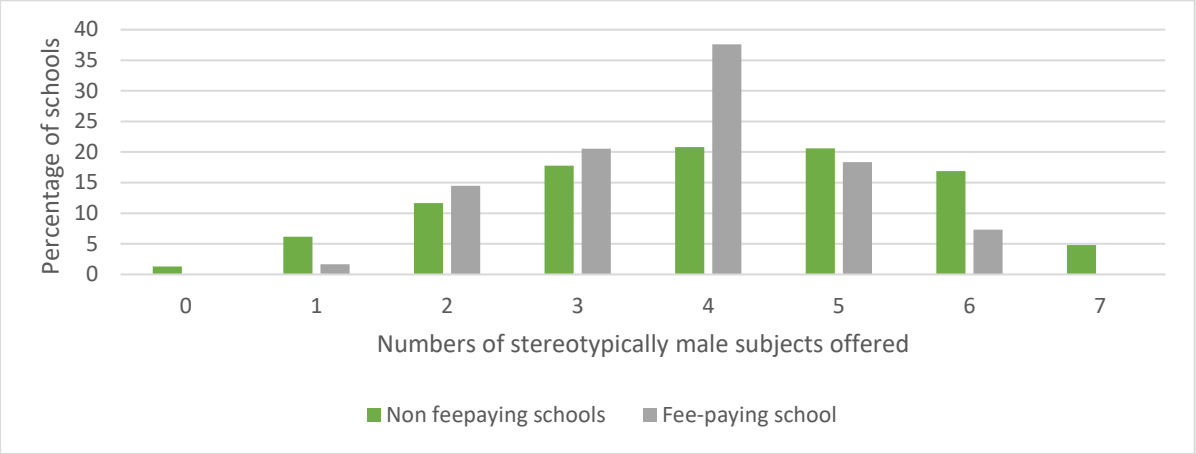
Graph A1: Number of stereotypically male subjects by type of school (SS compared to coeducational)



Graph A2: Number of stereotypically female subjects by type of school (SS compared to coeducational)



Graph A3: Number of stereotypically male subjects by type of school (feepaying compared to non-fee-paying schools).



Graph A4: Number of stereotypically female subjects by type of school (feepaying compared to non-fee-paying schools.