

London School of Economics and Political Science

Occupational Regulation in the UK: Prevalence and Impact

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Thesis submitted to the Department of Management of
the London School of Economics and Political Science for
the Degree of Employment Relations. London, December 2013.

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Abstract

Occupational regulation is a well established, yet largely under researched, labour market institution in the UK. This thesis investigates the prevalence and impact of licensing, certification, accreditation and registration. The results indicate that occupational regulation is present across a large portion of occupations and that it can have a significant impact on wages, skills and quality.

Acknowledgements

I would like to pay special thanks to my supervisor Sue Fermie for her ever lasting support, advice and for feeding me on more occasions than I care to remember. Her initial guidance and continued help are representative of her foresight and kindness. Along with Sue, I would like to thank Stephen Dunn, Eddy Donnelly, Maria Koumenta, David Metcalf and Morris Kleiner for their help and friendship over the past years. Gratitude must also be paid to Iain Reid for securing my place in the department in the first instance.

Of course no acknowledgement would be complete without a nod to my family and friends. I am deeply grateful for their faith and encouragement (often finances too), without which my thesis would never have been completed.

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Introduction

This thesis will investigate occupational regulation in the UK. Occupational regulation throughout this thesis will refer to regulations that restrict entry to occupations through requiring memberships to professional bodies or minimum levels of competencies. Such regulation includes: licensing, certification, accreditation and registration.

Licensing: is enforced through legislation and requires individuals to obtain a license before they can legally join an occupation. To obtain a license, individuals must meet a minimum level of competency. This is often evidenced through the attainment of occupation related qualifications.

Certification: is enforced through legislation. Unlike licensing, certification does not cover all of an occupation, just some tasks within it. Obtaining a certification is much the same as obtaining a license. Individuals must display a minimum degree of competency and meet any other requirements of the enforcement body.

Accreditation: is not legally enforced. Accreditation is completely voluntary and provides no restriction for tasks an individual can undertake. However, accreditation may result in a protection of title. For example, only accredited accountants can call themselves Chartered Accountants. Individuals may still have to pass some barriers to entry to become accredited.

Registration: is legally enforced through legislation. Registration is compulsory for all individuals who work within a registered occupation. Unlike licensing or certification which are also legally enforced, registration does not require any minimum levels of competency to be displayed in order for an individual to join a register.

Despite the potential for regulation to restrict entry to occupations and affect the levels of supply in the labour market as a consequence, there has been very little research into the prevalence and impact occupational regulation has in the UK. This is particularly surprising given the growth in research on licensing in the US and the wealth of UK research on the closed shop, which also restricts supply. It is the aim of this thesis to begin to address the gaps and contribute to the existing research on regulation in the UK. To achieve this, two topics must be investigated: the prevalence of occupational regulation, and the impact of occupational regulation. As a result, this thesis is separated into three distinct yet complementary papers: the prevalence of occupational regulation, the impact of occupational regulation on wages and skills, and the impact of occupational regulation on quality.

1. Occupational Regulation: Prevalence

The aim of this paper is to determine the prevalence of occupational regulation at occupational level. In essence: how many jobs does each type of regulation cover? In order to answer this question, every occupation must be initially investigated using the EU database of regulated occupations and second, through desk research of each occupation. Where regulation is found present, the enforcement body was then contacted for more information on what the regulation entails and how restrictive it is. Where appropriate, the associated legislation was also found. The research undertaken took two years to complete. The length of the process was extended because no similar research or database has ever been attempted in such detail in the UK before. However, it is only through such research that a first insight into the extent of regulation can be realised.

As a result of the research, a regulation database has been compiled. The occupations are ordered via the Standard Occupation Classification (SOC) system used by all of the national level datasets. Therefore, the database can be used to observe general characteristics of each type of regulation. As a consequence it was possible to describe a stereotype for each of the four types of regulations with regard to who enforces them, how they are funded, what the main aim of the regulation is, and the

barriers to entry for new applicants are. Here too, such detail has never been available before.

Due to the database following the SOC system, the findings can be used in many other avenues of research relating to occupational regulation. This is because the regulation database can be merged with all national level datasets through the common SOC variable. This is very important since this paper not only adds valuable contributions to the existing research, but also allows for much more research in the future. An example of such research is found in paper two.

2. Occupational Regulation: Impact on Wages and Skills

Whilst paper one focuses on the prevalence of regulation at the occupation level, this paper applies the regulation database to the Labour Force Survey (LFS). The aim of the paper is to determine the effect regulation has on wages and skill levels. Occupational regulation may have this impact because it can restrict entry to occupations through requiring evidentiary minimum degrees of competency. Restricting supply in such a way may result in increased wages. By requiring individuals to display minimum competency, often through attaining professional qualifications, skill levels may increase, but this is not a certainty.

As such, an analysis is conducted to observe if there is a significant association between regulations, wages and skill levels. Within this paper, wages are measured by an individual's mean gross hourly wage. Skill levels are defined by the highest academic or vocational qualification held by an individual. This is then equated to the National Qualifications Framework (NQF).

This is the first analysis that considers the impact of all the different types of regulation on wages and skills across all occupations. As such, this investigation contributes greatly to the research in the field. Further, through applying the regulation database to the LFS, this will be the first time that the percentage of individuals covered by each regulation is uncovered.

3. Occupational Regulation: Impact on Quality

In addition to wages and skill levels, occupational regulation may theoretically have an impact on the quality of a service. This may occur because, assuming regulation increases individuals' skill levels, the more skilled a practitioner is, the greater the quality of the service should be. As quality is measured differently across all occupations it is impossible to collate information on quality for all occupations. However, by focusing on an occupation that switched from accreditation to licensing in 2006, it is possible to investigate whether quality increased in this occupation as a result of licensing. The occupation in question is that of Nursery workers who became licensed as a result of the Childcare Act 2006. Quality of childcare has been monitored through government agency, Ofsted since the late 1990s. Through analysing Ofsted reports from 2000 to 2011 for each nursery school in the UK, it is possible to observe whether there has been a significant change in quality post-licensing through conducting statistical analyses on the dataset compiled.

Whilst focusing on one occupation cannot result in a general rule for the impact of regulation on quality, the study provides a first investigation into the impact of licensing in the childcare sector. This means that the findings not only contribute to the literature on occupational regulation, but also research conducted in education and early years care.

Summary

This thesis is the first investigation of occupational regulation in the UK that considers all types of regulation. As the first of its kind, the contributions to the current literature are vast. The findings not only provide a valuable insight into the prevalence and impact of regulation in the UK, but also allow for many more investigations as a result of the constructed regulation database.

Paper 1

Occupational Regulation in the UK: Prevalence

Occupational regulation, in this paper, relates to the limiting of entrants into an occupation through licensing, certification, accreditation or registration. It is the process through which entry into an occupation is restricted, to some extent and in some way, to those who meet the entry requirements. There has been very little investigation into this type of occupational regulation in the UK, and as such this paper endeavors to bridge the gap in the research. The aim of this paper is to begin an investigation into occupational regulation in the UK by providing the first concise definition and outline of occupational regulation and an investigation of its prevalence in the UK labour market.

Occupational regulation is of particular importance because of current labour market trends. In light of declining trade union membership and coverage tied with decreasing training offered by employers, occupational regulation needs further understanding. This is because, as will be presented, occupational regulation is not only very prevalent in the labour market can also ensure that individuals covered by the regulation are adequately trained and skilled to conduct a given task within an occupation. As such if a significant association is found between regulation and skill levels policy makers may be able to utilise regulation to address the skill shortages experienced currently. However, in order for policy makers to utilise regulation effectively it is necessary to determine which type of regulation best serves the needs of the labour market. To understand this a detailed definition of each type of regulation is needed.

This paper will first present the theory of occupational regulation and outline the hypotheses then investigated. Second, the methodology used to analyse the hypotheses will be outlined. Third, the results of the analysis will be presented. Lastly, a discussion of the main findings and their implications is provided.

1.1 Theory of Occupational Regulation

The aim of this section is to provide a detailed overview of the literature surrounding occupational regulation in the UK. The structure of this section is as follows: first, a definition of occupational regulation will be provided. Second, an outline of the history of regulation in the UK will be presented. Third, an international comparison of occupational regulation will be undertaken. Lastly, the key characteristics of occupational regulation will be considered.

1.1.1 Defining Occupational Regulation in the UK

Far from a blanket set of regulations which are identical in nature and stringency, occupational regulation in the UK is a complex system containing many different forms of regulation which vary in terms of legal requirements, entry requirements, coverage of jobs, protection of title and function, and cost to both society and entrants. However, from the various different regulations, four main categories can be derived: registration, accreditation, certification and licensing; each is defined below.

Registration

Occupational registration requires individuals to register their details with an appropriate regulatory body. For example, in order to become a farrier, a person who fits horseshoes, one must register name and contact details with the Farriers Association. Registration is legally enforced, for example, farriers must be registered in accordance with the Farriers Registration Act 1975. Any individual who works in a registered occupation, but does not join the register, may face penalties, including fines and even prison sentences. Other examples of registered occupations include estate agents who must register themselves with the Office of Fair Trading, and medical secretaries who must register with the British Medical Secretaries and Administrators professional body. All registers are available to the public. This allows two uses: first, the public can search for a registered practitioner in their area to employ, and secondly, if a member of the public is not satisfied with the level of

workmanship they receive, the practitioner can be traced through the register and, if needed, reported to the relevant authorities.

Registration does not demand any minimum degree of competency to be displayed and as a result there is no assessment or examining of individuals. Nor does an individual have to have a Criminal Record Background (CRB) check, pass any physical or medical checks, or meet any age requirements; anyone can join the register, and once a member of the register, membership is often for life. There is usually no cost involved in joining the register beyond minimal administration costs and time spent filing the required forms. As a result of the lack of barriers to entry, registration is regarded the least stringent of all regulation types in the UK despite being legally enforced.

Accreditation

Accreditation schemes are often advertised to potential members as a system indicating quality to consumers. For example, toymakers can become a member of the Toymakers Association, which may then indicate to consumers that the toymaker will produce a good quality of work having passed the entry requirements of the British Toymakers Guild (BTG). As a result of accreditation schemes being utilised as a measure of quality, there are often requirements for minimum levels of competency to be displayed. For instance, toymakers must submit a sample of their work to the BTG for judgment in order to join the accreditation scheme. Similarly, florists can become members of the British Florists' Association if they have gained a Diploma in Floristry (NPTC Level 4) and a Master Diploma in Floristry (Level 5). Therefore the quality of work can be examined either internally by existing members or externally through nationally set examinations. Once a member of an accreditation scheme, the membership can be for life, as is the case for florists and toymakers, or dependent on continual examination, which is the case for members of the UK Construction Group. In all cases there will be an annual subscription charge because accreditation bodies are wholly self-funded.

Accreditation schemes are not legally enforceable; they are instead voluntary schemes that individuals can choose to join. As they are not legally enforced, the

schemes are run by professional or industry bodies, which are self-funded and self-regulated. They are not monitored by an external source, such as the government. As accreditation schemes are independently run, the range of entry requirements varies hugely across different industries, occupations and bodies. However, all will have membership costs in order to continue to be self-funding entities.

Certification

As with accreditation, certification schemes are voluntary; an individual can choose not to enter the scheme and still work in their chosen profession. For example a plumber is free to decide whether or not to join the Gas Safety Register. Similarly again, large portions of certification schemes are run independently of the state and are self-funded. Also, as with most accreditation schemes, individuals usually need to display a minimum degree of competency. However, unlike accreditation schemes, certification is not just an indicator of quality to potential consumers, but can offer legal protection of title or function for its members, and will be detailed below.

Protection of title prevents any uncertified individual operating under the same title as a certified individual. For example, only accountants who pass the examinations set by the accountancy regulatory body can legally use the title *Chartered Accountant*. The same is true for Chartered Architects and Chartered Surveyors. If any uncertified individual wrongly uses the title associated with certification, then they are breaking the law and can face considerable fines and even prison sentences.

Protection of function prevents an uncertified individual from undertaking certain tasks. For example, anyone can call themselves a plumber, but only those who hold a certificate issued by the Gas Safety Register (formally CORGI) can legally assume any task relating to gas, such as fitting or mending boilers. Anyone who carries out work without holding a legally required certificate risks hefty fines and prison sentences.

As a result of the legally enforced restrictions on individuals in certified occupations, regulatory bodies charged with issuing certificates often insist certain requirements

are met. A Chartered Accountant, for example, must pass stringent Associated Chartered Accountant (ACA) exams and accumulate an adequate level of work experience before they are permitted to be known as Chartered Accountants. Similarly, plumbers must undergo training and pass exams in order to gain a gas safety certificate. It is also usual with certification that the regulatory bodies will require ongoing training and professional development for an individual to remain certified.

Beyond penalties, such as prison sentences and fines, for those wrongfully using a protected title or undertaking a protected function, there are also penalties for those who are certified but who fall short of the regulatory bodies' expectations once they have met the entry requirements. For instance, if a certified plumber places the public at danger by taking short cuts when fitting gas pipes, they will lose their certificate and face fines or a prison sentence. As a result, once within a certification scheme, individuals are monitored and must ensure a quality of service if they intend to remain certified.

Licensing

Gaining a licence is a legal requirement for any individual wishing to enter a licensed occupation. In order to legally work in a licensed occupation, individuals must meet a minimum degree of competency and overcome any other barriers to entry. The only exception is where licensing has been newly implemented and existing workers may qualify for automatic licenses under a 'grandfathering' scheme. Licensing protects both the title and the function of an occupation, such that it is illegal for any unlicensed individual to work as, or do any task conducted by, a licensed worker. If an individual is caught impersonating a licensed worker they face severe penalties which may include a prison sentence.

Licences are issued by a regulatory body which may be part of a government department, a quasi-autonomous non-governmental organisation (QUANGO) or a professional body. However, all will be inspected and audited by the state, not least because of their monopolistic properties. It is the most stringent form of occupational regulation, because both the title and function are protected, and

because of the level of monitoring of licensed workers. There are strict codes of conduct and formal grievance procedures available to the public to report unsatisfactory practitioners. Subsequently licensed practitioners can have their licence revoked if the regulatory body concludes malpractice. The findings may also escalate to legal proceedings and custodial sentences where necessary.

Examples of licensed occupations include: doctors, who must have a licence to practice from the British Medical Association (BMA), security guards, who must have a licence from the Security Industry Authority (SIA), and barristers, who must pass the bar exams and register with a chambers. It is important to note that licensing bodies may use the terminology of a ‘register’ but if applicants are required to meet any minimum levels of competency in order to join a ‘register’, licensing is the type of regulation in place.

Summary of Definition

Occupational regulation in the UK is multi-faceted but can be categorised into four groups: registration, accreditation, certification and licensing. Each category differs in terms of entry requirements, legal enforcement and penalties for misconduct. Given the complexity of the regulation system in the UK it is important to consider the history of regulation.

1.1.2 History of Occupational Regulation in the UK

Occupational regulation has been present in the UK labour market for many centuries. This type of governance, as with all others, have been evolving and changing throughout history reflecting societal, legal, industrial and global trends.

Wherever there is a trade or group of workers in a similar industry, there is often an informal association. Even if there are just social meetings or informal conversations concerning the nature of the job, informal associations tend to group workers together. Informal associations were the only form of trade associations in the UK for many centuries. However, from the 10th century, the informal occupational associations were replaced by more formal associations, namely in the form of

guilds. Guilds of the early 11th century were very much dependent on family, parish and religious connections, with no external monitoring and were very hierarchical. At the bottom were the trainees or apprenticeships, in the middle were the journeymen or wage earners and at the top were the masters who owned their own businesses. At the very top of the guild was the Grand Master. The Grand Master took an active role in allowing new members to join and in allowing existing members to graduate to the next level within the guild. Individuals were no longer guaranteed entry into an association just because of their family name or location, but rather had to meet the entry requirements of the guild.

In 1066 the Norman Conquest changed the face of the UK forever. For the following 500 years, the monarch of England was also the monarch of Normandy. The influx of French nobility and officials brought big changes to the UK labour market. French barons and lords created self-sufficient estates that employed apprentices from the surrounding area. With an increase in manors and apprenticeships a change towards upward social mobility was created. The linearity of occupations throughout generations of the same family was broken and the assumption that individuals would remain in the local community where they were raised was no longer held. This placed more importance on the requirement for individuals to be granted entrance to guilds on the quality of their work, and not their family connections. Further, one's identity became strongly associated with the trade or profession entered into and less linked to one's family or location.

In the 12th and 13th century foreign competition was greatly increasing. Already there were many French immigrants working in England but there was now more movement of workers throughout Europe. Guilds allowed an avenue of protection for their members from such competition, since membership of a guild was a recognisable hallmark of quality. Consumers preferred hiring an individual who was a member of a guild as they were assured that they would receive good work. As guilds controlled who was granted entrance into them, they could restrict entry to UK citizens as a way to combat foreign competition.

The end of the 14th century and beginning of the 15th century brought organisational changes to guilds. With the rise in power experienced due to the increase in

membership and coverage, many guilds now had the finances to build and occupy their own halls. Further, those members who resided in the higher ranks of the guilds were likely to have accumulated great personal wealth. This wealth can be witnessed in donations to the guilds made around the period, such as the Roman altar of the Goddess Diana donated to the Goldsmiths. Rich members pushed for a change in the status and perception of guilds. More precedence was placed upon formal ceremonies, livery (dress or regalia) and coats of arms. Existing members faced higher costs for the continuation of their membership. New applicants were now faced with more stringent barriers to entry, including greater displays of competency, higher application fees and at times, the requirement to have a ‘successful’ business. This shift saw the absolute end to the automatic inclusion of people within the same family or area being admitted to the guild. Membership was now judged on an individual basis. Throughout these changes, guilds were still heavily affiliated with the church and in many cases chose to operate under the official name of, for example, ‘The Worshipful Company of Vintners’ (a livery company of wine traders).

A clear divide between the levels of hierarchy of the guild was appearing (Ward 1997). Those who had accumulated wealth and resided high up in a guild, usually the employers, were in favour of the changes as they offered an air of exclusivity and increased social status. Those residing in the lower levels, usually the employees, who were not as financially fortunate, were not in favour of the changes as they were costly and did not reap proportional benefits when compared with the increased cost. Further, the financial burden reduced the potential for upward social mobility within the guild as employees could no longer save any earnings to start their own business and become Masters or Freeman (a person awarded freedom of a borough or city). In response to the changes, alternative organisations were founded by the employees. These organisations could not operate as a Worshipful Company and were commonly known as Yeoman or Fellowship Guilds. Conflict between the two was rife and as a result the first cases of industrial action occurred in a bid to suppress the Guilds/Worshipful Companies (Ogilvie 2011). Indeed, by the close of the 14th century the number of Yeoman guilds had become so great that those in authority took action to persecute the members. With so much unease and uncertainty surrounding the monarchy in the 14th and 15th centuries there was a great fear of an

uprising and revolt against the monarch and parliament from the, now collective, workforce

Under the House of Tudor (1485-1603) major changes to the regulation of occupations occurred. In 1534 Henry VIII split from the Catholic Church declaring himself as Head of the Church of England. The Catholic Church was stripped of all its treasures and any land occupied was now to be owned by the sovereign. The Guild organisations or Worshipful Companies were heavily affected by the situation (Ogilvie 2011). Their close ties with the Church led to a great deal of their own property and treasures being seized. As a result the Guilds began to lose much of their power and influence. Further, the members of the guild also lost the financial support and many of the benefits associated with joining the guild. Therefore, membership (particularly new memberships) decreased.

The Tudor period inflicted another deep blow to the guilds. Under Elizabeth I (1558-1603) the Statute of Apprenticeships was passed (Ogilvie 2011). The statute, which came into force in 1563, played a major role in regulating anyone working in trades or crafts. It became a legal requirement for everyone in employment to undertake an apprenticeship, which would last seven years. This was the first time there was a legal requirement for all occupations to meet a barrier to entry in order to undertake any job. The law was further enforced through the Poor Relief Act 1601 (Poor Law). One aim of the Poor Law was to address the problem of supporting poor children. A two-tiered apprenticeship system was put in place to ensure that skilled apprenticeships were not reserved only for those from more comfortable backgrounds. Although those from a poorer background often graduated into housekeeping, masonry or farming, the law was very effective at increasing the skill levels of the lower classes and thus increasing employment. For the first time in England a register was kept detailing all workers, their occupation and where they had completed their apprenticeship.

The change in law harmed the guilds by removing one of their last remaining uses. After they had been stripped of much of their wealth, the focus of many of the guilds had been to provide a minimum level of quality. Quality was assured through requiring a certain level of competency to be reached before an individual could

enter into a guild. However, the apprenticeships offered and required by guilds were variable in time, quality and price. The new requirements under the statute were far more stringent and thus superseded those of the guilds. This rendered the guilds surplus to requirements. Any guilds that survived the law often did so by becoming Freemasons or Oddfellows which often took the form of secret societies with limited members (Ward 1997). They became more of a social network and moved away from regulating the occupation from which they were born.

The statute stayed in place until the early 19th century and the start of the industrial revolution. At the beginning of the industrial revolution entrepreneurialism was at its peak. New technologies and power meant new industries were rapidly growing. New industries, in turn, meant new jobs with new skill requirements. Many of the industry leaders found the Statute of Apprenticeships was outdated and hindered progression. The main argument was that the statute was not written for the new occupations. Lengthy apprenticeships were not needed for many of the new jobs. Jobs were changing; technology meant that often less skill and knowledge was needed to work in existing occupations. As a result of this resistance, in 1814 the legal requirement for a blanket 7-year apprenticeship was abolished.

After the statute was overturned, there was a significant reduction in licensing. It was those which had potential to harm the public that remained licensed, for example, doctors. As a result of the licensing reduction, professional bodies such as guilds regained significance, as they were no longer overshadowed by licensing. Professional bodies began establishing themselves, such as the Accounting Association, which certified or accredited individuals. This meant that in the UK a diverse range of occupational regulations were beginning to evolve. Some century-old guilds had a renewed purpose and some new professional bodies were established, all of which added to the complex network of regulation in the labour market. As a result of such complexity there were many ways in which an occupation could become regulated.

1.1.3 Process of Regulation

From the history of regulation presented above it is clear that regulation can take many different forms. No occupation is created with regulation. There must be a process through which the occupation becomes regulated. As previously discussed, there are four different types of regulation currently in the UK. Further, there are hundreds of different occupations. Therefore, there is not one single route to becoming regulated. Some regulations, for example the Medical Act 1983, are in place explicitly to protect the public. Others are in place to enhance professionalism, such as the Chartered Institute of Textile Process Operatives. Whatever the rationale for regulation, there was possibly a petition by a group of individuals to make it happen. If so, this group of individuals could be practitioners, members of the public or members of parliament or councils.

As there are so many different regulations it would be impossible to outline the process of becoming regulated for all of them. Below are three examples of the history of regulation in arguably well-recognised occupations.

Chartered Accountants

The first society of accountants in the UK was based in Scotland and formed around 1853 (Brown 1905). The group was formed in anticipation of a change in the law, necessitating lawyers to undertake much of the accountancy law associated with bankruptcy (Parker 1986). The group of accountants believed they needed to enhance their professionalism in order to adapt to the environmental and organisational changes that had been caused by the industrial revolution (Stewart 1986). The group was therefore created in order to protect their economic self-interest (Lee 1995). However, to gain professional recognition, they needed to be granted a Royal Charter.

To become a chartered society, the group had to petition Queen Victoria. Their primary argument was that it was necessary to have a Chartered Accountancy group in order to protect the public (Lee 1995) and stated that it was very much in the public interest to regulate accountants so as to ensure that only those with the correct

qualifications could join. This would prevent the uninformed public from poor actuarial and accountancy work. On the grounds of this petition, a Royal Charter was granted and the control entry to the profession fell to the Institute of Chartered Accountants (Lee 1995).

As a result of the Charter, Brown (1905) reported that Chartered Accountants increased demand for their service, and public confidence in the profession increased. Similar trends followed in the rest of the UK. To begin with there were five or six different institutes in the UK but to reduce competition and create a uniform level of competency, many of the smaller bodies merged (Howlitt 1966).

Today, in order to become a Chartered Accountant, individuals need to display a minimum degree of competency. This involves sitting and passing a series of examinations set by one of the following institutions:

- Institute of Chartered Accountants in England and Wales
- Institute of Chartered Accountants in Ireland
- Institute of Chartered Accountants in Scotland
- Association of Chartered Accountants
- Chartered Institute of Management Accountants
- Chartered Institute of Public Finance and Accountancy

Once an individual has passed the exams and accumulated adequate work experience they receive a practicing certificate. The certificate is subject to on-going related training and proven knowledge of changing accounting standards.

The process of regulation here began with a group of individuals concerned for their own interests but it was only through that it was in the public's interest for accountants to become regulation that legal recognition was received.

Doctors

The Medical Act 1858 resulted in the creation of the General Medical Council (GMC). The aim was to register all appropriately qualified doctors. The process of

regulation was two sided: on one side were the doctors and on the other the government.

In the early 1800s there was an oversupply of healers (Stacy 1992), and not all had undergone training. Yet there was an increase in allopathic practitioners (proponents of alternative medicine) who were undertaking years of education and training in order to gain a qualification from a university (Stacy 1992). These allopath practitioners resented other healers who had not trained, so formed a group to try and gain professional recognition (Irvine 2006). The group of doctors wanted to protect their economic investment of spending years in training through professionalisation. However, there was little mention of public interest (Stacy 1992). In 1858 the government passed legislation that allowed the group of doctors, now the GMC, to hold and maintain a register of all appropriately qualified doctors. The register was a clear indicator to the public of the doctors' knowledge and training, and as a result, increased their professional status.

The Act stayed in place unchanged until the 20th century and the Government who had created the National Health Service (NHS) in 1948 realised that the service had to be streamlined in order to meet the growing demands of the public. There was awareness of a lack of public confidence in state control of healthcare (Rivett 1998). As a result the government placed the GMC in control (Rivett 1998). The GMC, in return, received autonomy over the running and regulation of doctors (Irwin and Richardson 2006). The GMC were not regarded as particularly focused upon public interest and were more concerned with protecting their members (Pyke-Lee 1958). As a result, demand for unregistered doctors began to increase (Shaw 1957). The 1950 Act did, however, enforce the need for good care and resulted in the GMC restricting entry to only those who had a postgraduate level qualification (GMC 1967). Indeed, 'good medical practice' is the basis for registration and licence to practice (GMC 2006).

The process of regulation in this case began with a group of individuals petitioning out of a vested interest, but then led to State involvement to ensure public safety.

Hackney Carriage Drivers

The term Hackney Carriage is derived from ‘haquenee’, which is a horse. It was originally used to describe the horse drawn carriages present in London. Hackney carriages, and their drivers, have been regulated in London since around 1635 (Toner 1992). The carriages were first regulated in London and Westminster by the government in order to reduce congestion in the streets. The emphasis was on public and consumer safety (Gallick and Sisk 1987). In 1869, in response to the Metropolitan Public Carriage Act 1869, the Metropolitan Police became the enforcing body of hackney carriages. The limitations on the number of carriages were lifted and a licence issued to any driver with an appropriate degree of competency and an appropriate vehicle (Toner 1992).

The Transport for London Act 1985 extended the scope of regulation concerning hackney carriages in London. The regulation now covers the appearance of the driver and carriage, fares and how they are displayed, the size of the vehicle and the installation of taxi ranks (Beesley 1973). Today, Hackney Carriage is the technical term for motorised black cabs in London; indeed the last horse drawn carriage whose driver applied for a licence was in 1946. There have been many adaptations to the regulations over time: in 1938 the regulation required the drivers, not just the cabs, to carry a licence and the Criminal Justice and Public Order Act 1994 was passed requiring all cab drivers to have a CRB check. Adaptations of the regulations have largely been State-led in response to wider regulation changes, such as the implementation of driving licences or the wide use of CRB checks in the service sector.

The government, in response to a concern for the public relating to congestion related accidents and the vulnerability of passengers, led the regulation of Hackney Carriages (Hackney Carriage Act 1635). The restrictions on entry reduced levels of competition but initially the regulation of cabs was not for the drivers’ economic gains.

The UK process of regulation is complex, but it is not the only country to have occupational regulation. In order to conduct a valid investigation into regulation in

the UK, there must be a justifiable reason as to why research conducted in other countries cannot be extrapolated to the UK. Therefore, it is necessary to compare the UK with other countries where regulation is present. Due to the quantity of research conducted on regulation in the US, the first comparison will be concerned with the similarities and differences between the US and UK regulatory systems. Following, a sample of other European countries will be considered, namely: France, the Netherlands and Poland, chosen for their diverse political and cultural differences.

1.1.4 International Comparison

United States

As discussed, occupational regulation has a long history in the UK. Yet regulation is also present in many other countries. One example is the United States. In the US individuals can be licensed, certified or registered (Kleiner 2000). Registration, as in the UK, requires an individual to join a register that records their contact information with a government agency before they begin working. Certified occupations are open to all individuals but some tasks are restricted to those that hold the relevant certificate, which very much the same as the UK certification process. Licenses restrict the right to practice to only those who hold a licence. Licensing, certification and registration as defined in the US map accurately to the UK licensing, certification and registration systems. However, accreditation does not feature in the current estimates of regulation in the US.

Brinegar and Schmitt (1992) estimated that by the 1990s more than 1,100 occupations would be licensed, certified or registered in the US. Indeed, according to the Department of Labour and the 2000 Census, by 2000 at 29% of the work force was indeed licensed (Kleiner 2006). Clearly regulation is very prevalent in the US, especially in the form of licensing. However, there are still limitations to the accuracy of measuring the prevalence of all types of regulation. There are no specific investigations into registration or certification by the Census or the Department of Labor (Forth *et al.* 2011). This implies that far more than 20% of the workforce is covered by occupational regulation. Further, as occupations have changed and grown

since the 1990s, Brinegar and Shmitt's estimates should be approached with caution. For example, the service and financial sectors have increased, many of which are regulated. As a result, although there have been investigations into regulation in the US, there are still measurement issues, just as there are in the UK.

Despite the similarities between the regulatory systems, there are some fundamental differences between the regulation systems of the US and the UK. In the US, occupational regulation can be controlled at the city, state or national level. This has resulted in some occupations being regulated in one state but not another. One example is the embalming laws, which vary from state to state. In many circumstances regulations may be recognised at the national level but are controlled and enforced at the state level, or at the city level; cab drivers, for example. This results in only licensed individuals being able to operate in the state, or city that issued the licence. It also means that if an individual loses their licence, as a result of malpractice for instance, they could move to a different state or city and gain another licence. This is in contrast to the UK where laws are set and enforced at the national level, ensuring that it is very difficult for an individual to 'dodge' being stripped of a licence, certificate or accreditation, or being removed from a register.

The way in which occupations become regulated is also different in the US. In the US regulation is predominantly industry-led (Kleiner 2006). In order to become regulated, individuals form a professional body petition the government to gain legal recognition. The success is heavily dependent on the financial resources of a professional association and the number of members they have (Kleiner and Krueger 2008). The more money an association and its members have, the more influence they have in the market, leading to a greater chance of regulation (Wheelan 1998). As successful regulation is dependent on the ability of professional associations to lobby the government, this suggests that the main motive of regulation relates to individuals having a vested interest in becoming regulated and not necessarily in protecting the public. This premise stands to reason given that licensing is reported to result in an estimated 15% wage premium (Kleiner and Krueger 2011). Once individuals are regulated they can expect to continue to benefit from the positive effects of regulation as it is very rare that occupations become deregulated in the US

(Kleiner 2000), but this has never happened in the UK. In addition, once an occupation is regulated, members often take an active role in restricting supply through lowering pass rates and restricting the amount of new members, increasing membership fees or increasing the syllabus (Kleiner and Kruegar 2011).

One of the key theoretical arguments for regulation is the ability of regulation to protect the public from poor practitioners (see page 40). In the UK many of the practitioners that could harm the public are present in the public sector, most notably in the NHS. The NHS is a service that is funded by the public through tax and entitles the public to ‘free’ healthcare at the point of delivery. In the US, as in the UK, many occupations that can harm the public are in the healthcare sector. However, in the US, healthcare is not a publically run and funded entity. This has meant that when occupations have become regulated, prices have inflated in response to increased human capital with regard to the practitioners. This increase is passed directly onto the consumer. As a result there are numerous anecdotes about regulation actively increasing harm to the public, especially in the healthcare sector. For example, Rodemacher (1997) gives examples of patients trying to give themselves root canals instead of paying an expensive dentist. This is in stark contrast to the effects such regulation would have in the UK public healthcare sector. As a result one would assume that there might be more regulation in the UK because there could possibly be proportionately fewer negative effects on the public compared with the US.

There are clear similarities in the regulation systems of the two countries; both have licensing, certification and registration present in the labour market, both have measurement issues surrounding the prevalence of regulation and both systems strive to respond to changes in the demands of occupations. However, there are also fundamental differences. In the US there is conflict between regulating occupations to protect the public and the potential harm caused by increasing the cost of healthcare. Further, in the US regulation is commonly led by professional associations petitioning the government rather than in response to public concern.

Additionally, regulation in the US, even if set at the state level, is often enforced and controlled at state or city level resulting in differences across the country. As a result

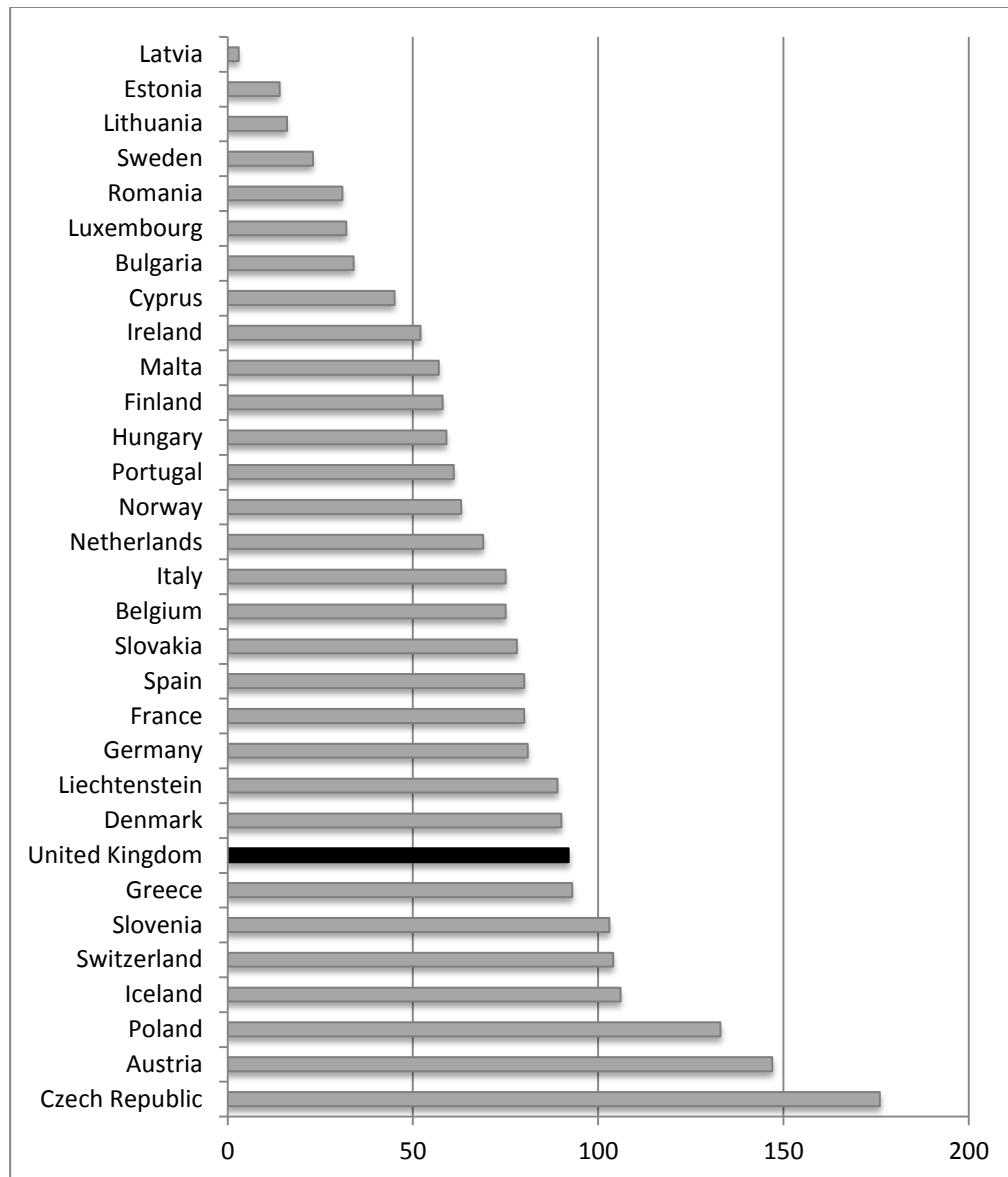
of these differences, and the lack of research into accreditation in the US, it would be unreliable to extrapolate the US research and relate this to the UK.

European Comparison

Many occupations are also regulated across Europe. Similar to the UK there is a shared history of guilds and apprenticeships in many European countries. In response to the single market created by the European Union (EU), there is free movement of professionals across the EU. This means that a doctor in France can move to Germany and continue to work as a doctor. However, different occupations are regulated in different countries, with different entry requirements and restrictions. As a result it is very difficult to compare occupational regulation across the EU.

The EU commission has created a database of regulated professions within the EU member countries. Although this is meant to give professionals an indication of any top-up qualifications needed if they move countries, the list is provisional. The professions are grouped together under generic terms, and as such some specific regulations relating to specific tasks may be lost. Also, some professions are not included on the list. For example, military officials are not included but are regulated in the UK. As a result, the list of licensed occupations in the UK within the database underestimates the amount of licensed occupations. The database also neglects to include any information or other forms of regulation. Yet despite the problems with the dataset the results as presented below in figure 1.1, do highlight the variance across the EU with regard to the number of licensed professions in each country.

Figure 1-1: Number of Restricted Occupations Per EU Country



Source: EU Commission Regulated Professions Database

As shown in figure 1.1 the three most regulated countries, according to this database, are Poland, Austria and the Czech Republic. According to the EU database, the UK has a similar number of regulated occupations as Germany, Lichtenstein, Denmark and Greece. As discussed, the database is provisional and is by no means a detailed account of occupational regulation in each country. As regulation varies across countries, three EU countries are considered in greater detail to highlight the role institutional characteristics play in regulation systems. The countries considered are: France, Poland and the Netherlands.

France

The traditional liberated professions in France are occupations that are restricted to individuals meeting given requirements, similar to the licensing schemes in the UK. The schemes are predominantly run and controlled by professional bodies (Lacroix 2013), unlike in the UK where licensing is heavily associated with government enforcement and involvement. In addition, the process of legally enforced regulation policies implemented in the late 1990s focused on the development and promotion of trade and craft (Lacroix 2013), which is similar to that of accreditation schemes in the UK. Unfortunately there is no appropriate data in France to accurately estimate the number of regulated individuals either with regard to licensing schemes or accreditation schemes. However, given the historical ties between the two countries, arguably France is one of the closest comparator countries to the UK especially given the broader spectrum of regulatory devices present.

Netherlands

As in the UK, the Netherlands have regulated some occupations so that the title and tasks associated with the occupation are closed to anyone who has not attained the necessary entry requirements. This directly maps to the definition of licensing used throughout this research. In the Netherlands 122 occupations are regulated in this way (Baarn 2013). Regulation can require individuals to follow a strict code of practice, such as is the case of lawyers and doctors. A commitment to lifelong learning may also be required, similar to German regulations; an example of such occupations includes financial professionals.

The Netherlands has a general principle of not regulating occupations unless there is a clear public interest, or there is a market failure that can be solved by regulation (Baarn 2013). Such is the focus on non-regulation that during the OECD's Regulatory Reform Programme (1999-2004) many regulations reduced the restrictions placed on regulated individuals. The aim was to increase competition and reduce potential transparency issues (Baarn 2013), for instance, estate agents who, after the reform, no longer had their tariffs regulated. The Dutch system differs dramatically from the UK in its attempt to encourage a free market. Unlike the UK,

occupations are either licensed or not and the form licensing varies from sector to sector to meet the specific needs. Whilst there is data available, the Dutch system is so different from the UK that it is difficult to anticipate any parallel effects, and yet arguably the biggest difference is the willingness of the Dutch government to deregulate - something that has not occurred in the UK for at least 30 years.

Poland

Poland is a former communist country and as such has a very different historical context to that of the UK. In communist countries, state intervention features in every aspect of the country including the regulation of occupations and professionals (Buchner-Jeziorska and Evetts 1997). As such, the regulation of professionals in Poland has traditionally been enforced and managed solely by the State. However, since the move to a market economy, some professions are now regulated by professional bodies similar to those found in the UK (Buchner-Jeziorska and Evetts 1997). Examples include lawyers, doctors and engineers. However, state intervention remains much higher than in the UK. At present over 350 professions in Poland restrict entry to individuals who have met some barrier to entry (Rojek 2013). However, the high portion of regulated professions has caused concern for the Polish government and deregulation of a further 71 professions is planned (Rojek 2013). Further, many of the remaining regulated occupations will have the barriers to entry reduced in order to encourage new incumbents. This may have been in response to the Public Opinion Research Centre (CBOS), which indicated that 29% of those questioned reported there was limited access to regulated professions. The regulation system in Poland is two-tiered, consisting only of licensed occupations and unlicensed occupations which is very different to the multi-level regulation system in the UK.

Summary

Attempts have been made to construct a database of all regulated occupations across the EU, but many licensed occupations are missing from the database and as a result the figures are grossly underestimating the prevalence of regulation across the EU. Further, through considering regulation systems in other EU countries, it is clear that

the systems of regulation are heavily dependent on the historical context and the focus of the government in each country. For example the ex-communist hold on Poland has shaped the regulation system into a government-led and controlled system where the number of occupations covered is far greater than other non-communist countries such as the UK or the Netherlands. Similarly, the Dutch focus on free markets has led to deregulation and a reduction in entry requirements, in stark contrast to the French or UK approach to maintaining regulation. As a result of these contextual and historical influences on a country's regulation systems, it is difficult to assume that the prevalence and effects of occupational regulation will be the same between two countries. If that were the case it would be necessary to consider each country independently. Further, the data for other EU countries is no more comprehensive with regard to regulation, and in some cases less detailed, such as in France. Therefore, the UK case is an appropriate starting place since although there are issues with the data, they are no worse than in other EU countries.

As shown above, each country has a unique approach to regulating occupations. Different approaches can be the result of historical trends, government ideals or attitudes towards professionalism. Whatever the reason for the differences, because they exist it would be too simplistic to extrapolate the findings of one country to another. Consequently, it is necessary to consider the UK as a separate institutional network instead of an extension of EU or US models. Therefore it is imperative to outline the characteristics of occupational regulation with reference to the UK setting.

1.1.5 Characteristics of Occupational Regulation

Although occupational regulation is complex and varied, there are some general characteristics that apply to all regulations: the barriers to entry they have in place, and the rationale for the implementation of the regulation. Each is discussed in turn.

Barriers to Entry

As discussed, accreditation, certification and licensing all have entry requirements. Barriers to entry will comprise one or more of the following: minimum competency levels, age requirements and/or numerical limitations.

Minimum Levels of Competency

Some regulations may require applicants to display a minimum degree of competency in order to be accepted. Competency is needed in order to ensure a good standard of work within the regulated portion of the occupation. However, the minimum levels of competency are not standardised across all occupations; there are huge variations between the requirements set by different regulatory bodies. Some of the different competency requirements are outlined below.

Academic qualifications may be required to meet the obligatory barriers to entry. Doctors, for example, are required to attain a degree level qualification before they are permitted to treat patients. Academic qualifications signal that individuals can commit and focus on the subject matter. Literacy and numeracy levels are tested to ensure minimum levels of communicative skills are present. Additionally, if a degree is required, this level of qualification in particular shows that individuals are capable of self-learning, research and logical thought. All of these attributes can be transferred to the work place and may act as a good indicator of the quality of work that can be produced by the applicant. Traditional academic qualifications are not the only qualifications that may be required. National Vocational Qualifications (NVQs) may be required by regulatory bodies instead of a degree. For example, some care home workers are required to hold an NVQ level 3 in a related course. NVQs test the knowledge of individuals in specific subjects and topics but are more practically based than traditional academic qualifications. NVQs involve written tests, so literacy skills are still established but the content of the course centres on real-life situations as opposed to theory.

Some regulatory bodies require individuals to attend and complete training programmes. The content of the training schemes is solely focused on the occupation

and the skills needed to carry out tasks safely and competently. The compulsory training schemes may or may not require individuals to pass a test or exam on the content of a programme. An example of a compulsory training scheme is a course implemented by the Security Industry Authority (SIA), which regulates security guards in England and Wales. The scheme requires applicants to attend a three-day training programme in which they are trained in the basic skills needed in order to become a security guard. These skills include role-play where applicants are faced with situations they may have to deal with in practice, for example a drunk and aggressive person. They are also trained in health and safety. The programme culminates in a test, which is part multiple choice and part written, to test if applicants have understood and remembered the key points from the training. The test also means that literacy levels must be of a standard whereby written questions are understood and the answers are coherent.

A period of work experience can also be part of the regulatory body's criteria for applicants. Work experience will usually only feature as part of the qualifying characteristic, otherwise individuals would be working unregulated or untested. For example, Chartered Accountants must pass the ACA exams but also accumulate a number of days work experience to prove they can apply their formally acquired theoretical knowledge. The aim of insisting on work experience is to ensure that individuals are competent and capable of dealing with the public and doing the job.

Regulatory bodies can also require a CRB check to reveal an individual's criminal past, including any convictions and cautions given by the police. The rationale for a CRB check is to prevent the public being harmed by criminal practitioners. As such, CRB checks are particularly prominent in regulated occupations that have direct contact with vulnerable groups of society. For example, care home workers, child minders and doctors are all subject to CRB checks. They are also present in occupations where criminality is perceived as being high, such as in the security sector. The aim of requiring CRB checks here is to improve the reputation and public perception of the occupation.

The barriers to entry, relating to testing for a minimum level of competency, put in place as a result of occupational regulation can, therefore, take many different forms

and comprise many different bundles of requirements. The reason for the differences is that each occupation needs a different set of skills and competencies to be carried out to a good standard. A doctor's work is completely different from that of a plumber so it stands to reason that each needs to fulfill different requirements in order to become regulated. As the requirements are set to allow only those who are competent becoming regulated, the requirements should, in theory, be good predictors of the quality of work produced once in the occupation.

Age Restrictions

Age restrictions can be put in place. For example, forklift truck drivers must be 18 in order to gain their licence, lifeguards must be at least 16 and publicans must at least 18 years of age. The reason why age restrictions are in place is often because the work involved requires a degree of strength, life experience or knowledge to be done to a safe standard and to reassure the public that they are in safe hands. For instance it is likely that a 16 year old will be perceived as being more competent than a 13 year old in relation to working as a lifeguard. However, there are far more restrictions which may be utilised beyond human characteristics.

Numerical Limitations

Regulatory bodies can choose to limit the number of licenses, certificates or accreditations they give. This prevents the market being flooded by regulated practitioners and ensures an element of exclusivity. Some numerical limitations are explicit, for example, the number of hackney carriages used to be limited in London to prevent overcrowding and traffic on the roads. However, such limitations have not been in place since 1938; indeed numerical limitations are not currently present in the UK occupational regulation system. Yet the number of individuals that are regulated can be controlled through adjusting the pass marks, and thus the number of people entering the occupation following the required exams and tests. One example is that of barristers, who must pass the bar exams to practice. In the US the number of barristers is shown to be controlled by the difficulty of the bar exams, but further, the difficulty of passing is set in accordance with the demand for barristers at any given time (Pagliero 2007).

Barriers to entry, therefore, take three main forms: competency levels, age restrictions and numerical restrictions. All barriers to entry require monitoring, a level of bureaucracy and a cost to the individual and the regulatory body. Due to the costs and the time and effort involved in occupational regulation, one would expect a clear rationale behind petitioning for regulation.

Rationale for Occupational Regulation

Occupational regulation involves a considerable amount of organising, time and bureaucracy. Given the amount of work that is required in implementing regulations there must be a strong rationale for occupational regulation in the UK. Given the huge variety of regulations in the UK, there will be hundreds of different reasons as to why regulation of a given occupation is deemed necessary. However, all of these reasons can be grouped together into two distinct areas: public interest and vested interest.

Public Interest

In order for anything to be in the public interest it must have an overall positive impact on the general public. For occupational regulation to be in the public's interest, the implementation of the regulation must aid society in some way. Moore (1961) argues that occupational regulation can be said to be implemented in the interest of the public if the following is true in relation to the given occupation: 'lack of information', 'society knows best' and 'social costs exceed private costs'.

Lack of information, or an asymmetry of knowledge, occurs when the consumer has a limited capability to assess the quality of a service they wish to purchase. For instance, only a qualified dentist can adequately assess the work of another dentist; a lay member of the public is unlikely to be capable of such an assessment. Indeed, Mitchell (1937) states that consumers are simply not equipped to make 'wise' decisions concerning complicated services. As a result, a market containing an asymmetry of knowledge will result in a two-tiered quality market, one tier consisting of high quality, high charging practitioners, the second tier consisting of low quality, low charging practitioners.

According to Gresham's law, having a two-tiered quality system will leave the market flooded with undesirable practitioners. He uses the example of coins. When coins were first produced they all had the same metal content. Over time coins began to contain fewer of the expensive elements. When this began to happen there was a reduction in the number of older coins, containing the more expensive metal content, in the market. This is because each coin had the same 'value' to the consumer in terms of what they could buy and exchange for the coin, but they had a different 'value' in terms of their worth when melted down. Therefore, those who had knowledge relating to the metal composition of coins would retain the coins with a higher metal composition and only exchange those coins with a less valuable composition. For those without this knowledge, they continued exchanging good quality coins for poor quality coins without realising. As a result only poor quality coins would remain in the market as the others were reserved for those aware of their value. In the same vein, consumers who are not aware of the quality of a service will only consider the value of a service by its price. The cheaper practitioners are likely to be those of poorer quality and so these consumers will create a market flooded with poor practitioners. Indeed there is a disincentive for practitioners with 'good' services to sell their wares. This is because consumers actively seek low costs, so in order to attract consumers they must lower their rates and as a result will not be paid their true worth (Akerlof 1970). This is highlighted in Akerlof's example of second hand cars. In this market there are two tiers: one where good quality second hand cars are sold for a higher price and another where poor quality cars, or 'lemons', are sold cheaply. The consumer is often incapable of recognising a lemon and as such is only attracted by price. This results in only the cheaper cars being bought and forcing good dealers out of the market as they can no longer make a profit from their cars. This means that the market was flooded with lemons (if there were enough lemons), which is not in the public interest as they are more likely to be unsafe.

Leland's economic model supports this theory, stating that in markets where there is an asymmetry of knowledge, the equilibrium will be sub-optimal. This is because the wages of poor practitioners will be set artificially high and good practitioners will be forced out of the market causing unemployment. Wages are deemed to be set artificially high, as the increase has not purely been the result of natural changes in

the supply and demand of the labour market. It is not a natural result, but rather a result of poor practitioners undercutting (but still charging more than their worth). He suggests that occupational regulation, predominantly licensing, would ensure that minimum levels are set at the optimal level which meet society's desired level of quality (Leland 1979), provided that the barriers to entry are set correctly (which of course is a very big 'if' given the array of entrance barriers which can be utilised by regulatory bodies).

If regulation is to solve the asymmetry of knowledge between individuals and practitioners it must be the case that 'society knows best' (Moore 1961). If this is not the case then there is no benefit from the collective implementing standards as society has no superior knowledge over that of the individual. Any standards enforced by an ill-informed collective result in the same predicament; individual asymmetry of knowledge. Indeed, the results maybe more detrimental as individuals may cease to conduct their own research due to being blinded by the safety net of regulation. However, proponents of societal decisions such as Clark (1936) state that the collective is always better placed to make decisions than any one individual. Moore (1961) goes as far to state that even when an individual has perfect knowledge of a situation s/he will still not be as capable of making the correct decision as society would be. Individuals often evaluate services in terms of their previous personal experiences, which are too limited and specific to be generalised and accurate. Indeed, individuals often assess services too positively; where this is true they will be purchasing a service that is worth less than they are paying for it. This is certain to create a sub-optimal equilibrium and as a result be detrimental to society as a whole.

The potential harm of poor quality services is detrimental not only to the client but also to society as a whole. Consider the example of a dentist; if an individual receives poor treatment from a practitioner they may have to seek care from the NHS, creating an expense for society as well as themselves. A doctor who does not diagnose a case properly may cause someone to miss more work than they would have done with a proper diagnosis and appropriate medicine. As a result the greater societal costs may come from benefits such as sick pay and being paid out. A bad

accountant (in terms of societal cost) may not calculate tax accurately and cause a cost to society by reducing the amount of tax being paid. In occupations where the cost to society is greater than the collective private cost of meeting the minimum barriers to entry enforced by occupational regulations, and the cost of monitoring and issuance for the regulator bodies, it is beneficial to society to have occupational regulations in place, as they will prevent a net loss to society (Moore 1961).

Proponents of occupational regulation comply with Moore's assessment. Shapiro (1986) suggests that regulation will certainly increase quality (see paper three) and will further benefit society as the marginal cost for increased quality is decreasing, meaning, the cost of regulating each individual decreases with every new applicant. Therefore, it is advantageous to attract as many applicants as possible. Additionally, the successful applicants will incur post-entry costs, so it is even more cost-effective to accept candidates.

However, opponents to occupational regulation would argue that there is in fact no benefit to the public from such regulation. Whilst the focus of this chapter is not to analyse the effect regulation has on quality for regulation (see paper three), to benefit the public there should be an increase in the overall quality levels of the occupation regulated otherwise the public is still exposed to the poor quality services that they will not be able to identify due to their lack of knowledge. On the other hand, Kleiner and Kruger (1992) find no increase in quality relating to an increase in the stringency of the regulation of dentists in the US. Even where an increase in quality is found the increase in price associated with regulation (Shepard 1978, Kleiner & Kudrle 1992, Benham 1972, Benham & Benham 1975 and Ekeland, Heckman and Nesheim 2002) results in members of the public who want and/or need low-cost services being unable to purchase them anymore (Shapiro 1986). This may lead to an increase in do-it-yourself services that increase the likelihood of consumers injuring themselves as they may be even less equipped than a 'poor' practitioner.

Gellhorn (1976) furthers the argument by stating that the barriers to entry regulations are not always correlated with the quality measures of the service to which they relate. Indeed Carroll and Gaston (1981) find that although the quality of the worker may improve, this does not necessarily lead to an increase in the quality of output.

Further, some of the common hurdles to regulation may result in an over-investment in human capital, which may lead to a waste of resources. Often workers will undertake activities that are very much below their credentials (Dorsey 1980). Therefore, not only are regulations costing money, but they also result in a loss of opportunities.

Summary Public Interest

The theories and evidence presented suggest that there may be no clear link between occupational regulation and public interest. However, not all of the evidence disputes that the aim of implementing regulation may have been in the public interest. The evidence merely comments on its ability, once implemented, to benefit the public. However, with this sentiment in mind one cannot state that all occupations that are regulated are done so with the aim of bettering the public. A doctor can cause actual bodily harm if s/he practices illegally posing a real threat to the public. The same is not true of horners (an individual who makes, for example, miniature tea sets out of horn) for example, yet both are regulated.

In those occupations which are regulated but where there is not a direct obvious link to public safety, the reason for regulation must emanate from a vested interest.

Vested Interest

Having a vested interest means that an individual or group believes an action may have a direct positive impact on them. Friedman (1962) asserts that occupational regulation systems are almost always run in response to the self-interest of incumbents and gatekeepers, and not for public safety or benefit. This can be seen from the high costs relating to regulation, the potential deadweight losses and the dubious evidence surrounding quality and regulation. There is self-interest in becoming regulated because occupational regulation has potentially large benefits, namely increased wages and reduced competition. These benefits arise from three main sources: monopolistic power, increasing the professionalism of the occupation and increasing demand for the service.

Monopolistic Power

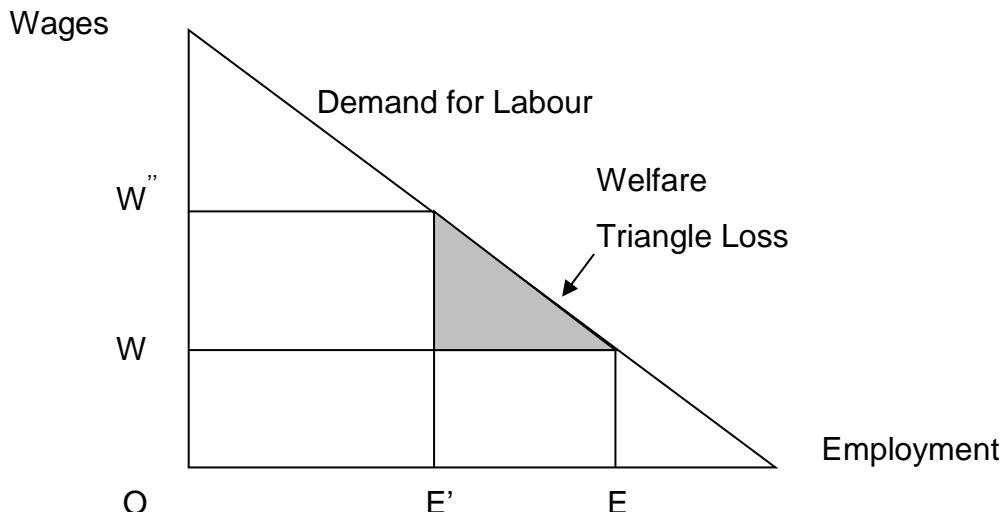
Monopolistic power comes from the ability to control the supply side of the labour market through creating barriers to entry, controlling how many people can enter an occupation. These barriers to entry come in three forms: cost, age limitations and numerical limitations, discussed above.

There are many studies surrounding the extent to which regulation, particularly licensing, can limit entry into an occupation, most of which find a very strong correlation between the presence and severity of the regulation, and restrictions on supply (Thornton & Weintraub 1979, Holen 1965 and Kleiner & Kruger 1992). Due to the ability of regulation to restrict supply, existing workers face potential financial benefits in that restricting supply has been found to correlate with increased earnings (Kleiner & Kruger 1992, Maurizi 1974 and Perloff 1980).

As a result of the restricted supply, existing workers face less competition from new entrants and consumers have no choice but to buy the services available to them. These financial benefits are marginally decreasing over time as each new wave of entrants face higher entry costs. This is the polar opposite from the public interest situation – where costs are marginally reducing with each new entrant so more applicants and passes are required to reap the benefits of regulation.

Gellhorn (1976) notes that increases in wages results, purely from the restriction of supply, are unlikely to be from an increase in quality. The high prices created are therefore caused purely through artificially restricting supply. Any artificial forces in the labour market prevent an optimal result being found because changes are not the result of market demand or a change in quality. One of the results of artificial wage rises is a deadweight loss to society. Employment will reduce causing higher wages but (at least in the short term) demand will remain comparatively unchanged. This is depicted in figure 1.2 where a deadweight loss triangle is formed.

Figure 1-2: Deadweight loss of restricting supply



Source: Kleiner (2006)

Whenever a deadweight loss is present, the optimal level of employment and consumer satisfaction cannot be met. This is because there are resources (shaded grey), which are left unused; the only outcome possible is sub-optimal.

For those in the occupation, the gains can be exponential as long as the demand for their service is not price sensitive. Price sensitivity affects the demand side of the labour market. If a service is very price sensitive, when there are higher wages and therefore higher rents are charged, consumers will no longer pay for the service. Price sensitivity is affected by how easily a service can be substituted and how necessary a service is to the consumers as a whole. Where demand is not price sensitive the practitioners can increase their rents and, in general, consumers have no choice but to pay. This situation cannot be said to be in the interest of the public, as some will have to make sacrifices to afford the service or forgo the service all together, which may be harmful for them. For example if dentists increase their prices by 50% even though the service is a necessity, some consumers have no choice but to forgo dental treatment. Not going to the dentist is harmful to them as they may be in pain or their toothache may develop into something more sinister. As a result the artificial effects regulation causes in terms of higher prices is almost certainly detrimental to at least a portion of the public.

Professionalism

Regulation also has the ability to increase the professionalism of an occupation. Abbott (1981) states that, generally, professionals need to sharpen the boundaries and portray a professional charisma to the public in order to continue being perceived as professionals. Regulation has the ability to aid this by acting as an indicator of professionalism to the public in the form of physical evidence such as certificates or licenses and also because of the legality around monitoring and regulating. Further, occupational regulation limits entry through setting barriers to entry. The exclusion of non-professionals, according to Abbott, is the way in which professionals analyse professionalism – barriers to entry realise this exclusion.

Professionalism can be analysed with more detailed measures. The perception of professionalism falls into two fields: peer perception and public perception. Peer perception or intra-professional recognition has four sources: income, client status, substantive difficulty and power (Abbott 1981). Income is often regarded as a good indicator of professionalism (Stevens 1966, Carlin 1962). The more someone earns, the more likely a fellow worker is to regard the person as professional. Client status describes the correlation between the consumers' professional status and the practitioners' (Reader 1966). The difficulty of the task is also a source of professional indicators. The more complex and difficult an occupation is, the more likely it is to be interpreted as professional. Lastly the power an individual has over their tasks and their occupation conveys a sense of professionalism (Auerbach 1976).

Occupational regulation can therefore raise professional perceptions on three levels. First, as discussed, regulation is positively associated with increased prices appealing to the relationship between perceived income and professionalism. Secondly, regulation can create a barrier to entry through requiring extensive training or examinations, suggesting that not everyone is competent enough to undertake the occupation, and this appeals to the perception of professionalism. Lastly, regulation can instil a sense of power, as existing professions can exercise their monopolistic power.

Public perception of professionalism or extra-professional perception is drawn from three sources: income, power and education (Abbott 1981). The explanation of the link between income and perceptions of professionalism is identical to that of intra-professional perceptions. Power and education in this case are heavily linked. The public is more likely to perceive an individual as a professional if they have had to spend time in further education or specific education relating to their occupation (Larson 1977). Power is then derived by applying this knowledge and training to an occupation, which a lay member of the public would not be able to do (Shils 1965).

Occupational regulation correlates with extra-professional perceptions by forcing an individual to undertake training or education and by removing the possibility that a member of the public will be perceived as being able to conduct a task as well as a regulated worker. Hence, the education and power perceptions of that occupation are increased.

Demand

Occupational regulation may also increase demand for a service. The rationale for regulation increasing demand is two-fold. First, regulation suggests a reassurance of quality. As a result, consumers may be willing to buy services that they may not have previously. Secondly, increasing the professionalism of an occupation increases its public presence and its appeal. Again, consumers may begin to be attracted to services that they were unaware of until they were regulated. Whilst the theory may offer a sound logical relationship, the evidence linking regulation to an increase in demand is mixed. White (1978) and Gallick & Sisk (1987) find support for this notion, particularly in the latter study concerning taxi services. However, Benham & Benham (1975) and Adams, Jackman & Ekeland (2002) find that there is in actual fact a decrease in demand which fits with Shapiro's (1986) theory that regulation will prevent some consumers from being able to access services once prices increase.

Despite the evidence being mixed, the main aim of workers is to advance their position either financially and/or socially. As such, with theories suggesting that benefits can be gained from occupational regulation, it is clear to see why practitioners might be favourable towards their occupation being covered by

regulation. What is less clear is why so many of these occupations gain legal protection from the government when they, at best, have no positive impact on the public and at worst become detrimental. Stigler (1971) argues that politicians will always act in a way that ensures re-election. If occupations which lobby for regulation (involving legal enforcement) are large, influential, employing high tax earners and based in urban areas, then politicians are likely to support their case. As it is, these occupations can dramatically sway the result of an election. The gains to professional occupations in these circumstances are almost certainly to the detriment of society (Stigler 1971, Pelzman 1976).

Summary of the reasons for regulation

Occupational regulation is implemented because it is thought to be in the interest of the public to have the occupation regulated and/or that regulation can benefit workers within the occupation being regulated. Given the detrimental effects practitioners can have on the public, one might assume that the majority of occupational regulation is put in place with the intention of improving public safety. One would assume that this is achieved by increasing the minimum skill level of the workers. As such only a minority of occupational regulations would not have a direct link with public safety.

Summary of Characteristics

Two characteristics of regulation have been considered: barriers to entry and the rationale for regulation. These characteristics have implications on the restrictiveness of the occupation that funds the regulation of individuals and how the regulations are enforced. It is therefore the intention of this paper, not only to determine the prevalence of regulation at the occupational level, but also to determine if there are some significant trends relating to the characteristics of different types of regulation.

The following section will outline the methods used to determine the prevalence and trends of regulation.

1.2 Methodology

The aim of this paper is to provide an overview of the prevalence of occupational regulation in the UK and describe the main characteristics of such regulation. This section outlines how the aims have been addressed. First, the method of data collection is outlined. Second, the approach taken to construct the database is presented. Third, the variables used in the analysis are defined. Forth, the method of analysis used is described. Lastly, the limitations of the methods used are discussed.

1.2.1 Data Collection

The aim of this paper is to ascertain the prevalence of occupational regulation in the UK at occupation level. As there is no database of all the occupations that are regulated in the UK, the first step is to create a spreadsheet mapping the occurrence of regulations. To do this, every occupation in the UK needed to be investigated. Using the Standard Occupation Classification (SOC) unit groups this meant investigating 353 occupational groups. What can be known about occupational regulation is limited to the information that is provided by the regulatory bodies and the information embedded in legislation. This information will state the aims of the professional bodies, the minimum requirements for entrants and the benefits offered to entrants. This information can only be collated through an investigation of every occupation and regulating body in the UK. Given the number of occupations and regulatory bodies, the process of acquiring the necessary knowledge is very lengthy; indeed the process of data collection took two years. The recording of information must be undertaken pragmatically. The need for pragmatism overshadows the need for detailed definitions of each regulatory body and regulation characteristics, not least because this is the first investigation of its kind.

Data collection was a lengthy process that comprised of four different avenues of investigation:

First, the EU database of licensed occupations was investigated by cross referencing the listed occupations against their associated Act. This ensured that the licensed

occupations listed by the commission fit the definition of licensing used within this thesis.

Second, all other occupations were investigated through extensive Internet searches in order to determine if any type of regulatory system was in place for the given occupation.

Third, where some sort of regulation was present the enforcement body was contacted and interviewed with a view to determining the type and coverage of the regulation in place.

Forth, where the interviews with the enforcement bodies suggested that licensing, certification or registration were present, the information was checked against any relevant Act to ensure that the legality of the regulation, and therefore its classification, was correct.

Only after all four stages were completed was the information applied to the Standard Occupational Classification (SOC) system.

EU Database

The point of departure was to investigate the European Commission's database of regulated occupations. The Commission provided this list for foreign individuals that wish to work in the UK to advise them of any qualifications needed for the professions listed. According to the Commission, the regulated professions in the UK are those listed in table 1.1; 95 occupations. However, some occupations are clearly neglected. For example, security guards who were licensed within the last decade do not appear on the list. After speaking to the EU Commission it became evident that the list is provisional. The Commission had not investigated every occupation within the EU countries on the database to determine if they were regulated. As a result, although the list provided a good departure point for the investigation, it was clear that further research was needed.

The next phase of the research involved desk research of each occupation that appears on the EU database. This involved investigating who the enforcement body was and contacting them for more detail regarding the regulation. In addition, an Internet search was conducted for all other occupations to ascertain if there were any regulations associated with the occupation. Where an occupational group was found to have more than one regulation, both regulations were recorded and both regulatory bodies contacted.

Table 1-1: EU Commission List of Regulated Occupations in the UK

Actuary	Deck Officer III Fishing Vessel	Mining Electrical Engineer
Acupuncturist	Dental Nurse	Mining Electrician
Advocate	Dental Therapist	Mining Manager
Aeronautical Engineer	Diver, 1st Class	Mining Mechanic
Airport Fire Officer/Airport Fire-fighter	Doctor Of Medicine	Mining Mechanical Engineer
Analytical Chemist	Dyer And Colourist	Mining Surveyor
Arbitrator	Electrical And Computer (Technology) Engineer	Naval Architect
Architectural and environmental Curator	Enamelling	Notary Public
Arts therapist in the health service	Energy Engineer	Optometrist (Ophthalmic Optician)
Banker	Engineer	Orthopaedist
Biochemist	Environmental Engineer	Osteopath
Biologist	Environmental Health Officer	Paramedic/Ambulance Nurse/Other Ambulance Professionals
Blacksmith, Farrier, Forging, Stamping, Pressing	Forester	Petroleum Industry-Production and Processing Of Fuels and Lubricants
Boat master	Gas Engineer	Physicist
Building Engineer	Gas Installer/Repairer	Plant Expert
Building Services Engineer	Geographer	Professions in The Field of Waste Management and Disposal
Building Surveyor	Geologist	Public Finance Accountant
Chartered Scientist	Harbour Pilot	Quantity Surveyor
Chartered Secretary	Headmaster/School Director	Road/Street Works Operator
Chartered Technician	Health and Safety Officer	Road/Street Works Supervisor
Chemical Engineer	Housing Expert	Shipbroker/Shipping Agent
Chemist	Informatics Systems Engineer	Structural Engineer
Chief Engineer Class I	Insolvency Practitioner	Surgical Assistant
Finishing Vessel	Inspector Of Weights and Measures	Teacher in Further Education
Child Psychotherapist	Insurance Broker	Textile Expert
Chiropractor	Insurance Underwriter	Textile Technologist
Civil Engineer	Land Surveyor	Town Planner/Town and Country Planner
Clinical Physicist	Landscape Expert	Valuation Surveyor
Colourist	Librarian	Veterinary Nurse
Conveyance	Loss Adjuster	Water Service Manager
Dance Teacher	Management Accountant	
Deck Officer Class I	Manager (Not Elsewhere Classified)	
Fishing Vessel	Marine Engineer	
Deck Officer Class II	Meteorologist	
Fishing Vessel	Minerals Surveyor	
	Mining and Metallurgy Expert	
	Mining Deputy	

*Source: EU Commission
2009*

A list was compiled of all the occupations, the potential regulations associated with them and the contact details of the enforcement bodies. Following on from this every enforcement body was contacted, and a telephone interview conducted with each. As a result of persistence and the Freedom of information Act 2000, a response rate of 100% was achieved. The high response rate and the lengthy investigation into every occupation mean that the reliability of the results is far greater than the EU database. The data collated from the interviews is outlined below.

Telephone Interviews

The information collected via the telephone interviews was derived from the theory presented in the previous section. Table 1.2 contains the questions asked.

Table 1-2: Telephone interview schedule

Variable	Reason for Inclusion	Question Asked	Possible Responses
Compulsory	In order to ascertain how restrictive a regulation is, it is necessary to determine if an individual has to be part of the regulation in order to do their occupation or whether it is voluntary.	Does an individual have to be part of the regulation in order to legally do any part of their job?	Yes, all aspects of the occupation are covered by the regulation. Yes, but only if they wish to carry out certain tasks. No, no part of the occupation in question is restricted to only those who are associated with the regulation.
Law	If the respondent cites that some or all tasks of an occupation are restricted to those who are part of the regulation, it is	When you say that tasks are restricted is there a law or piece of legislation that supports this? And do you know	Metropolitan Police Act 1829, Private Security Industry Act 2001, Care Standards

Variable	Reason for Inclusion	Question Asked	Possible Responses
	important to formalise this by considering if there is a specific law or piece of legislation that enforces this claim.	the date of the Act this is tied to?	Act 2000.
Coverage	As a result of the structure of the occupation coding system, one code can cover many job titles. To conclude how prevalent regulation is with accuracy it is necessary to record if it has full coverage of a unit group or partial coverage.	What job titles are covered by your regulation?	All the job titles on a unit group. Some of the titles in a unit group.
Entry Requirements	To observe how restrictive a regulation is and to conclude on the type of regulation present, it is necessary to report what the entry requirements are.	How does someone join your regulation? What do they need to do?	CRB check. Pass an entry exam. Present a sample of work. Pay fees. Attain a certain level of qualification.
Enforcement Body	To draw conclusions as to the links between government involvement and regulation, and also the presence of professional bodies, the characteristics of the enforcement body	Is (name of the enforcement body) one of the following (list possible answers)?	Chartered professional body. Non-chartered professional body. Government agency. A local authority.

Variable	Reason for Inclusion	Question Asked	Possible Responses
	are recorded.		A regulatory body. Something else.
Funding	In order to investigate the claims that only where there is a public interest does the government fund regulation, each enforcement body was asked how they are funded.	How is (name of the enforcement body) funded?	Government funded. Self-funded. A mixture of self and government. Some other source.
Age	To see if there are any historical trends or distinct patterns of regulation each body was asked when the regulation came into being.	What date did the regulation, or enforcement body, begin or take effect?	Year reported and in some cases the month as well.
Rationale	To investigate the theoretical arguments surrounding public safety and vested interest, each body was asked what the main rationale for their regulation was.	What was the main reason for the creation of a regulation?	Protection of the public. Display competency. Adhere to industry standards. Health and safety concerns. Up-skilling of the profession. Enhance professional recognition.
Changes	To ensure the results are accurate each body was also asked if there had been any changes	Have there been any changes in the occupations covered by the	Yes. No.

Variable	Reason for Inclusion	Question Asked	Possible Responses
	in coverage, restrictions or enforcement since the regulation began.	<p>regulation?</p> <p>Have the entry requirements changed over time?</p> <p>Have there been any changes in the law that has impacted on the regulation?</p>	

The interview was with either the research officer for the enforcement body or the communication manager and every question was open ended. A summary was recorded and then repeated back to the respondent to ensure the answer had been interpreted correctly. Given the vast number of occupations this section of the research took a considerable amount of time but yielded a wealth of information that can be applied in future investigations. Where law or legislation was mentioned, further investigation was conducted to confirm the answers via further Internet searches and cross-checking.

1.2.2 Constructing the Database

Following on from the extensive research of all the occupations and their regulation characteristics, a database was produced that would allow for statistical investigation. The first step was to categorise the occupations using the Standard Occupational Classification (SOC) system. Secondly, the regulation status of each group had to be determined. Lastly, the variables investigated, shown in table 1.2, were coded for analysis.

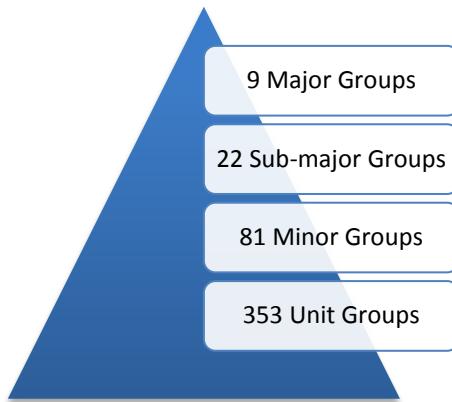
Standard Occupation Classification (SOC)

The process of coding the occupations was drawn from the SOC codes. SOC codes classify occupations in the UK using a coding system that groups similar occupations together. Before SOC codes came into existence, occupations in the UK were recorded by title. This system led to thousands of different responses being recorded and as a result made any statistical or numerical analysis across all occupations very difficult, if not impossible. SOC(90), the first system of classification, was implemented in the early 1990s to adhere to the need for greater analysis of the UK labour market. It is now possible to track how many people are working within any occupational group, identify worker shortages and analyse wage differences between occupations. This in turn should allow for tighter control of the flows in the labour market and prevent skill shortages by pre-empting future labour market trends. SOC is used in all of the major national datasets in the UK including the Labour Force Survey (LFS), Census and the British Household Panel Survey (BHPS). The Occupation Information Unit (OIU) maintains SOC for the Office of National Statistics (ONS). Any changes made to the SOC have, so far, been made in conjunction with the Institute for Employment Research (IER) at the University of Warwick. It is because of its widespread use and the close monitoring of its validity by the ONS and IER that the SOC codes are assumed to be a solid framework from which to analyse occupations.

Despite widespread use, SOC(90) was replaced in 2000 by SOC(00). It was necessary to adapt the coding system for two primary reasons: first, in the 1990s technology advanced very quickly creating many jobs that did not fit naturally into the SOC(90) system, and second, by adapting the classification system it became possible to make it more consistent with the EU system, which allowed for more comparative analyses to take place (particularly important as the UK's involvement in the EU had increased substantially during the 1990s). It is because of the advantages that SOC(00) offers over SOC(90) that it will be the coding system used in this investigation.

The structure of SOC(00) is a hierarchical grouping system. There are nine major groups, 22 sub-major groups, 81 minor groups and 353 unit groups. SOC groups occupations together by drawing ‘similar’ jobs together.

Figure 1-3: The Structure of SOC(00)



Similarity is determined through skill level and skill content. Skill levels relate to the time it takes an individual to become competent at a given job in terms of work experience and training. Skill content relates to the type of skills needed to do the tasks of the job. SOC is concerned with four distinct skill levels; the first level being general education up to those qualifications acquired before an individual can legally leave school. The second level is general education with work-related training or work experience. The third level of skills is concerned with the need to attain a higher level of general knowledge than level one, but less than degree level. Lastly, level four is concerned with professional qualifications and degree level knowledge.

Figure 1-4: SOC(00) Skill Levels



Below, in table 1.3, an example of how the major groups are formed in relation to skill levels is given.

Table 1-3: SOC(00) Major Group Descriptors

Major Group	General Nature of Qualifications, Training, and Experience for Occupations in the Major Group.
Managers and Senior Officials	A significant amount of knowledge and experience of the production process and service requirements associated with the efficient functioning of organisations and businesses.
Professional Occupations	A degree or equivalent qualification, with some occupations requiring post-graduate qualifications and/or a formal period of experience-related training.
Associated Professional and Technical Occupations	An associated high-level vocational qualification, often involving a substantial period of full-time training or further study. Some additional task-related training is usually provided through a formal period of induction.
Administrative and Secretarial Occupations	A good standard of general education. Certain occupations will require further additional vocational training to a well-defined standard (e.g. typing or shorthand).

Major Group	General Nature of Qualifications, Training, and Experience for Occupations in the Major Group.
Skilled Trades Occupations	A substantial period of training often provided by means of work-based training programmes.
Personal Service Occupations	A good standard of general education. Certain occupations will require further additional vocational training, often provided by means of a work-based training programme.
Sales and Customer Service Occupations	A general education and a programme of work-based training related to sales procedures. Some occupations require additional specific technical knowledge but are included in this major group because the primary task involves selling.
Process, Plant and Mechanic Operatives	The knowledge and experience necessary to operate vehicles and other mobile and stationary machinery, to operate and monitor industrial plant and other equipment, to assemble products from component parts according to strict rules and procedures and subject assembled parts to routine tests. Most occupations in this group will specify a minimum standard of competence that must be attained for satisfactory performance of the associated tasks and will have an associated period of formal experience-related training.
Elementary Occupations	Occupations at this level will usually require a minimum general level of education (i.e. that which is provided by the end of the period of compulsory education). Some occupations at this level will also have short periods of work-related training in areas such as health and safety, food hygiene and customer service requirements.

Whilst the above definitions of the major SOC groups indicate that one key factor in the classification of occupations is the skills required to enter, there is no definitive mention of occupational regulations. For example security guards, which are in major group 9, are shown to need school leaver qualifications. However the regulation relating to security guards requires them to attain a licence which entails the accumulation of more skills. As such, it is not sufficient to simply take the major

occupation groups as an indicator of barriers to entry and thus presence of regulation. Therefore, it was necessary to persist with the research conducted via the desk and telephone interviews to generate variables specific to occupational regulation and apply them to the SOC code data in order to ascertain the prevalence of regulation and enable the dataset to be applicable to other data for future research.

1.2.3 Defining Variables

Classifying Regulation Status

Occupational regulation in the UK can take one of the following forms: registration, accreditation, certification or licensing. Each type of regulation has different characteristics. To analyse regulation in the UK accurately, as well as a binary variable ascertaining if regulation is present in the SOC unit group a second variable; regulation status, will be generated recording the type of regulation within the SOC unit group. As no dataset yet exists within the UK that collects data on occupational regulation there is little guidance as to how to classify regulation status. As such, the criteria used to determine regulation type are drawn from Forth *et al.* (2010).

To classify an occupation as licensed, certified, accredited, registered or unregulated, two criteria are considered: whether there is any legal requirement by the government for individuals to comply with the occupational regulation, and whether there is a requirement to demonstrate a minimum degree of competency. The criteria relates to the classification as shown in table 1.4. Once the regulation status has been determined, four variables were formed:

Licensing: does the SOC unit code have licensing within it? (1=yes, 0=no)

Certification: does the SOC unit code have certification within it? (1=yes, 0=no)

Accreditation: does the SOC unit code have accreditation within it? (1=yes, 0=no)

Registration: does the SOC unit code have registration within it? (1=yes, 0=no)

Once all occupations within the SOC unit group have been researched, the unit group is assigned an overall regulation status. The unit group regulation status is the 'highest' regulation status in terms of legality and levels of entry requirements. Where there are two regulations of the same status, the older regulation is used.

Table 1-4: Classification of regulation status

		Requirement to demonstrate a minimum degree of competence?	
Any legal regulation by the government? (directly or through an appointed agency)	No	No	Yes
	No	<p>Unregulated The occupation may be subject to conventions, whereby employers will typically cite minimum entry criteria, but these are not co-ordinated, nor do they have any legal basis. <i>UK example:</i> retail assistant</p>	<p>Non-governmental accreditation schemes Practitioners may apply to be accredited as competent by an accrediting body, which is usually a professional body or industry association. May permit the accredited person to use a specific title or acronym but confers no legal protection of title, nor any legal protection of function. <i>UK example:</i> membership of Institute of Certified Locksmiths</p>
	Yes, but confers no rights to practice	<p>Empty Cell</p>	<p>Certification schemes There is no legal restriction as to who may carry out the tasks covered by the occupation, but practitioners may apply to be certified as competent by the state (or an appointed agent). This certification may sometimes (but not always) confer legal protection of title. <i>UK example:</i> certification by the Architects' Registration Board</p>
	Yes, and confers rights to practice	<p>Registration schemes Requires registration of personal details. May also make stipulations in areas other than competence (e.g. finance) <i>UK example:</i> registration of estate agents</p>	<p>Licensing schemes Only those who can demonstrate the specified level of competence may obtain a licence permitting them to undertake the tasks covered by the regulation. <i>UK example:</i> licensing of taxi drivers by local authorities</p>

Source: Bryson, Forth, Humphris, Kleiner and Koumenta 2010

Where a unit group is concluded to be licensed, the legislative Act enforcing licensing was confirmed, particularly if this had not been provided during the telephone interview with the enforcement body.

Coverage

The way SOC groups together occupations means that many occupations can be covered by one unit code. Therefore, it is possible that when a unit code has a positive regulation status (that is licensing, certification, accreditation or registration)

recorded; it may not translate to every occupation in the group being covered by the regulation. For example, lollipop men/ladies are in the same unit group as security guards but they are not licensed.

To overcome the issues associated with the classification system a more complex matrix of occupations can be constructed. This matrix would separate individuals not only by their occupation but also the industry in which they work. Using the example above, in order to only capture security guards (and not lollipop ladies) all those working the occupational unit code and within the security sector would be selected. The fundamental issue with this approach is the potential it has to exclude large portions of regulated individuals. A security guard may state they are working in the security sector but they may also state they are working in the retail sector if they are guarding the entrance to a shop, or the entertainment industry if they are standing on the door of a theatre. As a result of the problems associated with restricting the analysis through a more complex matrix of occupations only the SOC codes will be used. This will have limitations because the upper and lower bound estimates are likely to vary. However, until comprehensive data can be collated from every enforcement body in the UK or a specific question is included in national surveys relating to individual regulation status there will always be upper and lower bound estimates.

In order not to overestimate the prevalence of occupational regulation it is necessary to have a variable indicating whether there is complete or partial coverage. Ideally, the exact number of occupations regulated in each unit group would be recorded as this would give the most accurate results. However, titles used to be recorded without a classification system, so there are too many job titles to realistically and accurately assess each one beyond those explicitly defined in the unit group definition. Therefore, two variables are generated:

Complete Coverage: Are all the jobs in the SOC unit group covered under the regulation status? (1=yes, 0=no)

Partial Coverage: Are only a portion of the jobs in the SOC unit group covered under the regulation status? (1=yes, 0=no)

This will result in two estimates being created: a lower bound and an upper bound estimate. The lower bound estimate is computed by only considering unit groups where there is complete coverage. The upper bound estimate also includes unit groups where there is only partial coverage.

Rationale for Regulation

Whenever an occupational regulation is put into place there must be a reason as to why it has come into existence. Once all the key aims of the regulation are recorded they were allocated into seven main categories:

Adherence to codes of conduct. The regulation is used mainly to provide codes of conduct and monitor regulated individuals as to their adherence to them. The Chartered Institute of Marketing, the Organic Control Bodies and the Chartered Institute for Personnel and Development all cite this as their main rationale for regulating. This is a binary variable (1=yes, 0=no).

Demonstrate competence. The regulation is used mainly to indicate that members are capable of a minimum degree of competency. Examples of enforcement bodies that cite this as their main rationale include the Royal Geographical Society, Royal Town Planning Institute and the Register of Exercise Professionals. This is a binary variable (1=yes, 0=no).

Establish or maintain industry standards. The main aim of the regulation is to set and/or maintain some sort of minimum industry standard. The Association of British Travel Agents and the Hairdressing Council both claim this as their main rationale for regulation. This is a binary variable (1=yes, 0=no).

Gain professional recognition. The main aim of the regulation is to enhance the perception of the occupation so that it is regarded as a professional occupation. Enforcement bodies that cite this as their main rationale include the Chartered Institute of Textile Technologists, the British Toymakers Guild and the British Society of Medical Secretaries and Administrators. This is a binary variable (1=yes, 0=no).

Health and safety. The main aim of the regulation is to ensure health and safety standards are kept to, protecting the workers and the public. The Chartered Institute of Waste Management, the Royal Society of Chemists and the Royal Society of Meteorologists all state that health and safety concerns were the main reason for their existence. The variable is binary (1=yes, 0=no).

Protect the public. The main aim of the regulation is to protect the public from harm and excessive expense caused by poor quality services. Examples of enforcement bodies who explicitly state that protecting the public is their main function include the General Social Care Council, the Gambling Commission and the General Pharmaceutical Council. This is a binary variable (1=yes, 0=no).

Level of Entry Qualifications (NVQ)

In order to ascertain the level of entry qualifications, the requirements of the regulation are mapped against National Vocational Qualification (NVQ) levels. NVQs are defined by City and Guilds as qualifications that test an individual's ability to actually do a job. They are rarely solely classroom based and completed by most in the workplace. NVQ levels span from 0 to 8, where level 8 is equivalent to the highest possible qualification level and includes doctorates. As such this variable takes the form of a scale (0-8).

Table 1-5: National Vocational Qualifications (NVQ) level definitions

NVQ Level	Definition	National Qualification Framework Estimation
Level 1	This level requires attendance and completion of a course that covers a range of routine and predictable skills and tasks.	Entry
Level 2	This level requires attendance and completion of a course that covers a range of activities in a variety of different contexts. Group and team participation is often a firm part of the course.	2
Level 3	The activities covered at level 3 are no longer routine or predictable. As with level two, individuals consider how activities are performed in a variety of contexts. There is	3

NVQ Level	Definition	National Qualification Framework Estimation
	much more autonomy and individual responsibility at this level compared to levels 1 and 2.	
Level 4	At this level, individuals have a significant amount of autonomy. Further, it is likely that there is now much time dedicated to the responsibility of others' work and the need for resource management.	4-5 depending on the content of the course
Level 5	The focus is applying a variety of competencies to many different environments. As with level 4, there are high levels of autonomy and responsibility. The main progression at level 5 is the analysis and evaluation of work and its impact on others.	5-8 depending on the content of the course
Level 6	This is equivalent to an Honours degree.	6
Level 7	This is equivalent to a Master's degree.	7
Level 8	This is equivalent to a Doctoral degree.	8

For example, a travel agent manager who wishes to become accredited by the Association of British Travel Agents must pass an exam that is equivalent to an NVQ level 2. A social service manager must have a degree and a postgraduate qualification, in order to become licensed by the General Social Care Council. An additional benefit to using NVQ levels is that because NVQs are so heavily focused on vocations and qualifying individuals to do a specific task or job, they are the most suitable way to measure qualification-related barriers to entry. Further, as a result of NVQ levels easily mapping to the National Qualification Framework (see page 160 for more detail) their inclusion allows for a wealth of future investigation into the effect regulation has on skill levels.

Human Capital Expectations

Whilst it is interesting to consider the qualification levels required by the regulations, the significance of these requirements can only be judged when they are compared to what individuals within the affected SOC unit group are assumed to have acquired

anyway – without the regulation. The assumptions of human capital relating to qualification attainment for each SOC major unit are found in the description of each group. The SOC system has its own system of levels, which are defined below in table 1.6.

Table 1-6: SOC skill levels

Level	Definition
One	Skills acquired by an individual who completes full-time compulsory education and achieves a set of satisfactory school leaving examination grades.
Two	At least the same skills as level one with additional work related training and/or work experience.
Three	Post-compulsory education but not to degree level. May also include vocational education.
Four	‘Professional’ qualifications including degrees or equivalent work-related qualifications.

The variable is, therefore, a scale (1-4) and will be used to separate out different existing skill levels and to observe any trends.

Other Entry Requirements

As qualifications are not the only way in which regulation can restrict entry, it is necessary to create variables which measure entry restrictions beyond NVQ levels.

Work experience: does the regulation require any work experience from entrance? This variable is a scale (0=none, 1=1-2 years, 2=3-4 years, 3=more than 5 years). An example of this is the Institute of Healthcare Management; if a healthcare practice manager wishes to be accredited by the institute they must have at least two years' work experience. Similarly, marketing associate professionals must have at least three years' work experience to be accredited by the Chartered Institute of Marketing.

CRB check: does the regulation require a CRB check of entrants? This is a binary variable (1=yes, 0=no). Nurses, education assistants and paramedics all need CRB checks in order to obtain their licenses.

Any other requirements: beyond qualifications, work experience or CRB checks; does the regulation require anything further from entrants? (1=yes, 0=no). For example, pharmacy managers must undergo a 52-week training scheme in order to get a licence from the General Pharmaceutical Council. A medical practitioner must complete a health test to ensure good health before the General Medical Council will issue a licence to practice. Also, anyone wishing to conduct an MOT on a car needs to hold a full and valid driving licence before they receive their licence to practice from the Vehicle and Operator Service Authority.

Enforcement Body

No matter the rationale for regulation, once it comes into force there must be an enforcing body. These bodies can take many different forms but can be categorised into one of five main groups.

Regulatory body: the regulation is enforced by a body that is a separate entity to the government. It is responsible for the running and implementation of the body, and often is responsible for funding, but it is still subject to government inspection and auditing. This is a binary variable (1=regulatory body, 0=some other enforcement body).

Government Agency: a governmental department or agency enforces the regulation. The enforcement in this case is monitored and implemented directly by the government and is often heavily subsidised by public money. An example of a government agency is the Financial Services Authority (FSA) and the Home Office. This is a binary variable (1=government agency, 0=some other enforcement body).

Local Authority: local authorities enforce the regulation meaning each authority is responsible for implementing and enforcing regulation only within the geographical area that their authority covers. Examples of occupations regulated by the local

authority are market traders and cab drivers. This is a binary variable (1=local authority, 0=some other enforcement body).

Professional body: the enforcement body in this case is completely separate from the government and has complete autonomy over managing the regulation and funding. The National Association of Paralegals, the Painting and Decorating Association and the British Floral Association are all examples of non-chartered professional bodies. This is a binary variable (1=professional body, 0=some other enforcement body).

Chartered professional body: the enforcement body is the same as a professional body but it has achieved chartered status. Examples of chartered professional bodies include the Chartered Institute of Environmental Health, the Worshipful Company of Clockmakers and the Chartered Institute for Personnel and Development. This is a binary variable (1=chartered professional body, 0=some other enforcement body).

Other: the enforcement body does not fit appropriately into any of the categories mentioned above, for example, the National Youth Agency which is a registered charity and covers youth and community workers. This is a binary variable (1=an uncategorised enforcement body, 0=some other enforcement body).

1.2.4 Analysis

Once the database was constructed it was possible to produce the lower and upper bound estimates for the prevalence of regulation in the UK. As a result of categorising regulations into the four different types (licensing, certification, accreditation and registration), it was also possible to determine the lower and upper bound estimates for each of the regulations. As discussed, whilst generating upper and lower bound estimates will not provide an absolute numerical value as to the presence of regulation, because of the structure of the occupation classification scheme used, it is the only method of estimation. However, as this is the first investigation to be conducted to this extent, an interval of accuracy is still a vast improvement on the complete lack of estimation that currently exists.

In addition to determining the prevalence of regulation, this paper also aims to provide a general overview of the characteristics of regulation. The characteristics of interest are those that were most prominent in the literature, namely the main rationale for regulation, the stringency of entry requirements and the characteristics of the enforcement agency. The aim is to conclude if there is a general pattern or trend amongst the different regulations with regard to the three aspects.

To conclude, if different regulations have different characteristics, an Analysis of Variance (ANOVA) is conducted. ANOVA is the statistical tool used to test the hypothesis that the means of all the groups involved are the same. The alternative hypothesis is, therefore, that the means are not all the same. ANOVA is an extension of the T-test, indeed for a two-sampled analysis the F-test is simply the square of the equivalent T calculation, however ANOVA is constructed to take into account 3 or more groups. The advantage of using ANOVA instead of simply undertaking multiple T-tests is that conducting just one calculation reduces the risk of wrongfully rejecting the null hypothesis. As each of the categories considered in this paper are independent, either an occupation is coded as registered, accredited, certified, licensed or not regulated at all, it is appropriate to use an independent ANOVA test as opposed to a factorial or dependent test. Significance is granted at the 5% level to ensure the possibility of rejecting the null hypothesis is reduced.

1.2.5 Limitations

The presence of two estimates is the main weakness of the research. It will be impossible to accurately compute a single figure that is representative of the presence of regulation in the UK because of the way in which occupations are coded. However, this is the most accurate approach that can be taken. Further, as this is the first initial investigation into all types of regulation, allowances for measurement error are inevitable and unavoidable until questions concerning regulation appear on the national surveys. A further limitation to the analysis is the reliance on the enforcement bodies to give honest answers when interviewed, although every effort was taken to minimise false information by cross checking answers with internet and regulatory documents.

The following section will present the results of the analysis described above.

1.3 Results

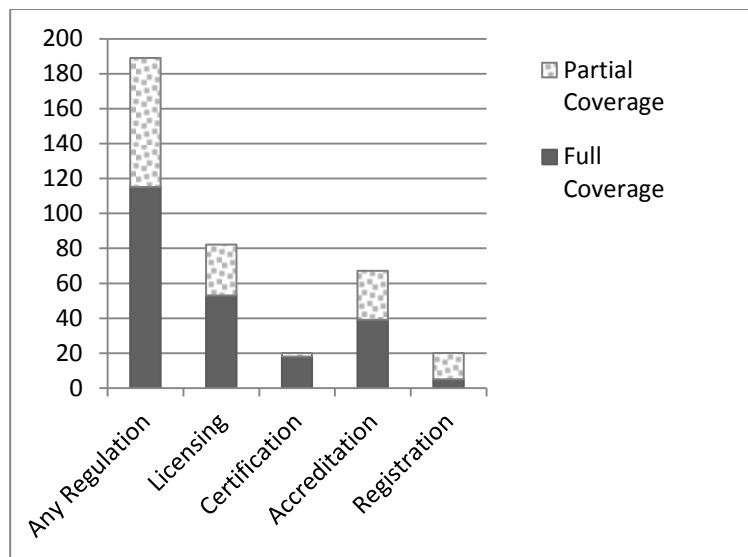
The following section presents the results of the investigation outlined in the methodology. The focus of the results is to highlight the extent to which occupational regulation is present across occupations in the UK and to create some generalisable characteristics as to how regulation in the UK stands at present.

1.3.1 Prevalence of Occupational Regulation

From the extensive investigation into the regulation status of every Standard Occupational Classification (SOC) unit group in the UK, using the criteria presented in the methodology (table 1.4), 189 of the 353 SOC unit groups contain occupational regulation.

As described in detail throughout this paper, occupational regulation can be separated into four broad categories: licensing, certification, accreditation and registration. Figure 1.5 separates the presence of regulation into these four categories. Further, as discussed in the methodology, the nature of the SOC unit groups means that it is often the case that a regulation present in a SOC unit group will not have complete coverage. As such, figure 1.5 highlights the number of unit groups with full and partial coverage for each of the regulation types.

Figure 1-5: Presence of Occupational Regulation by Type of Regulation and Coverage



The results show that licensing is present in over 23% of the SOC unit groups and that in over 15% of SOC unit groups, the entire group is covered by licensing (82 and 53 groups respectively). This means that at least 15% of occupations, at the unit level, cannot be undertaken without a licence being obtained. The 'list of licensed occupations' details what these unit groups are, and which are completely covered by licensing.

Certification is shown to be the main regulation present in nearly 6% of unit groups and in over 5% of unit groups, all the occupations are covered by certification (20 and 18 groups respectively). The 'list of certified occupations' details the title of the certified unit groups and the extent of coverage certification has within them.

Accreditation is found to be present in over 18% of SOC unit groups and in over 11% of groups, accreditation has universal coverage (67 and 40 unit groups respectively). The unit groups covered by accreditation are shown in the 'list of accredited occupations'.

Registration is present in over 5% of unit groups and nearly 1.5% of unit groups have registration covering all of the occupations within it. The full list of occupations covered by registration is shown in the 'list of registered occupations'.

1.3.2 Licensed Occupations

As defined previously, a licensed occupation is one that requires an individual to obtain a licence in order to legally undertake any part of the occupation. There are 82 SOC unit groups that have some sort of licensing scheme within their group. All of these occupation groups are listed below:

List of Licensed Occupations

*(*full coverage of unit group)*

- 1171 Officers in the Armed Forces*
- 1172 Police Officers (inspectors and above)*
- 1173 Senior Officers in fire, Ambulance, Prison and related services*
- 1174 Security Managers*
- 1182 Pharmacy Managers
- 1184 Social Services managers
- 1185 Residential and day care managers
- 1223 Restaurant and catering managers*
- 1224 Publicans and managers of licensed premises*
- 2211 Medical practitioners*
- 2212 Psychologists*
- 2213 Pharmacists/pharmacologists*
- 2214 Ophthalmic opticians*
- 2215 Dental Practitioners*
- 2216 Veterinarians*
- 2314 Secondary education teaching professionals*
- 2315 Primary and nursery education teaching professionals*

- 2316 Special needs education, teaching professionals*
- 2411 Solicitors, lawyers, judges and coroners*
- 2419 Legal professionals*
- 2442 Social workers*
- 2443 Probation workers*
- 3112 Electrical/Electronics Technicians*
- 3211 Nurses*
- 3212 Midwives*
- 3213 Paramedics*
- 3214 Medical Radiographers*
- 3215 Chiropodists*
- 3216 Dispensing opticians*
- 3217 Pharmaceutical dispensers*
- 3218 Medical and dental technicians
- 3221 Physiotherapists*
- 3222 Occupational therapists*
- 3223 Speech and language therapists*
- 3229 Therapists
- 3231 Youth and community workers*
- 3312 Police Officers (sergeant and below)*
- 3313 Fire service
- 3314 Prison service officers (below principal officer)
- 3319 Protective service associate professionals
- 3442 Sports coaches, instructors and officials

- 3511 Air traffic controllers*
- 3512 Aircraft pilots and flight engineers*
- 3513 Ship and hovercraft officers*
- 3520 Legal associate professionals
- 3535 Taxation experts*
- 3565 Inspector of factories, utilities and trading standards*
- 3566 Statutory examiners
- 3568 Environmental health officers*
- 5111 Farmers
- 5211 Smiths and forge workers
- 5231 Motor mechanics, auto engineers
- 5314 Plumbers, heating and ventilation engineers
- 5431 Butchers, meat cutters*
- 5432 Bakers, flour confectioners*
- 5433 Fishmongers, poultry dressers*
- 5434 Chefs, cooks
- 6111 Nursing auxiliaries and assistants
- 6113 Dental nurses
- 6121 Nursery Nurses
- 6122 Childminders and Related Occupations
- 6123 Playgroup leaders/assistants
- 6124 Education Assistants
- 8111 Process operatives
- 8211 Heavy goods vehicle drivers*

- 8212 Van drivers*
- 8213 Bus and coach drivers*
- 8214 Taxi, cab drivers and chauffeurs*
- 8215 Driving instructors
- 8221 Crane drivers*
- 8222 Fork-lift truck drivers*
- 8223 Agricultural machinery drivers*
- 9223 Kitchen and catering assistants
- 9225 Bar Staff
- 9241 Security guards and related occupations
- 9249 Elementary security occupations

The list denotes that of the 82 unit groups, 53 are completely covered by a licence; meaning everyone in that group must have a licence. In the remaining groups only some individuals need a licence. For example, in group 5111 Farmers it is only organic farmers that need a licence from one of the organic control bodies. Similarly, in group 5231 Motor Mechanics and Auto Engineers, it is only those who wish to carry out a Ministry of Transport (MOT) test that needs a licence from the Vehicle and Operator Service Authority.

Each of the licenses examined is accompanied by legislation that enforces the licensing scheme. For example, all restaurant and catering managers must hold a licence in accordance with the Food Safety Act 1990; all opticians must hold a licence in accordance with the Opticians Act 1958; and, all air traffic controllers must be licensed to comply with the Civil Aviation Act 1971 and Directive 2006/23/EC. As a result of researching the statutory instrument, it is possible to note the ages of licenses. Below is a summary of the results:

Table 1-7: Number of Licensing Legislations by Year

	Before 1950	1950-1979	1980-1989	1990-1999	2000-2010	Total
Number Licensing Legislation	21	14	3	16	15	69

**Number of legislations is less than the number of SOC units with licensing because legislation can cover more than one occupational group i.e. the Childcare Act 2006 covers groups 6121, 6122, 6123 & 6124.*

Whilst most licensed occupations have been in place for many years there have been some occupations that have become licensed since 2001. This is the case in group 6121 Nursery Nurses, group 6122 Childminders and Related Occupations, group 6123 Playgroup Leader/Assistants and 6124 Education Assistants. Licensing was extended to more job titles in these groups in accordance with the Childcare Act 2006 which stated that all individuals who spent more than two hours caring for children and/or the child is under the age of five, have to hold a licence necessitating a Criminal Record Background (CRB) check. The job titles now covered by licensing in these groups were initially certified. However, some occupations went from being unregulated to licensed. These included some job titles in group 9225 Bar Staff who may need to be licensed if they are selling alcohol. This was in response to the Licensing Act 2003. Some individuals in group 9241 Security Guards and Related Occupations may also need a licence if they work in the security sector and are not 'in-house' security, so as to comply with the Private Security Industry Act 2001.

Table 1-8: Number of Licenses by SOC Skill Level of Unit Group

Skill Level 1		Skill Level 2		Skill Level 3		Skill Level 4	
Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
4	4.9	18	22.0	38	46.3	22	26.8

If one considers the presence of licensing with regard to the defined skill level of the occupational group, licensing is predominantly present (over 73%) in unit groups described as having at least a SOC skill level 3 (post compulsory education, but not to degree level, and may also include vocational education). Nearly 27% of unit groups that have licensing within them have been given a SOC skill level of 4 ('professional' qualifications, including degrees or equivalent work-related qualifications). This shows that whilst licensing is present across a spectrum of occupations, there is a heavy weighting towards occupations that are defined as needing a fairly high degree of skill.

Barriers to Entry

With regard to barriers to entry, all licenses are shown to require some level of qualification.

Table 1-9: Qualification Requirements mapped to the National Qualification Framework

	None Required	Below Level 2	Level 2	Level 3	Level 4-6	Level 7-8	Don't Know	Total
Number of Licenses	0	20	11	6	32	2	11	82

*'Don't Know' indicates where the entry qualifications could not be accurately mapped to the NQF

Licenses are shown to require a range of qualifications ranging from below a level 2, where only basic knowledge and ability to learn are needed, up to a level 8, which is equivalent to a Doctorate. However, licensing is more likely to require qualifications of level 4 and above; level four equating to qualifications above A-level standard.

Qualifications are not the only entry requirement of licenses. CRB checks are required by 32 of the unit groups covered by licenses. These include all unit groups covered by the Childcare Act 2006; Midwives covered by the Midwives Registration Act 1902; and, all unit groups covered by the Higher Education Act 1998. Some licenses also require work experience before an individual can become fully qualified. In such licensing schemes, two ask for 1-2 years' work experience (group 2411 Solicitors, Lawyers, Judges and Coroners, group 3217 Pharmaceutical Dispensers), one asks for four years' work experience (2419 Legal Professionals NEC), and two ask for various amounts of work experience determined by sector, age, tasks and interaction with the public (group 3565 Inspectors of Factories, Utilities and Trading Standards and group 3566 Statutory Examiners).

There may also be other forms of entry requirements such as medical checks, fitness assessments, declaration of compliance or a full driving licence. Of the unit groups covered by licensing, 53 are required to meet some additional criteria like the examples given above.

Rationale for Licensing

Interestingly, all of the licensing enforcement bodies cited protection of the public as their main function either by demonstrating competence to protect the public, adhering to standards to protect the public, enforcing health and safety to protect the public or just to protect the public. The only bodies not to mention protecting the public in their rationale were the organic control bodies that regulated farmers, who stated that their main function was to ensure members were adhering to codes of conduct, and the Vehicle and Operator Service Authority who simply state the need to demonstrate competency as their main function. One can argue that the need to demonstrate competency and adhere to codes of conduct is ultimately to protect the public.

Enforcement Body

The enforcement bodies for licensing are mostly regulatory bodies (39%) or government agencies (32.9%). Regulatory bodies are organisations set up with the aim of enforcing a specific regulation. They are not solely controlled by the government though will often fall into the bracket of a Quasi-Autonomous Non-Governmental Organisations (QUANGOs). Examples of regulatory bodies include the Bar Council, the Health Professions Council, the General Dental Council and Office of Standards in Education (OFSTED). However, despite the regulatory bodies being QUANGOs, only 3 are self-funded (the Bar Council, the Royal College of Veterinary Surgeons and the Council for Licensed Conveyors).

Government agencies are those that are within a governmental department. Examples include: the Prison Service, the Civil Aviation Society and the Office for Fair Trading. All government agencies are funded by the government. In addition to government agencies, some licenses are enforced by local authorities, for example group 8214 Taxi, Cab Drivers and Chauffeurs.

Professional bodies enforce other licenses. These are set up as separate entities from the government and as such have autonomy over their running, although they must adhere to any relevant legislation. Professional bodies can be chartered such as the Chartered Institute of Environmental Health, which is the only chartered institute that enforces licensing and covers most licenses associated with food preparation. The institute is self-funded. Other professional bodies are not chartered, such as the Security Industry Authority (SIA), the British Institute of Innkeeping, the Joint Industry Board, the Nursing and Midwifery Council and the Organic Control Bodies. All of these professional bodies state they are self-funded. In total, 69 licenses are enforced by bodies that say they are government funded, whereas 13 state they are self-funded (and ultimately self-managed).

Summary of Licensing

In summary, from the dataset constructed, licensing is likely to require an individual to attain a qualification, a CRB check and meet other criteria specific to that licence.

The enforcement body is more likely to be a QUANGO in the form a regulating body, or a government agency, and is likely to be government funded. The rationale for the licensing to exist is almost always given as protecting the public.

1.3.3 Certified Occupations

As defined previously, a certified occupation is one where an individual can choose to acquire a certificate. A certificate will enable them to carry out duties they could not otherwise legally do. Certification is however, completely voluntary. If an individual chooses not to get a certificate but they would like to work in the occupation, they can do so, but they cannot do the *task* covered by the certificate. As such, it is not mandatory for the occupation, but rather elements of the tasks within it. For example, anyone can work as a plumber, but only those who have a gas safety certificate can fit boilers.

List of Certified Occupations

*(*full coverage of unit group)*

- 1233 Hairdressing and Beauty Salon Managers and Proprietors*
- 2121 Civil engineers*
- 2122 Mechanism engineers*
- 2123 Electrical engineers*
- 2124 Electronics engineers*
- 2125 Chemical engineers*
- 2126 Design and developments engineers*
- 2127 Production process engineers*
- 2128 Planning and quality control engineers*
- 2129 Engineering professionals*
- 2431 Architects*

- 3113 Engineering technicians*
- 3114 Building and civil engineering technicians*
- 3119 Science and engineering technicians
- 3121 Architectural Technologists and Town Planning Technicians*
- 3443 Fitness instructors*
- 3449 Sports and Fitness Occupations*
- 8115 Rubber Process Operatives
- 8118 Electroplaters*

Of those 19 groups, 17 are completely covered, meaning every job title and every individual within that group can become certified if they so wish. The two unit groups where this is not the case is group 3119 Science and Engineering Technicians where only engineering technicians are certified and group 8115 Rubber Process Operatives where only individuals who work with unformed rubber are certified.

All but three of the occupations covered by certification have protection of title which means that only those who are certified can refer to themselves by a given title. For example, certified engineers can call themselves Chartered Engineers and certified architects can call themselves Chartered Architectural Engineers. The three exceptions are fitness instructors, rubber operatives and sports and other fitness occupations.

The first certification scheme began in 1964. The Hairdressing Council was given the ability to restrict some tasks, mainly involving chemicals, to their members. The scheme was in response to the Hairdressers Registration Act 1964. Most certification occurred between 1980 and 1989. All certification that started in this period was enforced by the Engineering Council who certifies engineering related occupations (Groups 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 3113, 3114 and 3119) and restricts some tasks undertaken by those occupations. The body received its royal charter in 1981 and began certifying individuals in 1985. The Architects Act

1997 meant that all occupations associated with architectural work could become certified (groups 2431 and 3121). In the last decade, sports and fitness instructors gained a certificate recognised by the Register of Exercise Professional, which was established in 2002.

Table 1-10: Number of Certification by SOC Skill Level of Unit Group

Skill Level 1		Skill Level 2		Skill Level 3		Skill Level 4	
Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
0	0.0	5	26.3	5	26.3	9	47.4

Certification appears across a range of SOC units, but it is only present in occupations defined as having at least a SOC skill at level 2, (at least the same skills as someone who has completed full time education, with additional work related training and/or work experience). However, certification is most present in occupations defined by SOC as having a skill level of 4, which denotes that the occupations need ‘professional’ qualifications including degrees or equivalent work-related qualifications. These occupations include architects, engineers and town planners. This suggests that certification is more likely in occupations that require a high skill set.

Barriers to Entry

As with licensing, certification provides barriers to entry. If an individual chooses to become certified and enables themselves to legally offer a protected service to consumers, they must meet the entry requirements of the certification scheme in place.

One prominent entry requirement is the need to attain a given level of qualifications.

Table 1-11: Qualification Requirements mapped to the National Qualification Framework

	None Required	Below Level 2	Level 2	Level 3	Level 4-6	Level 7-8	Don't Know	Total
Number of Certificates	0	0	7	0	2	10	0	19

The results show that just over half (52.6%) of certification requires an attainment of a level 7-8 qualification (qualifications equivalent to masters or doctoral level). Occupations requiring this level of qualification are those relating to engineering, i.e. individuals who wish to become Chartered Engineers. Those occupations requiring level 2 qualifications (equivalent to a GCSE grade A*-C) include hairdressers and fitness instructors. There are no certification schemes that ask for qualifications below level 2, meaning that all certification requires at least a qualification equivalent to GCSE grades A*-C.

Interestingly, compared to licensing where CRB checks are fairly common, CRB checks are only listed as a requirement for Electrical Engineers who are working for nuclear or defence-related industries. No other schemes explicitly require any CRB checks. With regards to work experience, certification schemes can require a certain amount of work experience before a certificate is issued. For example, architects, architectural technologists and town planning technicians are all required to have at least two years' work experience in the field before they can become Chartered Architectural Technicians. Similarly, Chartered Engineers need work experience to gain a certificate, though the amount of experience varies depending on the exact nature of the work, the industry and the sector. In all, eight occupational unit groups are required to have some level of work experience before they can obtain a certificate and protected title.

Certification schemes may also require some other entry requirements. These other entry requirements could include age restrictions, health checks or full driving licenses. For example, fitness instructors must have Civil Liability Insurance cover

before they can be certified. In total, eight of the certified unit groups need to meet some other entry requirements beyond qualifications, work experience or CRB checks to become certified.

Rationale for Certification

As with licensing, the bulk of certifications (63%) state that their main reason for regulating is to protect the public. These occupations are all covered by the Chartered Engineering certification scheme. Only three of the cited certified unit groups demonstrated competence as their main rationale, with no mention of its impact on public safety. These are all occupations covered by the Chartered Architectural Technician certification scheme. The remaining occupations claim that establishing and maintaining industry standards with a view to professionalism is the main reason for regulating. These included occupations regulated by the Hairdressing Council.

Enforcement Body

A regulatory body enforces all but one of the certification schemes. Regulatory bodies are organisations set up with the aim of enforcing a specific regulation. Examples of regulatory bodies include The Engineering Council, the Architects Registration Body and the Register of Exercise Professionals. Interestingly, all the regulatory bodies enforcing certification are government funded apart from the Register of Exercise Professionals, which is self-funded. The only certification scheme not enforced by a regulatory body is that of hairdressers. The Hairdressing Council is a non-chartered professional body which claims to be totally self-funded, but these claims are not always true.

Summary of Certification

In summary, if an occupation is covered by certification it will most likely cover the whole SOC unit group. The certificate is likely to cover more skilled occupations. It is also likely to require qualifications above degree level and possibly some work experience. It is less likely to require a CRB check but may require some occupation-specific requirements. The enforcement body is very probably a regulatory body

which is government funded, and it is very likely that a certified individual will also have a protected title in addition to a protected function.

1.3.4 Accredited Occupations

If an occupation is covered by an accreditation scheme, an individual within that occupation can chose to join. The scheme does not protect any tasks an occupation may cover, as is the case with certification. Accreditation simply accredits the individual with being able to meet the entry requirements and signals this to the public.

List of Accredited Occupations

*(*full coverage of unit group)*

- 1122 Managers in construction*
- 1132 Market and sales managers
- 1134 Advertising and public relations managers*
- 1135 Personnel, training and industrial relations managers*
- 1161 Transport and distribution managers*
- 1183 Healthcare practice managers*
- 1226 Travel agents managers*
- 1235 Recycling and refuse disposal managers
- 2111 Chemists*
- 2112 Biological scientists and biochemists
- 2113 Physicists, genealogists and meteorologists*
- 2131 IT strategy and planning professionals
- 2132 Software professionals

2322 Social science researchers

2421 Chartered and certified accountants*

2422 Management accountants*

2423 Management consultants, actuaries, economists and statisticians*

2432 Town planners*

2433 Quantity surveyors*

2434 Chartered surveyors (not quantity surveyors)*

2451 Librarians*

2452 Archivists and Curators*

3123 Building inspectors*

3131 IT operations technicians

3414 Dancers and choreographers

3431 Journalists, newspaper and periodical editors*

3531 Estimators, Valuers and Assessors*

3533 Insurance underwriters*

3537 Financial and accounting technicians

3543 Marketing associate professional

3562 Personnel and industrial relations officers*

3563 Vocational and industrial trainers and instructors*

3567 Occupational hygienists and safety officers

4122 Accountants and wage clerks, book-keepers, other financial clerks

4137 Market research interviewers*

4212 Legal secretaries*

5112 Horticultural trades

- 5113 Gardeners and groundsmen/groundswomen
- 5119 Agricultural and fishing trades
- 5224 Precision instrument makers and repairers*
- 5232 Vehicle body builders and repairers*
- 5234 Vehicle spray painters*
- 5241 Electricians, electrical fitters
- 5312 Bricklayers, masons
- 5313 Roofers, rook tillers and slaters*
- 5315 Carpenters and joiners*
- 5316 Glaziers, window fabricators and fitters*
- 5319 Construction Trades
- 5321 Plasterers*
- 5322 Floorers and wall tillers*
- 5323 Painters and decorators
- 5419 Textiles, garments and related occupations*
- 5496 Floral arrangers and florists*
- 5499 Hand craft occupations
- 6212 Travel agents*
- 6213 Travel and Tour Guides
- 6221 Hairdressers and Barbers
- 6291 Undertakers and mortuary assistants*
- 8113 Textile Process Operatives
- 8135 Tyre, exhaust and windscreen fitters
- 8141 Scaffolders, staggers, riggers*

- 8149 Construction operatives*
- 9111 Farm workers
- 9112 Forestry workers
- 9121 Labourers in building and woodworking traders*
- 9129 Labourers in other construction trades*
- 9225 Bar staff

Research into regulation found that 67 occupational unit groups had some form of accreditation present. Of those, 40 unit groups were completely covered by an accreditation scheme meaning every individual in that group could choose to join. Unit groups where complete coverage was found include group 1135 Personnel, Training and Industrial Relations Managers, where all individuals can choose to become a member of the Chartered Institute of Personnel Development (CIPD), and group 6212 Travel Agents where all individuals can choose to become members of the Association of British Travel Agents. Examples of unit groups that only have some jobs covered by an accreditation scheme are group 5499 Hand Craft Occupations where only toymakers and wig makers can chose to be accredited, group 5113 Gardeners and groundsmen/groundswomen where only those involved in landscaping can join the Landscape Institute, and in group 5119 Agricultural and Fishing Trades where only foresters can be accredited by the Institute of Chartered Foresters.

As with certification, accreditation can offer protection of title by a chartered institute. For example, members of the Chartered Institute of Biologists (concerning group 2112 Biological Scientists and Biochemists) can use the title Chartered Biologists. Similarly social science researchers (group 2322) who are members of the Chartered Institute of Geographers can use the title Chartered Geographer. Of the 67 unit groups where accreditation exists, 38 offer such a title.

Accreditation has been present in the UK for many years. The oldest accrediting institution found is the Royal Geographical Society which was formed in 1830. The society accredits geographers and is a chartered professional body.

Table 1-12: Accreditation Schemes by Year

	Before 1950	1950-1979	1980-1989	1990-1999	2000-2010	Total
Number Accreditations	12	8	6	18	16	60

* 7 were unknown

The table above shows that accreditation schemes have been steadily increasing over time. In the past 10 years there have been 16 new schemes introduced. These include: group 1134 Advertising and Public Relations Managers who are covered by accreditation in 2005, group 4212 Legal Secretaries, covered by accreditation in 2005, and group 6212 Travel Agents, covered by accreditation in 2006.

Table 1-13: Number of Accreditations by SOC Skill Level of Unit Group

Skill Level 1		Skill Level 2		Skill Level 3		Skill Level 4	
Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
5	7.5	8	11.9	34	50.7	20	29.9

As with licensing and certification, accreditation is present across a variety of SOC groups. Accreditation is also present in occupations that require a variety of skill levels. By using the SOC assigned skill levels for occupational unit groups, one can observe the spread of accreditation. Over half accredited unit groups are defined as having a SOC skill level of 3 (needing post compulsory education, but not to degree level). Indeed, most accredited unit groups require at least this level of skill with a further 29.9% being defined at level 4 (professional qualifications including degrees). This suggests that, as with certification and licensing, accreditation is more likely in occupations that require a fairly high skill set.

Barriers to Entry

Although accreditation is voluntary and does not offer any protection of function, the schemes still have barriers to entry. One barrier to entry is that of qualifications. Accreditation schemes may ask for an individual to have attained a certain level of qualification before they are accredited.

Table 1-14: Qualification Requirements mapped to the National Qualification Framework

	None Required	Below Level 2	Level 2	Level 3	Level 4-6	Level 7-8	Don't Know	Total
Number of Accreditations	1	2	19	9	31	3	2	67

Apart from one, all accreditation schemes require qualifications that can be mapped to the National Qualification Framework. The only accreditation scheme that does not require this is the accreditation that covers group 313 IT Operations Technicians. This accreditation welcomes academic qualifications, but does not insist upon them. The qualifying criteria are, instead, work experience of 8-10 years, professional references and an assessment interview. Many accreditation schemes require a qualification at level 2. These accreditations cover all those unit groups where the Construction Skills Certification Scheme has coverage, including group 5323 Painters and Decorators and group 5312 Bricklayers and Masons. The most common level of qualification required is between levels 4-6 (equivalent to any post A-level standard qualification up to degree level). Examples of unit groups in this category include: group 1122 managers in construction, group 1183 Healthcare Practice Managers, and group 4212 Legal Secretaries. With around half (50.7%) of accreditation schemes requiring qualifications above A-level standard, accreditation appears just as demanding as certification or licensing with regard to qualification requirements.

In contrast with licensing and certification, none of the 67 accreditation schemes required an individual to have a CRB check. However, some accreditation schemes did require individuals to have work experience in order to accredit them. In total, 24 of the 67 schemes required some level of work experience. The most popular bracket of experience required was between one and two years (13 out of 67 schemes). Examples of work experience requirements are found in the following unit groups: 3543 Marketing Associate Professionals who need three years' work experience in order to be accredited by the Chartered Institute of Marketing, group 3567 Occupational Hygienists and Safety Officers who need five years' work experience to become accredited by Institute of Occupational Health and Safety, and group 5323 Painters and Decorators who need one year's work experience to be accredited by the Painting and Decorating Association.

Accreditation may also require other barriers to entry to be met. These may include an assessed interview, as is the case for those wishing to be accredited by the Royal Institute of Chartered Surveyors, a health and safety test, a requirement for anyone wishing to be accredited by the Construction Skills Certification Scheme, or a portfolio of work as is the case for those wishing to become members of the Chartered Institute of Management Accountants. In all, 43 of the 67 accreditation schemes require something else from individuals other than qualifications - CRB checks or work experience.

Rationale for Accreditation

In total 18 of the accreditation schemes researched stated that protection of the public was the main reason why their scheme existed. These included the Chartered Institute of Accountants, the Royal Institute of Chartered Surveyors and the British Institute of Funeral Directors. The stated reason these bodies gave was to demonstrate competence and thereby protect the public (37 of the schemes mentioned this as their main reason). These included the Chartered Insurance Institute, the Landscape Institute and the Worshipful Company of Clockmakers. In addition to these reasons, professionalisation (self-interest) was cited for four of the unit groups covered the British Toymakers Guild, the Institute of Trichologists, the Hairdressing Council and the Society of Dyers and Colourists.

Enforcement Body

Almost all of the enforcement bodies of regulation are professional bodies (separate entities from the government). As such, they have autonomy over their running. In total 66 of the schemes are enforced by a professional body. Of these, 36 are chartered professional bodies, such as the Chartered Institute of Logistics and Transport, the Royal Society of Chemists and the Chartered Institute of Librarians and Information Professionals. The remainder of professional bodies (35) are not chartered and include the Society of Archivists, the National Association of Paralegals and the British Florist Association. All of the professional bodies are self-funded. The only accreditation enforcement body not to be a professional body is the Royal Institute of Chartered Surveyors who describe themselves as a regulatory body.

Summary of Accreditation

In summary from the findings outlined above some general statements can be made. If a unit group is covered by a regulation it is likely to be an occupation that requires a skill set of at least some post compulsory school level. It is also likely that the accreditation will require a level of qualifications of at least A-Level standard. Work experience between one and two years may be needed, along with some other occupation-specific requirements. It is unlikely that a CRB check will be needed. The enforcement body is most likely to be a professional body, which may or may not be chartered, but is likely to be self-funded. The most likely rationale for the accreditation is to allow members to demonstrate their competency at their given occupation.

1.3.5 Registered Occupations

If an occupation is registered, all individuals wishing to work in the occupation must join the appropriate register. This is a legal requirement and is therefore not voluntary. Registration schemes do not require any levels of competency to be shown or tested. They do not have barriers to entry beyond the need to submit

personal information and to join the register, though there may be an administrative cost involved.

List of Registered Occupations

*(*full coverage of unit group)*

- 1131 Financial Managers and Chartered Secretaries
- 1151 Financial Institution managers*
- 1152 Office Managers
- 1225 Leisure and sports managers
- 1239 Managers and proprietors in other services
- 3532 Brokers*
- 3534 Finance and investment analysts/advisors*
- 3544 Estate agents/auctioneers
- 4121 Credit controllers*
- 4123 Counter clerks
- 4132 Pensions and insurance clerks
- 4211 Medical Secretaries*
- 6124 Educational assistants
- 6211 Sports and leisure assistants
- 6222 Beauticians and related occupations
- 7121 Collector salespersons and credit agents
- 7122 Debt, Rent and Other Cash Collectors
- 7124 Market and street traders and assistants
- 9226 Park attendants

The list above shows all the occupational unit groups where registration is present; in total there are 20 groups where registration is present. Of these there are 5 occupational unit groups completely covered by registration, meaning everyone in that unit group must be registered. The unit groups with complete coverage are: 1151 Financial Institution Managers, 3532 Brokers, 3534 Finance and Investment Analysis/Advisor, 4121 Credit Controllers, and 4211 Medical Secretaries.

All registration schemes are enforced by Law. Such legislation includes the Consumer Credit Act 1974, the Financial Service and Markets Act 2000, and the Local Government (Miscellaneous Provisions) Act 1982.

Table 1-15: Accreditation Schemes by Year

	Before 1950	1950-1979	1980-1989	1990-1999	2000-2010	Total
Number Accreditations	0	2	1	0	15	18

* 2 were unknown

Some of the earliest known registration schemes were started by the Office of Fair Trading in response to the Consumer Credit Act 1974. These schemes covered groups 7121 Collector Salesperson and Credit Agents, and 7122 Debt, Rent and Other Cash Collectors. However, the biggest surge in registration has occurred since 2000 as a result of the Financial Services and Markets Act 2000 and the Gambling Act 2005. The Financial Services and Markets Act 2000 affected most occupations connected with the financial industry that were not already regulated by some other means. These unit groups included Financial Institution Managers (111), Finance and Investment Analysis/Advisor (3534), and Brokers (3532). Similarly the Gambling Act 2005 covered most jobs associated with the gambling industry that were not already regulated; included, Leisure and Theme Park Attendants (9226), Sports and Leisure Assistants (6211) and Counter Clerks (4121). Interestingly in gambling occupations individuals are required to have a clean criminal record and a stable

financial record, but this is the only entrance requirement of all the registration schemes researched. In addition to these two Acts the Consumers, Estate Agents and Redress Act 2007 came into force which meant that many occupations in Estate Agents and Auctioneers (3544) became registered.

Rationale for Registration

All but one of the registration schemes cite protection of the public as their main rationale to regulate. The only exception is Medical Secretaries (4211) who state that the main reason for registration is to gain professional recognition.

Enforcement Body

Of the enforcement bodies operating the schemes, all schemes affected by the Financial Services and Markets Act 2005 are enforced by the Financial Services Authority (FSA). The FSA is a government agency and so is government funded. Likewise, all those occupations registered in response to the Consumer Credit Act 1974 are regulated by the Office of Fair Trading, which is also government funded.

Beauticians and related occupations, and market and street traders, registered in response to the Local Government (Miscellaneous Provisions) Act 1982, are regulated at the local authority level and are government funded.

Some registration schemes are enforced by regulatory bodies. These are bodies set up purely to enforce regulation and are usually QUANGOs. The Gambling Commission regulates all unit groups affected by the Gambling Act 2005. The Gambling Commission is the only enforcing body of registration to be a regulatory body, but it is government funded.

The remaining registration schemes are non-chartered professional bodies. This means they are set up and run as separate entities from the government or local authorities. The enforcement bodies in question are the Ombudsman for Estate Agents or Surveyors Ombudsman Service, who register estate agents and auctioneers. Also included is the British Society of Medical Secretaries and

Administrators, who register medical secretaries. Both of them are non-chartered professional bodies and are self-funded.

Summary of Registration

In summary, if an occupation is covered by registration it is likely to be enforced by a government agency, which is government funded. It will almost certainly be the result of legislation that makes registration compulsory in order to try and protect the public. There are no entry requirements except where the Gambling Commission, who will require a clean criminal record and a stable financial history, enforces the registration.

1.3.6 Comparing Types of Regulations

In order to establish the characteristics of each type of regulation and determine how they differ from each other, an Analysis of Variance (ANOVA) was conducted on some of the main characteristics signalled by the literature, namely; barriers to entry, public safety and the enforcement bodies. The point of departure will be an overview of the different regulations with regard to their coverage.

Coverage

The research has indicated that 189 SOC unit groups have some regulation present within them. Table 1.16 summarises the results.

Table 1-16: Summary of the Coverage of Occupational Regulation in the UK

	Full Coverage		Partial Coverage		Total	
	Number of Unit Groups	Percentage of Unit Groups	Number of Unit Groups	Percentage of Unit Groups	Number of Unit Groups	Percentage of Unit Groups
Any Regulation	115	32.6	73	20.7	189	53.3
Licensing	53	15.0	29	8.2	82	23.2
Certification	17	4.8	2	0.6	19	5.4
Accreditation	39	11.0	28	7.9	67	19.0
Registration	5	1.4	15	4.2	20	5.7

From the summary of the results in table 1.16 it is clear that licensing is the most dominant form of regulation with regard to coverage, followed by accreditation, certification and registration. The lower and upper bound estimates that are a result of the nature of the SOC unit groups, suggest that occupational regulation is presently in-between 32.6% and 53.3% of occupations.

Table 1-17: Regulation Status by Year of Commencement

Regulation Status	Before 1950	1950-1979	1980-1989	1990-1999	2000-2010	Don't Know	Total
Licensing	21	14	3	16	15	13	82
Certification	0	1	12	0	6	0	19
Accreditation	12	8	6	18	16	7	67
Registration	0	2	1	0	15	2	20
Total	33	25	22	34	52	22	188

Table 1.17 indicates licensing has always been the dominant form of regulation. The findings also show that accreditation and certification were not present at all until

after 1950. The expansion of regulation over the past 20 years appears to be focused on licensing and accreditation, though registration has increased substantially in the past 10 years due to the Gambling and Finance Acts.

In terms of geographical coverage, most regulations cover all of the UK.

Table 1-18: Geographical Coverage of Regulation

Regulation Status	UK	Only GB	Only England and Wales	Only Scotland	Total
Licensing	81	0	1	0	82
Certification	19	0	0	0	19
Accreditation	65	1	1	0	67
Registration	20	0	0	0	20
Total	185	1	2	0	188

However there are three exceptions. The British Toymakers Guild only covers individuals working in Great Britain, the National Association of Licensed Paralegals only covers individuals working in England and Wales, and local authorities only licence some bar staff in England and Wales.

The distribution of regulation across the spectrum of occupations can be viewed in two ways: the amount of regulation by SOC major groups and the amount of regulation by the SOC skill level.

Table 1-19: Regulation by SOC Major Group

Coverage of Unit Groups	Licensing		Certification		Accreditation		Registration		Total	
	Number	%	Number	%	Number	%	Number	%	Number	%
Managers and Senior Officials	11	13.4	1	5.3	8	11.9	5	25.0	25	13.3
Professionals	13	15.9	10	52.6	14	20.9	0	0.0	37	19.7
Associate Professionals and Technical	28	34.1	6	31.6	11	16.4	3	15.0	48	25.5
Admin and Secretarial	0	0.0	0	0.0	3	4.5	4	20.0	7	3.7
Skilled Trades	8	9.8	0	0.0	18	26.9	0	0.0	26	13.8
Personal Service	5	6.1	0	0.0	4	6.0	3	15.0	12	6.4
Sales and Customer Service	0	0.0	2	10.5	0	0.0	3	15.0	5	2.7
Process, Plant and Machine Operatives	14	17.1	0	0.0	4	6.0	0	0.0	18	9.6
Elementary	3	3.7	0	0.0	5	7.5	2	10.0	10	5.3
Total	82	100.0	19	100.0	67	100.0	20	100.0	188	100.0

**All coverage included (both full and partial unit group)*

Table 1.19 shows that regulation is more prevalent in major groups 1-3. However, regulation does feature across all occupational major groups. Whilst licensing and certification follow the trend of appearing more frequently in major groups 1-3, accreditation and registration appear more evenly across the major groups and encompass, proportionately, more occupations lower down the spectrum than do licensing or certification.

If one considers regulation with regard to the SOC skill level of the unit groups, 71.8% of regulations are within occupational groups defined as requiring a SOC skill level of at least 3 (post compulsory education).

Table 1-20: Regulation by SOC Skill Level

	Licensing		Certification		Accreditation		Registration		Total	
	No	%	No	%	No	%	No	%	No	%
Level 1	4	4.9	0	0.0	5	7.5	2	10.0	11	5.9
Level 2	18	30.0	5	26.3	8	11.9	11	55.0	42	22.3
Level 3	38	46.3	5	26.3	34	50.7	5	25.0	82	43.6
Level 4	22	26.8	9	47.4	20	29.9	2	10.0	53	28.2
Total	82	100.0	19	100.0	67	100.0	20	100.0	188	100.0

**All Unit groups included (both full and partial coverage)*

Of the different types of regulations, the majority of certification is present in occupations needing professional qualifications at degree level (SOC skill level 4). The majority of licenses and accreditation are found in occupations that need post compulsory education, but not degree level (SOC skill level 3). Registration is most prevalent in occupations requiring compulsory education levels with some work related training (SOC skill level 2). In order to determine if there is a significant difference between the prevalence of each type of regulation and the SOC skill levels, an Analysis of Variance was conducted.

Table 1-21: ANOVA of occupations by SOC skill levels

	Mean	Number	F	Sig
Registration	2.35	20	3.956	0.000
Accreditation	3.03	67		
Certification	3.15	20		
Licensing	3.00	82		
Total	2.88	189		

The results presented in table 1.21 support the premise that the different types of regulations differ in their prevalence in the different skill levels. The results of the ANOVA indicate that registration is present, on average, in occupations that require a lower skill set compared to the other types of regulation. The results also suggest that certification is more likely to be present in higher skill level occupations.

As a result of the descriptive statistics and ANOVA, results presented some conclusions. First, licensing is the most prevalent form of regulation and registration is the least. Over 98% of regulations cover the whole of the UK (there are only 3 which do not). Regulation is present across all major SOC groups. Licensing and certification are more likely to be present in major groups 1-3; whereas accreditation and registration are more likely to be present in the other major groups. Statistically, the regulations are significantly different with regard to the skill levels of the occupations they cover. Certification is more likely in highly skilled jobs while registration is more likely in lower skilled jobs. Licensing and accreditation are most likely to be found in medium skilled occupational groups.

Barriers to Entry

Licensing, certification and accreditation all have barriers to entry. These barriers prevent an individual from attaining a licence, certificate or accreditation until

certain criteria have been met. The main barriers used are qualifications (both vocational and educational), CRB check and work experience. However, there are other barriers that a regulation can use such as: age, health checks or work samples.

Qualifications

When qualifications are used as a barrier to entry an individual must attain a certain level of qualification before they can gain entrance to the regulation. The qualifications required by the regulation can, in the most part, be transposed to the National Qualification Framework (NQF). This is particularly important because without a national scale it is very difficult to compare, say, an accountant's ACA qualification with a security guard's SIA qualification.

Table 1-22: Regulation Status by NQF Qualification

<i>Regulation Status</i>	<i>None</i>	<i>Below Level 2</i>	<i>Level 2</i>	<i>Level 3</i>	<i>Level 4-6</i>	<i>Level 7-8</i>	<i>Don't Know</i>	<i>Total</i>
Licensing	0	20	11	6	32	2	11	82
Certification	0	0	7	0	2	10	0	19
Accreditation	1	2	19	9	31	3	2	67
Total	1	22	37	15	65	15	13	168

**Registration has no entry requirements, 'don't know' denotes when a qualification cannot be accurately translated to the NQF*

The table above shows that regulation can require a range of qualification levels. Whilst licensing and accreditation have balanced qualification requirements (ranging from 2 – 8), certification appears to have a higher average qualification requirement with 52.6% requiring a level 7-8 (equivalent to post graduate to doctorate level).

Table 1-23: Type of Qualification by NQF Level Required

Type of Qualification	Educational	Vocational	Either	Total
Below Level 2	0	22	0	22
Level 2	0	36	1	37
Level 3	1	14	0	15
Level 4-6	52	7	6	65
Level 7-8	14	1	0	15
Total	67	80	7	154

The qualifications required by regulation can either be educational or vocational, or a mixture of the two. Table 1.23 illustrates that qualifications of level 3 and below are almost all vocational. Similarly NQF level 4 and above requirements are nearly always educational. The table also shows that qualifications are usually educational or vocational, and are rarely a combination of the two.

In order to ascertain if one regulation is more stringent in terms of qualification demands than another, it is necessary to consider what the skill set required by the occupation would be if it were unregulated and compare this to what the regulation is demanding. To do this the SOC skill level of the occupational unit group is equated to the NQF. This was then deducted from the NQF level required by the regulation. As a result it is possible to measure the additional qualification demands of the regulation over and above the existing needs of the occupation. An ANOVA was conducted to see if the regulations were similar in their levels of barrier to entry or not. The results of the ANOVA are presented below.

Table 1-24: Additional qualification requirements by regulation type

	Mean	Number	F	Sig
Accreditation	-0.923	67	40.424	0.000
Certification	0.600	19		
Licensing	0.541	82		
Total	-0.041	168		

The results indicate a significant difference between the regulation types and the additional qualification requirements. Certification is shown to require the greatest increase of qualification level, closely followed by licensing. Accreditation is shown to require qualification levels below what is expected from the occupation in terms of its SOC skill level; this is shown by the negative mean value. As such one can suggest that accreditation does not utilise qualifications as a barrier to entry since if someone is able to do the job, their skill set would already be above that of the required level. Therefore, the only regulations shown to be significant using qualifications as a barrier to entry are licensing and certification (though to different degrees).

Criminal Record Background (CRB) Check

Regulations can also require individuals to have a clean criminal record. To establish if this is the case, a CRB check is undertaken. Table 1.26 presents the frequency of CRB checks across all occupational regulations.

Table 1-25: CRB requirements by regulation types

	CRB Check	
	Number	Percentage
Any Regulation	41	21.7
Licensing	32	39.0
Certification	1	5.0
Accreditation	0	0.0
Registration	8	40.0

The results indicate that just over a fifth (21.7%) of all regulated occupations require a CRB check. Licensing and registration require the majority of the CRB checks (39% and 40% respectively). Certification requires only one CRB check, and no accreditation schemes state that a CRB check is required.

Table 1-26: CRB requirements by regulation type

	Mean	Number	F	Sig
Registration	0.040	20	0.236	0.046
Accreditation	0.000	67		
Certification	0.005	19		
Licensing	0.390	82		
Total	0.041	188		

The ANOVA results presented in table 1.26 show that there is a statistically significant difference between the different types of regulation and the need for CRB checks. The results suggest that Licensing and registration require significantly more CRB checks than certification or accreditation.

Work Experience

In addition to qualifications and CRB checks, a regulation can also require a period of work experience before an individual qualifies. As work experience requires an individual to undertake work related to the occupation, this requirement is mostly associated with certification and accreditation. However, some licensing schemes ask for work experience too. A licensed professional supervises all work experience which takes place during or after professional exams are taken. Examples of licenses where work experience is needed are pharmaceutical dispensers, solicitors and lawyers. Below is a table summarising the work experience required per regulation status.

Table 1-27: Years of Work Experience by Regulation Status

Regulation Status	None	1-2 Years	3-4 Years	5+ Years	Varies	Total
Licensing	75	3	1	0	3	82
Certification	13	0	0	0	6	19
Accreditation	43	13	5	5	1	67
Total	131	16	6	5	10	168

The table above shows accreditation schemes that have the greatest requirement for work experience, with 24 schemes requiring a level of experience. Of those unit groups covered by certification schemes only six require any work experience, and seven licensing schemes require experience.

In order to ascertain if there is a statistically significant difference between the regulation statuses and this particular barrier to entry, an ANOVA was conducted. Given the small numbers of schemes with work experience, the variable used was ‘presence of work experience requirement’ as opposed to length of work experience required.

Table 1-28: Work experience requirements by regulation type

	Mean	Number	F	Sig
Accreditation	0.552	67	0.011	0.989
Certification	0.316	19		
Licensing	0.085	82		
Total	0.298	168		

Despite the observed requirements of work experience differing across the regulation statuses, the results from the ANOVA suggest that there is not a significant difference between the different types of regulation and this barrier to entry.

Rationale for Regulation

Regulatory bodies were asked what the main rationale was for their regulation. Table 1.29 contains the results.

Table 1-29: Rationales for Regulation

Regulation Status	Protect the Public	Demonstrate Competence	Health and Safety	Up skill	Professional Recognition	Adherence to Codes of Conduct	Establish/ Maintaing Industry Standards	Total
Licensing	75	16	7	0	0	5	0	82
Certification	12	1	12	0	6	0	0	19
Accreditation	18	37	12	14	3	7	3	67
Registration	19	0	0	0	1	1	0	20
Total	124	54	31	14	10	13	2	188

From the results it can be observed that almost 70% of all regulations claim that protection of the public is the main reason for their regulation. The second most common reason for regulation is to demonstrate competence (28.7%). Health and safety concerns were stated by 16.5% of the regulations. The least common response was to maintain or establish industry standards (1.1%).

From the literature presented in this paper, the justifications of particular interest were ‘protection of the public’ and ‘professionalism’. Protection of the public is the most (or joint most) common rationale for licensing, certification and registration. However, it was only the rationale for 26.9% of accreditation schemes. Professionalisation, which would suggest mostly benefits for the practitioners and not the public, was not given as a reason by any licensing regimes. Professionalisation was cited by some certification, accreditation and registration schemes.

Table 1-30: Protection of the public by regulation type

Regulation Type	Mean	N	F	Significance
Registration	0.950	20	42.589	0.000
Accreditation	0.254	67		
Certification	0.650	20		
Licensing	0.902	82		
Total	0.651	189		

Table 1-31: Professionalisation of occupations by regulation type

Regulation Type	Mean	N	F	Significance
Registration	0.005	20	11.195	0.000
Accreditation	0.045	67		
Certification	0.300	20		
Licensing	0	82		
Total	0.005	189		

The results from the two ANOVAs above suggest there are great differences between the types of regulations and their reasons for existence. Protection of the public is cited significantly more for licensed and registered occupations when compared to certification or accreditation. Conversely, professionalisation of the occupation is cited significantly more times as the main reason for certification and accreditation. The results suggest that registration and licensing are more likely to give similar rationales for regulation, as are certification and accreditation.

Enforcement Body

A regulation can be enforced by different enforcement bodies. These bodies can be separated into five main categories: regulatory body, government agency, local authority, chartered professional body and non-chartered professional body. Regulating bodies are organisations set up with the aim of enforcing a specific regulation. They are not solely controlled by the government; though will often fall into the definition of a QUANGO. Government agencies are those that are within a governmental department. Professional bodies enforce other licenses. These are set up as separate entities from the government and as such have autonomy over their running, although they must adhere to any relevant legislation. Professional bodies can be chartered which means they have been granted a royal charter and members can use the term 'chartered', such as a Chartered Accountant. Other professional bodies are not chartered and do not offer such titles to their members.

Table 1-32: Enforcement Body by Regulation Status

	Regulatory Body	Gov. Agency	Local Authority	Chartered Prof. Body	Prof. Body	Other	Varies	Total
Licensing	32	27	15	0	3	1	4	82
Certification	14	5	0	0	0	0	0	19
Accreditation	1	0	0	36	30	0	0	20
Registration	8	8	2	0	2	0	0	67
Total	55	40	17	36	35	1	4	188

The table above shows that the majority of licensing, certification and registration is enforced by regulatory bodies or government agencies; whereas, accreditation schemes are predominantly enforced by professional bodies, chartered or not. In terms of funding, all government agencies and local authorities are government funded. The other types of enforcement bodies may be government funded, or self-

funded, or a mixture of the two. Below is a summary of the funding of each type of regulation.

Table 1-33: Funding by Regulation Status

	Government Funded		Self-Funded	
	Number	Percentage	Number	Percentage
Any Regulation	92	48.9	96	51.1
Licensing	69	84.1	13	15.9
Certification	5	26.3	14	73.7
Accreditation	0	0.0	67	100.0
Registration	18	90.0	2	10.0

Table 1.33 shows that the majority of regulation is self-funded (51.1%). However, this is largely because accredited occupations are found to be 100% self-funded and this then skews the results. Licensing and registration are predominantly government funded (84.1% and 90% respectively), whereas certification is mainly self-funded (74.7%) but over a quarter of all certification is funded by the government (26.3%).

Table 1-34: Regulation of occupations by funding

Regulation Type	Mean	N	F	Significance
Registration	0.900	20	8.6246	0.001
Accreditation	0.000	67		
Certification	0.263	19		
Licensing	0.841	82		
Total	0.489	188		

The ANOVA results presented above suggest that there is a statistically significant difference between the regulation statuses and how they are funded. As mentioned above, licensing and registration are mostly government funded while only some certification is. Accreditation is very unlikely to receive any government funding.

1.3.7 Summary of Results

Table 1-35: Summary of results

Results		
Coverage	Licensing	82 occupational unit groups (53 complete coverage)
	Certification	19 occupational unit groups (17 with complete coverage)
	Accreditation	67 occupational unit groups (40 with complete coverage)
	Registration	20 occupational unit groups (5 with complete coverage)
Age	Only licensing and accreditation schemes that are still in existence today have been founded before 1950. Certification and accreditation have been present since 1950. All regulation types have increased over time. There has been no deregulation of occupations found.	
Coverage	Over 98% of regulations have complete coverage of the UK.	
SOC Major Group	Regulation is most prevalent in major groups 1-3. Licensing and certification are also most prevalent in groups 1-3. Accreditation and registration are more evenly distributed across all SOC major groups.	
SOC Skill Level	There is a statistically significant difference in the skill levels of occupations covered by the different types of regulation. Certification is most prevalent in highly skilled occupations. Accreditation and licensing are found in medium to high skill level occupations.	

Results		
	Registration is found in comparatively lower skilled occupations.	
Barriers to Entry	Qualifications	A statistically significant difference in the additional qualifications required by the regulations compared to the defined skill level of the occupation. Certification is found to require the highest qualifications followed by licensing. Accreditation is shown to require lower qualifications than the skill level required to undertake the job.
	CRB Checks	A moderately statistically significant difference between the types of regulation and presence of CRB checks is found. Licensing requires far more CRB checks than any of the other regulations. Only 4.1% of all regulations require a CRB check.
	Work Experience	There is no statistically significant difference between the amounts of work experience required by the different regulations. Overall, 29.8% of all regulation requires work experience before full entry is granted.
Rationale	Protection of the Public	A statistically significant difference between the different types of regulation is found. Over 90% of licensing and 95% of registration state that protection of the public is their main rationale. Only 25.4% of accreditation schemes cited this as their main rationale and 65% of certification schemes.
	Professionalisation	A statistically significant difference between the different types of regulations and the focus on professionalisation is found. A total of 30% of certification schemes cite

Results		
		professionalisation as their main aim, whereas 4.5% of accreditation schemes state this is their focus. Only 0.5% of registration schemes state this is their focus, and no licensing schemes mention professionalisation as part of their main aim.
Enforcement Bodies	Characteristics	Regulatory bodies, government agencies or local authorities enforce most licensing, certification and registration schemes. Accreditation schemes are predominantly enforced by professional bodies, chartered or non-chartered.
	Funding	A statistically significant difference in the funding of regulation is found between the different types of regulation. Over 84% of licensing and 90% of registration is government funded, 26.3% of certification is government funded. All accreditation schemes are found to be completely self-funded.

1.4 Discussion

Mapping the prevalence of occupational regulation has never been conducted in such detail before this piece of research. This is the first investigation into all four types of regulation: licensing, certification, accreditation and registration. The results show that of the 353 Standard Occupation Classification (SOC) unit groups, 188 are covered, to some extent, by regulation. This shows that regulation is a major institutional actor and warrants investigation. This section will discuss whether the results have supported the theory presented at the start of this paper. First, the results will be compared with the countries used in the theoretical comparison earlier on.

Second, the characteristics of regulation will be discussed in relation to typifying each of the four different types of regulation.

1.4.1 International Comparison

The list of regulated occupations indicates that occupations are regulated across the spectrum in the UK. Regulation is present in all of the 9 Standard Occupation Classification (SOC) major groups. However, in order to determine whether the UK is indeed different in terms of regulation compared to other European countries and American states, it is necessary to compare and contrast the occupations regulated in each country.

As discussed previously, data regarding regulation is sparse in many countries. The majority of data that does exist focuses on licensing. Table 1.36 indicates if occupations licensed in the UK are also licensed in a selection of other countries noted previously as having different approaches to regulation than the UK.

Table 1-36: Comparison of occupational regulation in the UK with other countries

UK	US (state of New York)	Poland	Netherlands	France	Germany
Officers in the Armed Forces*	✓	✓	✓	✓	✓
Police Officers (inspectors and above)*	✓	✓	✓	✓	✓
Senior Officers in fire, Ambulance, Prison and related services*	✓	✓	✗	✗	✗
Security Managers*	✓	✓	✗	✓	✗
Pharmacy Managers	✓	✗	✓	✓	✓
Social Services managers	✓	✗	✗	✓	✓
Residential and day care managers	✓	✓	✗	✗	✓

UK	US (state of New York)	Poland	Netherlands	France	Germany
Restaurant and catering managers*	✗	✓	✗	✗	✗
Publicans and managers of licensed premises*	✗	✗	✗	✗	✗
Medical practitioners*	✓	✓	✓	✓	✓
Psychologists*	✓	✓	✓	✓	✓
Pharmacists/pharmacologists*	✓	✗	✓	✓	✓
Ophthalmic opticians*	✓	✗	✓	✓	✓
Dental Practitioners*	✓	✓	✓	✓	✓
Veterinarians*	✓	✗	✓	✓	✓
Secondary education teaching professionals*	✓	✓	✓	✗	✗
Primary and nursery education Teaching professionals*	✓	✓	✓	✓	✓
Special needs education teaching professionals*	✓	✓	✓	✗	✓
Solicitors, lawyers, judges and coroners*	✓	✓	✓	✓	✓
Legal professionals*	✓	✓	✓	✓	✓
Social workers*	✓	✗	✗	✓	✗
Probation workers*	✗	✗	✗	✗	✗
Electrical/Electronics Technicians*	✓	✓	✗	✓	✓
Nurses*	✓	✗	✓	✓	✓
Midwives*	✓	✗	✓	✓	✓

UK	US (state of New York)	Poland	Netherlands	France	Germany
Paramedics*	✓	✓	✗	✗	✗
Medical Radiographers*	✓	✗	✗	✓	✓
Chiropodists*	✓	✗	✓	✓	✓
Dispensing opticians*	✓	✗	✗	✓	✓
Pharmaceutical dispensers*	✓	✗	✓	✓	✓
Medical and dental technicians	✓	✓	✓	✓	✓
Physiotherapists*	✓	✗	✗	✓	✓
Occupational therapists*	✓	✗	✓	✓	✓
Speech and language therapists*	✓	✗	✗	✓	✓
Therapists	✓	✓	✓	✓	✓
Youth and community workers*	✗	✗	✗	✗	✗
Police Officers (sergeant and below)*	✓	✗	✓	✗	✗
Fire service	✗	✓	✓	✓	✗
Prison service officers (below principal officer)	✗	✗	✗	✗	✗
Protective service associate professionals	✗	✗	✗	✗	✗
Sports coaches, instructors and officials	✓	✓	✗	✓	✓
Air traffic controllers*	✗	✓	✓	✓	✗
Aircraft pilots and fight engineers*	✓	✓	✗	✓	✗

UK	US (state of New York)	Poland	Netherlands	France	Germany
Ship and hovercraft officers*	✗	✓	✓	✓	✓
Legal associate professionals	✓	✓	✓	✓	✓
Taxation experts*	✓	✓	✗	✓	✓
Inspector of factories, utilities and trading standards*	✓	✓	✗	✗	✗
Statutory examiners	✓	✗	✗	✗	✗
Environmental health officers*	✓	✓	✓	✗	✗
Farmers	✗	✗	✗	✗	✗
Smiths and forge workers	✗	✓	✗	✗	✓
Motor mechanics, auto engineers	✓	✓	✓	✓	✓
Plumbers, heating and ventilation engineers	✓	✓	✓	✓	✓
Butchers, meat cutters*	✓	✗	✗	✓	✓
Bakers, flour confectioners*	✓	✗	✗	✓	✓
Fishmongers, poultry dressers*	✓	✗	✗	✓	✗
Chefs, cooks	✓	✗	✗	✗	✗
Nursing auxiliaries and assistants	✓	✗	✗	✗	✓
Dental nurses	✓	✓	✓	✓	✓
Nursery Nurses	✗	✗	✗	✓	✓
Childminders and Related Occupations	✗	✗	✗	✗	✓

UK	US (state of New York)	Poland	Netherlands	France	Germany
Playgroup leaders/assistants	✗	✗	✗	✗	✗
Education Assistants	✓	✓	✗	✗	✗
Process operatives	✓	✓	✗	✗	✓
Heavy goods vehicle drivers*	✓	✓	✓	✗	✗
Van drivers*	✓	✓	✗	✗	✗
Bus and coach drivers*	✓	✓	✗	✗	✗
Taxi, cab drivers and chauffeurs*	✓	✓	✗	✗	✗
Driving instructors	✓	✓	✓	✓	✗
Crane drivers*	✓	✓	✓	✗	✗
Fork-lift truck drivers*	✓	✓	✗	✗	✗
Agricultural machinery drivers*	✗	✓	✓	✓	✓
Kitchen and catering assistants	✓	✗	✗	✗	✗
Bar Staff	✗	✗	✗	✗	✗
Security guards and related occupations	✓	✓	✗	✓	✗
Elementary security occupations	✓	✓	✗	✓	✗

Source: EU Commission Entry Regulation Database

Interestingly, only a few of the licensed occupations in the UK are also licensed in all of the other countries. Occupations in the armed forces, police, primary and nursery education, doctors, therapists, lawyers and legal associates, motor inspectors, gas,

heating or ventilation workers, and dental practitioners, are all regulated across the countries. However, many occupations licensed in the UK are not licensed in at least one of the other countries considered. In general, there seems to be more emphasis on regulating occupations associated with criminals, security and all other individuals working with children, including playgroup leaders, education assistants and special needs teachers. These occupations are not widely licensed elsewhere. A possible explanation is the extent of the public sector in the UK. Many of the occupations licensed are based mainly in the public sector, for example doctors, nurses and teachers. Given that the government funds and controls the public sector and almost all licensing schemes, it may be the case that licensing is a tool used by the government to further manage individuals working in the sector. A further reason for the extent of licensing in the UK could relate to the customers of the licensed practitioners. Many of the customers are from vulnerable sections of society, (e.g. children, disabled and sick individuals). These sections of society have a clear lack of knowledge, and thus power, concerning the treatment they receive and are unable to assess a quality practitioner resulting in an asymmetry of knowledge (Mitchell 1937). It is also the case that poor practitioners could cause significant social costs if their service is not of a suitable standard. As with the NHS, legal aid and emergency services are such a huge part of UK society, and funding by the government, it is reasonable to assume that the government would strive to reduce possible harm to the public and reduce spending on these services as a result. Therefore, a benefit is made to society through cutting societal costs (Shapiro 1986). This very much supports Moore's (1961) reasoning for using regulation to protect the public and suggests that licensing is very much focused on protecting the public in the UK rather than providing practitioners with the benefits a restricted occupation may have.

Yet despite the apparent extensive amount of licensing in the UK, there are many occupations that are licensed in the other countries observed, and not in the UK.

Table 1-37: Occupations licensed elsewhere but not in the UK

Occupation	Licensed	UK
Town Planner	New York, Germany, Netherlands, Poland	Certification
Architect	New York, Germany, France, Netherlands, Poland	Accreditation
Barber	New York, Germany	Certification
Accountant	New York, Germany, Netherlands, Poland	Accreditation
Funeral Director	New York	Accreditation
Groom	New York	Unregulated
Animal Trainer	New York, France	Unregulated
Insurance Agent/Assistant	New York, France	Registered
Interior Designer	New York, Germany, France	Unregulated
Jockey	New York	Unregulated
Outdoor Guide	New York, Germany, France	Unregulated
Engineers	New York, Poland	Unregulated
Librarian	New York, Poland	Accreditation
Chimney Sweep	Germany	Unregulated
Wig-Maker	Germany	Accreditation
Plasterer	Germany	Accreditation
Roofer	Germany	Accreditation
Scaffolder	Germany	Accreditation
Translator/Interpreter	Germany, Poland	Unregulated
Broker	France	Registration
Forester	France, Poland	Accreditation
Carpenter	Germany, France	Accreditation

Occupation	Licensed	UK
Plaster	Germany, France	Accreditation
University Teacher/Professor	France, Netherlands	Unregulated
Archivists	Netherlands	Unregulated
Bailiff	Netherlands	Registered
Archaeologist	Poland	Accreditation
Surveyor	Poland	Accreditation

Few of the occupations that are licensed elsewhere are unregulated in the UK. Instead they are regulated via certification, accreditation or registration. For the most part, one can observe that the occupations in table 1.36 have different characteristics than those presented in table 1.37. For example, the majority of occupations licensed in the UK are present in the public sector; they have a great deal of interaction with vulnerable portions of society and they can cause sizeable social costs if they are not conducted correctly. As such, there is no obvious need to protect the public through regulating every aspect of the occupation through licensing (Moore 1961). However, some of the tasks associated with the occupations could cause harm to the public. For example, a town planner could cause huge societal costs if the roads are unsafe for pedestrians. As a result these occupations are certified in the UK to restrict potentially harmful activities to only competent practitioners. Indeed, this is the case with almost all certified occupations in the UK. From those investigated, 12 of the 19 certification schemes are set up to protect the public, just as 75 of the 82 licensing schemes are. The difference is that not all of the activities in occupations covered by certification pose a threat to the public. As such, only those tasks that do pose a threat to the public are regulated. Therefore, Moore (1961) is further supported in his argument that protection is the firmest rationale for regulation..

In a similar vein, some of the occupations that are licensed elsewhere are registered in the UK. As with occupations that are certified instead of licensed, there appears to be no obvious potential for every task covered by registered occupations to cause

substantial harm to the public. However, there may be more subtle negative effects to the public. An example is that of stockbrokers. Brokers are registered in the UK in order to protect the public, just as 19 of the 20 registered occupations that exist to do. Brokers can cause harm if their advice to, and management of, their clients' wealth is dishonest. Whilst it is not deemed necessary to test for specific competencies, joining a register is legally enforced so practitioners can be held responsible should their practice be corrupt. As a further insurance to clients, individuals who need to be registered cannot gain insurance until they are in fact registered. There are not enough society costs to cause licensing or certification to occur, both are costly and extensive types of regulation. As such, it is occupations where there is not a need to check particular competencies but where there is a need to financially protect clients from poor practice, that registration is used.

1.4.2 Characteristics of Occupational Regulation

Protecting the public appears to be the key motivation for licensing, certification and registration. This could account for why it is only in these types of regulation that a criminal record background check is required. It may also account for why the government only enforces and funds these regulations. However, there is a fourth type of regulation in the UK, accreditation, which has no legal instrument forcing membership and no government funding or enforcement.

Accreditation follows a different pattern. Of the occupations accredited in the UK, only 18 of 67 state that their main aim is to protect the public. Indeed, the occupations covered by accreditation appear to pose no immediate harm to the public in terms of societal or individual cost. This could explain why there is no government intervention or funding within accreditation schemes. These occupations have very low barriers to entry when compared to licensing and certification, which may further highlight the lack of a need to ensure high levels of competency within the occupations and the lack of potential harm to the public. Accreditation schemes are not enforced or funded by the government so arguably do not need to justify their existence through protecting the public and preventing societal costs. They are demand driven; whilst there are practitioners wishing to be accredited, they will have

a place in the market. Friedman (1962) argues that there is a huge incentive for practitioners to become regulated in order to benefit from the monopolistic environment it can create. In addition, Abbott (1981) states that, generally, professionals need to sharpen the boundaries and portray a professional charisma to the public in order to continue being perceived as professionals.

Friedman (1962) further argues that all regulation is the result of a pursuit for personal gain on the part of the practitioner. Although regulated practitioners may all benefit from being regulated, the results do not support such a drastic hypothesis. Licensed, certified and registered occupations have clear links to the public and obvious potential to cause harm and, as a result of the government funding and intervention observed, it seems implausible to suppose that this is purely for the interests of the practitioners.

Despite some trends emerging relating to the type of regulation and the rationale for that regulation, it may not be the case that all occupations where practitioners may harm the public are regulated by licensing or registration. This is because some occupations that are recorded as accredited in the UK are licensed elsewhere, such as scaffolders and roofers. Arguably these occupations could pose real harm to the public. Perhaps there is another explanation beyond potential harm to the public that is determining the regulation status of some occupations in the UK, however making such a conclusion would require further investigation.

The results show that regulation appears across all of the SOC major groups and this is also true of registration. Yet licensing and certification are far more prevalent in SOC major groups 1, 2 and 3, whereas accreditation is more likely in SOC major groups 6, 7, 8 and 9. This poses an alternative hypothesis as to how occupations are regulated. Perhaps rather than just basing regulation on potential harm to the public, how professional the occupation is perceived to be also affects its regulation.

Traditionally all licensing and certification schemes were solely focused on the upper SOC major groups. Only since 1990 have a notable portion of licensing and certification schemes appeared in lower major groups. Indeed these newer occupations, licensed or certified, that are positioned lower down the SOC spectrum

are often dubbed “pseudo professions” (Fernie 2010). These are occupations never regarded as professions in the traditional sense of the term, but are now regulated in response to concerns over malpractice, such as the case with security guards (Fernie 2011). However, licensing and certification is still predominantly present towards the upper SOC major codes suggesting regulation is still unbalanced across all the different occupational groups. This supports the idea that it is occupations that are perceived as being professional that are stringently regulated. This supports the notion that it is through the exclusion of non-professionals, according to Abbott (1981), that professionals analyse professionalism – barriers to entry realise this exclusion.

With regard to the skill levels of regulated occupations, most regulation is in occupations that require skill levels equivalent to some post-compulsory education level. Certification is present in occupations with an average skill level of 3.15, followed by accreditation with 3.03, licensing with 3 and registration with 2.35. This may suggest that accredited occupations demand a fairly high skill level and so there is no need to legally enforce a minimum competency level. Or it could support the idea that these occupations have a real asymmetry of knowledge because the skill levels of practitioners is relatively high and so clients are not well-placed to assess the quality of the work because they do not have the adequate skills. This would mean that at least one of Moore’s (1961) criteria for a need to protect the public is satisfied, yet this is not shown to result in more stringent types of legally enforced regulations being used. However, when one considers the additional qualifications required by each regulation, both licensing and certification require significantly more from entrants than accreditation. Therefore, once regulated there could be a levelling out whereby licensed and certified individuals’ qualification levels increase to enter the regulations, and accredited individuals remain at the same level. Yet, an asymmetry of knowledge would still exist.

Therefore, the results support theorists who commentate on the links between a need to protect the public and regulation. They also support the presence of vested interests on the behalf of the practitioners relating to some types of regulation. Yet the results have challenged some of the assumptions made with regard to the

rationale and characteristics of regulation. It appears that the perception of the occupation is of particular importance where regulation status is concerned. This is where the UK differs from some of the other countries used in the comparison. This suggests that regulation is far more related to professionalisation than previously thought.

1.4.3 Summary

To summarise occupational regulation in the UK, one must view regulation as a multifaceted institutional actor in the labour market. There are four different types of regulation, each with differing characteristics above and beyond the extent to which they limit entry to occupations and tasks within occupations. Accreditation is arguably the most unique type of regulation having no legal instrument supporting it or interaction with the government. It is also the fastest growing regulation and the most likely to be created because of the vested interest practitioners have in becoming regulated. In comparison to other countries, regulation in the UK is comprehensive, but some occupations licensed elsewhere, are not here in the UK. This could be because of the heavy focus to protect the public where any government, legal or social funding is concerned. It may also be because of the perception of the occupations in question: more occupations regarded as ‘professional’ are regulated than those not deemed as traditional professional occupations.

Paper 2

Occupational Regulation in the UK: Impact

The previous paper assessed the prevalence of occupational regulation at the occupation level. In addition to determining the prevalence, the paper also detailed some of the key characteristics of each regulation: licensing, certification, accreditation and registration. The results show that occupational regulation is highly prevalent with 189 of 353 SOC unit groups being covered by some sort of regulation. Whilst investigating the prevalence of regulation at the occupation level is a very important point of departure in order to gain a full picture as to the extent of regulation, it is necessary to determine how many individuals are covered by regulation and what impact regulation has on the labour market.

This paper endeavours to analyse the macro level effects that may arise as a result of occupational regulation in the UK labour market. As with much labour market research the focus will predominantly centre on the wage effects of regulation. However, this paper will also consider the effects regulation may have on skill levels. As regulation often requires a minimum degree of competency from potential incumbents, there may be potential for regulation to have an up-skilling effect (where the average level of qualification across the occupation has increased) on the supply side of the labour market.

This paper will be structured as follows: first, the theory and evidence surrounding the impact of occupational regulation on wages and skill levels is presented. Second, the method used to investigate the impact that regulation has on wages and skills in the UK is outlined. Third, the results of the analysis are presented. Lastly, the key findings and the implications are discussed.

2.1 Theory of the Impact Occupational Regulation has on Wages and Skills

Occupational regulation is an artificial actor within the labour market. It is not a natural development of activity relating to supply or demand but an imposed foreign body created from an outside element (the government or a professional body). Any artificial occurrences in the labour market will have an effect on those within it. For example, the national minimum wage, brought in during 1998, was imposed by the government and was not the result of a change in supply or demand, but the result of petitioning from the public and policy makers' attempts to improve the living standards of low earners. The subsequent wage increases were therefore artificial, not the result of supply and demand shifts. Foreign bodies will always 'disturb' their surroundings. In the labour market this means that either the supply side or the demand side are affected. Whenever there is a change in one side of the labour market there will be a change in the equilibrium point (the wage and number of people employed when supply equals demand) and so the number of people employed and the wage (or price) that they receive. Subsequently, the other side of the labour market may or may not respond, causing further shifts of the equilibrium point. Artificial instruments, therefore, can affect the labour market and change overall macro levels. For example, one of the effects of the national minimum wage was a truncation of the wage distribution, which increased the mean gross hourly wage in the UK (Metcalf 2002). This section will present the theory and evidence surrounding the impact regulation has on wages and skill levels.

2.1.1 Wage Effects of Occupational Regulation

The labour market is split into two sides: supply and demand. Over time the level of demand will equate to the level of supply creating a natural equilibrium point. This equilibrium point will indicate what the wages and prices need to be in order for the equilibrium to be maintained. Economic theory states that any change in the supply or demand of a particular market will result in a change of both wages and prices. If the changes are not a natural result of changes in supply and demand then, certainly in the short term, the new equilibrium point creates a deadweight loss in the labour market because demand will no longer equal supply. As discussed, regulation is not

the result of natural changes in the labour market, so the effects will result in a new equilibrium point being made. The aim of this section is to present the main theory concerning the impact regulation may have on wages.

Occupational regulation can impact the labour market, and subsequently impact relative wages (and prices), in three ways: restricting supply, changing demand and changing the wages in similar non-regulated occupations. The following section will address each in turn.

2.1.1.1 Restricting Supply

Occupational regulation restricts supply as it creates a barrier of entry into a given occupation. In an unregulated occupation, an individual can begin work instantly, but in a regulated occupation, such as medicine, an individual cannot begin work instantly but must instead undergo years of education and training before he/she can legally work as a doctor; the barrier to entry in this case is the requirement to train and achieve a specific qualification. Barriers to entry can take many forms - examinations, membership costs, requiring certain human characteristics, work experience and qualifications. However, all barriers to entry can be broken down into three categories which are cost, numerical limitations and age (Rottenberg 1980).

Cost covers any requirement that imposes a charge onto the applicant, often even when they do not ultimately gain entry. Some costs are easily identifiable, for example, the fees for gaining a specific qualification or membership costs but, arguably, there is a cost element to all barriers to entry. For instance, even if there are no fees associated with gaining a certain qualification or there are no membership costs, there will be the opportunity cost (the individual forgoes the opportunity to earn money while time is spent applying for entry). To illustrate this, in the eight years it takes for a doctor to qualify, they are prevented from working in a full-time occupation. Therefore, not only do doctors have to pay the fees to train, they must also account for the money they could have earned over the period of training if they had been working full-time. As a result the total cost is as summarised below.

$$\text{Total Cost} = \text{Associated Fees} + \text{Opportunity Cost}$$

The second way in which regulation can create a barrier to entry is through creating a *minimum age requirement*. This restricts supply and creates exactly the same effects as a standard cost of entry. Examples of age limitations include lifeguards who are required to be at least 16, crane operators who must be at least 18 and miners who are required to be 16 and above. The reason for minimum age requirements is to, (allegedly), ensure safety for the workers and customers, in the same way; for a UK driving licence there is a minimum age to ensure that drivers have a minimum level of experience and maturity. There will still be a cost to entry, as there will have to be an application process and proof of age. Additionally, applicants needing to wait until they are old enough, will forego earning the same wage as they would if they worked in their desired occupation creating an opportunity cost if this wage is higher than their earnings in the job they undertake in later life. As a result, the cost of minimum age requirements on the individual is found from the same calculation above.

Numerical limitation (restricting the number of individuals who can have a licence, certificate or accreditation) is the final way in which entry into an occupation can be restricted. Here there will also be an application process and so a cost borne by the applicant in terms of time and possibly fees for applying. One of the common examples of numerical limitation is that of taxi drivers. Traditionally, only a certain number of taxi licences are issued per borough or county to prevent flooding the roads of busy areas with commercial vehicles. As mentioned, there is also a cost associated with applying to be a taxi driver; it is a relatively long process with many counties requiring a minimum skill standard including a criminal record background check.

The effects on wages are largely determined by whether the numerical limitation is below or above the existing equilibrium point. If the limitation is below the natural equilibrium point, then practitioners can charge inflated prices and will not be met with restrictions on demand. If the point is set above the natural and current equilibrium, then there should be no effect on the prices in the short term. However, in both circumstances because of the associated costs, there will be an increase in wages in the short term. Although numerical limitations are no longer in practice in

the UK, as it can be a feature of barriers to entry, it is still an important consideration to make when considering future policies.

Summary of the Theoretical Association on the Impact of Regulation on Supply

From the above theory it is clear that all occupational regulation has the ability to restrict supply through causing a barrier to entry for individuals. The costs are both actual and opportunity-based. Clearly the higher the fees, the greater the cost to the applicant but also the length of time it takes to successfully gain entrance bears a cost. The longer it takes for an applicant to apply and pass, the greater the cost to them as they forego greater earnings during the application period. Therefore, the greater the stringency of requirements, the greater the amount of time to qualify and the greater the cost to applicants (Ekeland *et al.* 2002). Greater restrictions lead to greater changes in the supply side of the labour market and therefore, the greater the effect on wages.

Evidence: Impact of Occupational Regulation on Supply

The evidence relating to the impact regulation has on the supply side of the labour market in terms of changing the wage levels is largely confined to the US and Canada; each is presented below.

Holen's (1965) study on medicine, dentistry and law in the late 1940s uses data from the US census and National Income Division surveys. The findings suggest that there is an inverse association between pass rates and wages. The more difficult it is to pass the minimum requirements for entry into an occupation, the higher the wages are. The conclusion drawn from this is that this occurrence is due to the restriction on supply created by increasing the minimum pass mark level. The study notes that when the pass marks are lower, there is less of a restriction to the occupation and so less of a wage premium. Similarly, Maurizi's (1974) study of 24 different licensed occupations on data from the Council of State Government between 1940 and 1950 shows a negative association between pass rates and wages. Both studies clearly show support for the link between the opportunity cost associated with regulation (created by the longer time it takes to pass an exam when the pass mark increases),

restricting supply and increasing wages. However, whilst both of these studies use a wide range of occupations, the focus is solely on licensing (not certification, accreditation or registration) and as a result, the effect all types of regulation has on restricting supply and increasing wages cannot be accurately extrapolated.

These results are also supported by Muzondo and Pazderka's (1980) study of 20 occupations, some licensed, some certified and others un-regulated. Using the 1971 Canadian census the study found a positive association between fees and wages. They find that when the actual fees to enter an occupation increase, so do the wages of all workers within the occupation. This was because every time the fees increased, the proportion of people unable to pay increased and supply was further restricted. Therefore, the assumption that the actual cost of regulations is linked to higher wages is supported. Yet, as with the previously mentioned studies, not all types of regulations are tested for, and therefore the effects of accreditation and registration cannot be assumed.

A more recent study is that of Kleiner (2000) who shows that the greater the requirements for educational attainment, the higher the wages. The study is not concerned with a specific form of regulation, but a particular form of barrier to entry. Therefore, whilst the results can be used to conclude that there is evidence that stringency is related to higher wages, it cannot be concluded that the same result is found across all types of barriers to entry. Also, in line with previous evidence to this study, it is not conducted in the UK and therefore it is too presumptuous to assume that the same conclusions are found in the UK because of the institutional differences discussed in the previous paper.

Fernie's (2010) study of security guards shows that there was no effect on wages after licensing was introduced within the UK (in response to the Private Security Industry Act 2001). Although this is likely to be as a result of the low entry requirements held by the Security Industry Authority (SIA), the lack of a macro level analysis of regulation across all occupations means that a strong general conclusion cannot be found. An investigation into the effects of licensing on the wage distribution using the Labour Force Survey from 2009 indicates a wage premium of

approximately 13% (Humphris *et al.* 2010). However, this study did not encompass all occupations nor did it account for the many different forms of regulation.

As can be seen from the evidence relating to the effects of licensing on the supply side of the labour market with regard to wages, there is a distinct absence of UK research, none of which covers all the occupations in all of the regulation typologies. Although there is support for the notion that the more stringent the regulation requirements (in terms of both cost and competency), the greater the restriction on supply and the greater the wages. From the evidence available it is impossible to extrapolate the real effect regulation has on restricting supply and increasing wages in the UK at present.

The effects on wages resulting from regulation cannot be solely established by considering one side of the labour market. In the short-term with any restriction in supply, a wage/price increase is predicted. However, most of the regulated occupations in the UK are no longer in the short-term period of impact. In the long-term, the effects on the magnitude of wage premiums are largely determined by changes in demand as a result of regulation.

2.1.1.2 Effects on Demand

Artificial actors, such as regulations, can also have an effect on the demand side of the labour market. As with any changes in the labour market, the effects are measured in two ways: short-term and long-term. When regulation is implemented in the short-term, the demand side will remain constant. This is because it takes time for individuals to fully adapt to changes in the services they desire. If one assumes that all types of regulation result in an increase in wages (resulting from a restriction in supply) a deadweight loss will occur. In the long-term however, the demand side has time to adapt and adjust to the changes in prices and wages caused by changes in the supply side. In the long-term, the demand side of a particular market where regulation has been implemented for some time, can do one of three things: decrease, remain constant or increase.

The way in which the demand curve shifts, or doesn't, affects the final wage/price. If demand decreases, then in the long-term the equilibrium point changes less than the initial change which occurs in the short-term. If demand remains constant, then there continues to be a deadweight loss and there is no change from the effects that have taken place in the short-term. If demand increases, then the equilibrium point results in a wage increase that is greater than that which occurred in the short-term.

How demand responds to changes in the supply side of the market is heavily dependent on the service in question. Economic theory suggests that individuals will act rationally towards changes in the supply side. As such, four aspects must be considered in order to predict how demand will change: whether the service has a good substitute, what the elasticity of demand is, what percentage the service is of total expenditure, and how other services are affected (Marshall 1952). However, social theory would suggest that consumers are not always rational and may have irrational preferences when choosing services, as a result economic theory may not exactly predict outcomes.

When the price of a service increases due to a change in the supply side, if there is an alternative service available to the consumer, all other things being equal, they will choose to substitute the more expensive service for the alternative one. For example, if you wish to get a light switch changed and the cost of an electrician has increased due to regulation, then it is likely you will choose to employ a handyman who is capable of the same task but much less expensive. If the substitute is not of the same value as the service desired, then individuals must consider the extra worth of having their desired service over any alternative. For instance, a handyman can change the light switch but they are unlikely to identify any bigger issues with your electrics. If you value an electrician's ability to do that, then you are less likely to substitute for a handyman. Where there are no substitutions and the individual values the service, then even a rise in price is unlikely to reduce demand. When assessing the impact occupational regulation has on demand, it is logical to suggest that the impact will vary with the availability of substitutes available.

Most services will have a negative elasticity of demand. This is the extent to which change in demand is directly linked to change in price, meaning; when price increases, demand decreases. Some services have a very low elasticity (close to zero) meaning that demand is largely unaffected by changes in price and some have a positive elasticity of demand, meaning when prices increase, as does demand. Although it seems illogical for demand to increase when prices increase, it is not impossible. One such example is the increased demand when prices of potatoes rose in Ireland during the Great Famine of 1845-1852. A service's elasticity is linked to the number of substitutions available (as described above) and how essential the service is to the individual. If the service is essential to the consumers and there are no similar substitute services available, then that service is said to be inelastic with regard to price and demand, and is likely to remain consistent despite fluctuations in price. An example of an inelastic service is that of funeral directors. There are no substitutes and very little opportunity for individuals to decide not to use their services, therefore, even if the price doubled it is unlikely that demand would reduce by the same degree. Where there are substitute services available and/or the service is not essential but a luxury, then the service will be very price elastic and demand is likely to decrease when any increase in price occurs. An example of a price elastic service is that of a beautician; the simple alternative to seeing a beautician is to do the work oneself. Not going to a beautician will not dramatically worsen one's life and so, if their prices double, it is likely that individuals will stop going and demand will decrease every time there is a price increase.

Changes in demand are also affected by the percentage of an individual's total expenditure a service accounts for. If a service has a 50% price rise, but this price rise represents 0.5% of an individual's budgeted expenditure, then it is not likely to have much of an impact on whether they will purchase the service or not. However if this 50% rise is equal to 50% of the budgeted expenditure of an individual, then it is likely to have a big negative impact. Yet, the true impact of a price change can only be measured by considering the change in price relative to an individual's income and their budgeted expenditure.

Demand is also affected by how other services change. If a price increase in one service occurs when other services increase their prices, then demand is likely to decrease as an individual's budget is likely to decrease. If other services drop prices then they may take custom away from the more expensive services, or conversely, this may mean that individuals have more money to spend on a more expensive service. The effects of changes in other services are most prevalent between secondary and primary markets, more of which is mentioned in section 2.1.1.

It is clear that in economic theory, the way in which demand changes in response to price changes is highly dependent on the characteristics of the service in question. Whether the service is essential, can be substituted and how much of an individual's expenditure is allocated, all have a big impact on how demand changes (or does not). However, economic theory assumes that individuals always make rational decisions based on logical arguments, although this is not always the case. For example, despite vegetables being cheaper and better for us, many people choose more expensive, poor quality fast food.

Summary of the Theoretical Impact of Regulation on Demand

Changes in demand may not simply be as a response to wage increases in the supply side but as a social reaction. Instead, the presence of regulation may have an independent relationship with demand. Occupational regulation may make services more desirable to consumers. An increase in desirability comes from the ability of regulation to signal quality to potential consumers (Spence 1973). When occupations become regulated, practitioners may be perceived as becoming legally recognised as honest and upstanding (Frank 1988). This results in an increase in demand because the potential consumers are reassured of the quality of the service for which they are paying. They may also be willing to pay more to regulated practitioners for this reassurance and peace of mind. Additionally, regulated practitioners can be reported to the regulating body if they do not provide an adequate service thereby ensuring consumers are safe in the knowledge that if they do receive poor services there will be some compensation and disciplinary action taken.

Evidence: Impact of Occupational Regulation on Demand

From the theory surrounding the possible impact of occupational regulation on the demand side of the market, it is clear that there is no definitive prediction as to how the overall price effects will play out. Effects on the demand side are very difficult to measure at the macro level because in many cases there are no appropriate datasets and too many possible variables which may have an impact on results. This makes a firm conclusion as to the role regulation plays very difficult. However, there have been three key occupation-specific case studies in the US, which endeavour to further investigate the relationship.

One of the first studies investigating the impact regulation has on demand is that of Benham and Benham (1975). They used a health survey conducted in 1970 from the National Opinion Research Center for Health Administration Studies at the University of Chicago. They focus on the effect that making regulations more stringent and widespread has had on the optometry profession. They compare states where regulation has remained constant, to states where regulation has grown and thus created a higher price for eyeglasses. Using the sale of eyeglasses as a measure of demand they conclude that demand for them was significantly negatively associated with price. In fact, they found that between 4.7% and 5.9% fewer people obtained eyeglasses in states where regulation had grown, which suggests that regulation is inversely associated with demand.

However, two later studies contest the negative impact concluded by Benham and Benham (1975). First, White (1978) investigates the demand for female technologists between US states that had regulation and states that did not. Two types of regulation were considered: firstly, a regulation brought in less than ten years previously which required technologists, technicians and aides to be licensed but not necessarily have a college degree, second, an older regulation where technicians were unregulated but everyone was required to have a college degree. The results showed that despite an increase in costs due to licensing, there was no overall effect on demand for technicians in states that required them to be regulated.

Secondly, Gallick and Sisk (1987) assess the impact that regulation had in the taxi industry by the US medallion system. The system, like licensing, restricted entry into the industry and controls competition. Although prices were likely to increase the authors argue that because there was a reduction in search costs for the consumer and because the quality of the service was guaranteed, the volume of taxi rides would increase. This suggested a positive association between regulation and demand.

The evidence, therefore, provides very mixed results and prevents an accurate prediction as to the impact regulation has on demand. As seen by the studies above, in order to assess the impact regulation has on either side of the labour market, it is necessary to have a control group - a comparator from which changes can be benchmarked. The assumption is that changes in the primary market (where regulation occurs) do not cause changes in the secondary market (the comparator market where there is less or no regulation). However, it may be naïve to suggest that any markets are completely independent. Further, if changes do occur in the secondary market, then this may distort the strength of conclusions made using them as a comparator.

2.1.1.3 Effects on Secondary Markets

Secondary markets allow analyses of wage effects to control for an array of human, job and locational characteristics which may account for fluctuations in wages, as is the case in the Humphris *et al.* (2010) analysis of the impact of occupational regulation on wages in the UK. The reason for approaching the analysis in this way is because there are relatively few occupations that have become licensed in the past ten years making a difference in difference analysis very difficult. However as mentioned there are difficulties in approaching analysis in this way, and scholars such as Ballow and Podgorsky (1998) suggest that in order to accurately conclude the impact occupational regulation has on wages in this way, one must consider the effects on secondary markets that regulation in a primary market can affect the secondary market in terms of both supply and demand. Each is discussed below.

Supply in the secondary market can increase or remain constant in response to regulation in a preferred occupation. An increase in supply would occur from

individuals who cannot gain entry into their preferred occupation seeking to enter the best alternative. If all individuals are assumed to act rationally then there would be a small number of best alternative occupations, which are defined as occupations similar in task and industry. The harder the entry requirements, and the greater the cost of entry, then the greater the influx of these individuals. For example, if an individual wishes to become a primary school teacher but they cannot afford to undertake a teaching course to gain the minimum qualifications required then they may apply to be a classroom assistant instead, as this is similar work but with much lower barriers to entry. One might assume that if it were harder to become a teacher it would result in a greater supply of classroom assistants; if supply increases, assuming demand remains constant, wages should decrease. However, if the entry requirements to the primary market are not set very high then it is unlikely those individuals will seek employment in the secondary market and so supply, and wages, will remain constant.

Demand in the secondary market may also change as a response to regulation in the primary market. As ever, demand can increase, decrease or remain constant. Demand may increase if consumers and employers do not value the difference between the primary and secondary services to pay a premium. If this is the case, then it is likely they would prefer to pay less and buy from the secondary market. If many individuals act in the same way, then demand will increase. The effect on wages will be positive if a rise in supply does not diminish the effects of the rise in demand.

Demand for services in a secondary market may decrease if they are not a true substitute for those in the primary market. If an individual has to have a primary service then it may be the case that, because prices have increased, they spend more money there and have less to spend elsewhere. It may also be the case that, due to regulation, services in the primary market become more appealing than those in the secondary market. If this is the case, and even if they can be substituted, individuals are more likely to choose regulated services over unregulated services causing a reduction in demand. A reduction in demand, especially if coupled with an increase in supply, will cause a decrease in wages (and prices) in the secondary markets.

There will be no effect on demand in the secondary markets if the services are complements to the regulated services (and demand has not increased there), or if there are many secondary services for each regulated primary service. A spread of secondary services would mean that the impact is minimal in each individual market meaning the overall mean value change is reduced for every additional alternative occupation available.

Summary of the Theoretical Impact of Regulation on Secondary Markets

According to the theory, secondary markets can be affected by occupational regulation resulting in either a rise or fall in wages and prices. The impact of regulation for secondary markets is determined by the characteristics of the occupations and whether they complement or substitute their regulated counterparts.

Evidence: Impact of Occupational Regulation on Secondary Markets

There are very few investigations that explicitly address the impact that regulation may have on secondary markets. As with most evidence on occupational regulation, the analysis is conducted in the US and on specific case studies. Each is presented below.

Stigler (1971) concludes that there will be an increase in supply to the secondary markets, which will almost certainly, in every case, result in a reduction of average wages. This reduction makes the relative change in wages of those who become regulated greater when using the secondary market as the control group. Filer, Hamermesh and Rees (1994) also support these findings. They show that regulation in one market creates over-supply in another reducing wages and prices in the oversupplied market. Ballou and Podgorsky (1998) analyse the change in the minimum requirements to become a teacher. They conclude that the longer it takes to become a teacher, the more suitable applicants who are capable of passing, seek employment elsewhere. This is detrimental as it can result in fewer capable applicants becoming teachers. This in turn may reduce the quality of service amongst teachers, which can decrease wages.

The limited evidence on secondary markets suggests that there is an increase in supply, but the conclusion on wages differs. This suggests that there may not be a universal conclusion for the effects on wages in the secondary market.

2.1.1.4 Evidence: Overall Impact of Occupational Regulation on Wages

From the evidence presented, the overall impact of regulation on wages is inconclusive. Both the supply and demand side of the market are affected by the implementation of regulation. If the regulation is stringent enough, then supply is restricted and wages should increase. However, if demand also decreases, the effect the change in supply has on wages may be counterbalanced by the changes in demand. Though demand may not necessarily decrease, as previously mentioned, it may remain constant or even increase. Further, as it is uncertain as to the impact regulation has in markets other than those which are regulated, it would be impossible to anticipate how regulated occupations compare with unregulated occupations in terms of wages.

Due to the many different dimensions that may affect wages - beyond considering the evidence that relates to each dimension separately - it is also necessary to consider the overall effect on wages. Most studies find a positive association between the regulation considered and wages. However, one of the earliest studies finds the reverse effect. Holen (1965) uses data derived from the 1950 US Census and National Income Division surveys in the late 1940s. The study focuses on three licensed professions: medicine, dentistry and law. The analysis shows there to be a distortion of supply between regulated and non-regulated states and a significant inverse relationship between licensing and the wages of lawyers and dentists. However, a clear limitation to the research is the limited sample of occupations which makes generalising the results significantly limited.

Despite the negative association found by Holen (1965), many scholars have concluded otherwise. Shepard (1978) focuses on the association between restricting the supply of dentists through licensing and wages. Using data from the American Dental Association National Fee Survey conducted in 1970, the analysis concludes that there is a significant positive association between wages and licensing.

Muzondo and Pazderka (1980), who used the 1971 Canadian Census data to investigate whether there was a correlation between education, fee setting and advertising restrictions (which are all characteristics of some regulations) with wages, conclude that there is a significant association between licensing and certification with wages. Twenty occupations are considered; a mixture of licensed, certified and unregulated occupations.

In a similar vein, Perloff (1980) investigates the wage changes of labourers (who are unregulated), plumbers (who are licensed) and electricians (who are licensed), relative to wage changes in the manufacturing sector. By considering how each group's wages increase over time and comparing the growth rates, they conclude that licensing prevents wage equalisation between sectors because the licensed occupations prevent growth and allow wages to grow at a faster rate than those of unregulated labourers. It is also insinuated that regulation may play a further role where wages are significantly higher in construction compared to manufacturing because of the skill levels required by the licensing body.

Moore *et al.* (1981) also concludes a positive association between licensing and wages. They used US National Longitudinal Surveys for women aged between 14 and 24 and 30 to 44. The figures date from 1967 onwards and cover a variety of occupations, some regulated (licensed or certificated) and others not. The analysis shows that regulated women earn significantly more than unregulated women. However, the authors state that this was the result of licensing rather than certification because licensing has a greater ability to restrict supply and, generally, requires entrants to have higher qualifications.

Other scholars who arrive at a positive association between licensing and wages are Kleiner and Kudrle (1992). They use data from the American Dental Association between 1984 and 1990 to analyse the effects of regulation within the occupation. The analysis shows that wages are significantly positively associated with licensing. Further they note that in this case, demand exceeds supply and those already in the occupation benefit from any decreases in pass rates. However Kleiner (2000) concludes that licensing seems to have a positive impact on wages but that the

magnitude of this impact varies hugely between occupations. The results suggest that those occupations which require a higher level of education - such as dentists - reap the largest wage premiums, -where those that only require a low level of education benefit from a smaller wage premium, such as cosmetologists. The conclusions are drawn from an analysis conducted on the Public Use Sample from the US Census Bureau data from 1990.

The only UK-focused research into regulation and wages is Humphris *et al.* (2010), who also found a significant association between licensing and wages. They used the 2010 UK Labour Force Survey to compare unregulated and licensed occupations in all non-Chief Executive Officer (CEO) occupational groups. The analysis concluded that there is a wage premium of approximately 13% for licensed occupations. This is the only current macro-level analysis of regulation in the UK and only considers one form of regulation; licensing, as such the results cannot be generalised across all regulations. This study builds upon their findings by considering all occupations and all types of regulation thus providing a more comprehensive analysis of the impact of regulation.

Overall Summary of Evidence on Impact of Regulation on Wages

In general, the evidence presented concludes a positive association between licensing and wages. Although the extent of the impact varies between different occupations, the results concur with the theory. However, the impact of licensing in the UK cannot be fully concluded as not all occupations are considered in this UK-focused study. Further, even in the US literature, licensing has been widely investigated. Occupational regulation can also take the form of certification, accreditation and registration. None of these 'types' of regulation have been fully investigated across all industries and sectors. Therefore, from the existing evidence, a conclusion as to the impact of occupational regulation (in all its forms) cannot be determined at present. In addition, the majority of research is conducted outside of the UK. From the previous paper, the UK is shown to have a unique regulation system formed as a result of its individual institutional setting, legislative process and public sector. As such, this paper aims to investigate the following hypothesis:

H₁: Occupational regulation has a positive effect on wages in the UK

2.1.2 Skills Effects of Occupational Regulation

Many scholars have written extensively on the topic of skill shortages in the UK (Meager 1986, Green and Ashton 1992, Machin 1996, Bosworth 1999, Mackenzie, Kilpatrick and Akintoye 2000, Haskel and Martin 2001). In recent years, high unemployment coupled with many unfilled job vacancies, signal that severe skill shortages exist. However, more individuals are attending university for both undergraduate and postgraduate degrees than ever before (Steedman and Vaitilingam 2011). The rise in academic qualifications suggests that not all skill levels are the result of academic pursuits. West and Steedman (2003) suggest that one of the main problems with the system is that there are very few visible links between education and the labour market. In other words, the academic knowledge learned is not comprehensive enough to satisfy the demands of the labour market. They argue that it is relatively easy to make the case for the need of academic qualifications. There is a common understanding and appreciation for everyone to have a grasp on numeracy and literacy, but vocational education can be less easy to justify. Yet, West and Steedman (2003) state that the lack of vocational training is having a real impact on skill levels in the UK, not least because they find that vocational education leads to an increase in occupational proficiency. The aim of this section is first, to present an overview of the UK education system with regard to academic and vocational qualifications, second, the theory and evidence surrounding the impact regulation has on skill levels is discussed.

2.1.2.1 The UK education System

The UK education system results in two types of qualifications: vocational and academic. Below each is discussed with relation to skill levels.

Vocational Education

Vocational education is any form of education based on a particular vocation, or occupation. This form of education is usually provided in line with National

Vocational Qualifications (NVQs), City and Guilds, or guidelines set by some other qualification body (West 2004). Vocational education is the means by which individuals learn how to carry out the main tasks of an occupation which results in the candidate attaining a formal qualification.

Disadvantages of Vocational Education

It is argued that good vocational education fosters both progression and credibility (West 2004). However, there are many criticisms of vocational education that dispute such a claim. West (2006) notes that there are three main criticisms of vocational education: technical, moral and market.

Technical criticism of vocational education states that the system is not credible because it is impossible to adopt a single scale across all the different occupation-specific schemes (Wolf 1995). As such, it is very difficult for employers and the public to understand what the formal qualifications mean and how reliable they are. This problem may be prominent because there is a lack of a general syllabus in many vocational education courses (Smithers 1993).

The moral criticisms of vocational education build upon the technical issues. The main argument is that it is not morally correct to categorise vocational learning as an education (Hyland 1994). The lack of syllabus and commonality ensuring basic literacy and numeracy skills means that vocational learning is not an adequate education (Hyland 1994). In addition, there is often a lack of any theoretical underpinning being taught (Grugulis 2003). This could result in surface level learning and an inability of students to adapt their practical knowledge to new or mutated situations. Traditional academic education focuses very much on theory; this of course is one of the main concerns. If there is too much theory than practical ability can become overshadowed.

Market critiques of vocational education state that not all occupations are suited to such an approach (West 2004). Further, that the market cannot support such education without public funding (*ibid.*). This is supported by the Learning and Skills Research Council who, in 2004, found that vocational training is most effective if it

is supported, at least in part, by public funding. There is also a debate as to how useful vocational education qualifications are in the market. Wolf (1995) argues that there is a great danger in deconstructing occupations into testable parts. Through deconstructing them, an individual can lose sight of the overall purpose of the task. As a result, coupled with the lack of theoretical understanding, an individual may gain the formal qualifications but still remain unable to work in the occupation in question. The lack of stability in the system (Unwin 1999) and the difficulty in understanding the levels of qualifications also adds to the dubious market value of vocational education. This may occur because employers cannot judge the human capital value of each level accurately. Maybe it is as a consequence of all these issues that Cook *et al.* (2000) finds that the majority of employers and employees have had, on balance, negative experiences with vocational training and qualifications.

Benefits of Vocational Education

Despite the argued disadvantages of vocational education there are benefits associated with this type of education. In a study of healthcare workers, Rainbird *et al.* (2004) found that when the employees attained an NVQ level 3 in healthcare, the organisation reaped some sizable positives. The staff stated they felt more empowered and showed higher levels of commitment to their employer. There were improvements in the retention rate of staff, and managers (who had not taken part in the course), felt they had a better understanding of the healthcare industry. These findings are supported by Sargeant (2000) who finds that both employees who attend vocational education and their managers (that don't), both increase their performance levels. Roe *et al.* (2006) also shows that employers are more likely to regard their staff as 'skilled' if the staff have associated NVQs. Jessup (1991) remarks that the benefits of vocational education, such as the NVQ system, should have positive effects because it allows assessment to take place in real-world situations and focus on the specific competencies needed for high performance. Indeed, vocational education may actively lead to improved literacy and numeracy levels - subjects normally associated with academic education (Gray 2006). This is as a result of the examining mechanisms used in vocational training and also the competencies needed for most occupations. In order to gain a formal qualification, many vocational

courses will involve a written test at some point (Gray 2006). This not only tests the students' understanding of the content, but also ensures that they have a good level of literacy and/or numeracy as this will impact their results. In addition Waterhouse and Vigona (2004) state that narrowing numeracy and literacy skills focused on the needs of occupations, would actually improve skill levels across a whole industry and sector.

Beyond improving literacy, numeracy and competence levels of individuals, vocational education has further benefits. Vocational education allows individuals to take responsibility for their own development and enforces the importance of gaining transferable skills (Figgis *et al.* 2001). This is particularly important as not all employers are of the opinion that it is their responsibility to train and develop their employees (Corarie *et al.* 2005). Workforces with a high proportion of formal vocational skills are also more likely to have a culture of learning, innovation and development (Figgis *et al.* 2001); something desired and needed by organisations if they are to be competitive.

On balance, an education that can improve employee performance, literacy and numeracy levels, and increase individuals' transferable skills must warrant being accepted as a legitimate means to educate and raise the skill levels of individuals who do not choose a pure academic route.

Academic Education

Despite the credibility and benefits of vocational education, academic education still holds a firm position within the UK education system. Schooling is compulsory to at least the age of 18 which should ensure that all individuals have a suitable level of literacy, numeracy and information technology skills for the labour market. Indeed, Eraut (2009) states that with most academic learning taking place before full-time employment, there is a clear association between most subjects taught and vocational relevance. Subjects such as business studies, accountancy, psychology and law can all be taken as part of a secondary education. However, there is a clear difference between subjects with a vocational link taught in an academic situation, and subjects

taken within a vocational education setting (Eraut 2009). Academic study focusses heavily on the theoretical framework and context of subjects (Grugulis 2003). As a result, students are taught based on academic research as opposed to personal experience (Eraut 2009). This may reduce the usefulness of academic qualifications in the labour market.

Yet with wage premiums associated with academic qualifications (Harkness and Machin 1999), qualifications must have a positive value in the labour market. Whether the value is associated with the content learned or the ability of academic qualifications to rank individuals (Weiss 1995), employers are still found to be willing to pay more for qualifications. Perhaps this is a result of the positive association between academic qualifications and employee performance (Bowman and Mehay 1998), although this does vary depending on the qualifications. Woo (1986) and Gerhart and Milkovich (1989), find that academic qualifications that have heavy links with occupations show they have the greatest value on the labour market and result in the highest wage premiums.

One would be hard-pushed to argue that academic qualifications do not have a positive impact on one's skill levels. The numeracy, literacy and information technology covered in general education are an invaluable asset. Learning and thinking independently, in an academic context, also has clear advantages.

Summary of Skills

The UK system encompasses both academic and vocational education. Whilst the case for academic qualifications may be more commonly accepted, vocational education is also shown to have value for individuals and their employers. As such both academic and vocational education contributes positively to an individual's skill level.

However, the distribution of these skills is not uniform across all the SOC major groups. Whilst advanced academic qualifications are most prevalent in medium and high-skilled occupations, there is a heavy concentration of vocational qualifications in low-skilled occupations (West 2003). This may suggest that there is a two-tiered

system operating in the labour market. Alternatively, it may suggest that medium and high skilled jobs, which contain more task variety and complexity, benefit most from the theoretical content of academic education, whereas lower-skilled occupations are more suited to the practical and occupation-specific content of vocational education.

The most important conclusion to be made is that both academic and vocational qualifications are shown, on balance, to improve an individual's skill set and lead to increased performance and productivity.

2.1.2.2 Occupational Regulation and Skill Levels

Occupational regulation provides barriers to entry for any individual wishing to become part of the regulation. These barriers to entry can involve requiring an individual to have a driving licence, a clean criminal record, or be of good physical health. However, some of the regulations (licensing, certification and accreditation) may require a minimum degree of competency. In order to ascertain if an individual is competent, many regulations require that a certain qualification be obtained. As discussed previously, qualifications can be academic or vocational, but both are shown to increase one's overall skill level. The level of qualification required varies across different regulations and different occupations. Table 2.1 contains the qualification levels required by each regulation. In order to compare the different types of qualifications, all qualifications are mapped to the National Qualification Framework (NQF) (see methodology for more detail).

Table 2-1: Regulation by qualification requirement

	None	Below Level 2	Level 2	Level 3	Level 4-6	Level 7-8	Don't know*	Total
Licensing	0	20	11	6	32	2	11	82
Certification	0	0	7	0	2	10	0	19
Accreditation	1	2	19	9	31	3	2	67
Total	1	22	37	15	65	15	13	168

* *Don't know occurs when the qualification does not map accurately to the NQF*

Table 2.1 clearly shows that almost all regulations require a minimum level of qualification from their entrants. The majority of regulations require qualifications ranging from level 4 to 6. This is equivalent to qualifications beyond A-levels up to degree level. In terms of academic and vocational qualifications, regulation follows the trend of the population.

Table 2-2: Skill levels by type of education

	Academic	Vocational	Either	Total
Below Level 2	0	22	0	22
Level 2	0	36	1	37
Level 3	1	14	0	15
Level 4-6	52	7	6	65
Level 7-8	14	1	0	15
Total	67	80	7	154

Lower skill requirements are more likely to result in vocational qualifications, whereas high-skill demands are more likely to result in academic qualifications. Interestingly, vocational qualifications account for 52% of all qualification demands. The requirement of qualifications made by regulations is also present throughout the SOC major groups.

Table 2-3: NQF requirement by SOC major group

	None	Below Level 2	Level 2	Level 3	Level 4-6	Level 7-8	Don't know	Total
Managers and Senior Officials	0	1	7	0	9	1	2	20
Professionals	0	0	0	0	24	13	0	37
Ass. Professionals and Technical Staff	1	2	1	9	24	1	7	45
Admin and Secretarial	0	1	0	0	2	0	0	3
Skilled Trades	0	4	11	4	4	0	3	26
Personal Service	0	0	5	2	1	0	1	9
Sales and Customer Services	0	1	0	0	0	0	0	1
Process, Plant and Machine Operatives	0	11	8	0	0	0	0	19
Elementary Occupations	0	2	5	0	1	0	0	8
Total	1	22	37	15	65	15	13	168

However, it is not simply the case that because a regulation requires a level of qualification to be obtained, an individual's skill set increases. This is because the regulation may set the requirements below what is likely to have already been achieved by the individual. For example, managers and senior officials are likely to have already obtained qualifications associated with completing compulsory education (level 2) so a regulation demanding a level 1 qualification will not increase their skill level. As such, further investigation is required in order to conclude that regulation has a positive impact on skill levels.

Evidence on the Impact of Regulation on Skill Levels

As with many of the issues surrounding occupational regulation and its possible effects, there is relatively little evidence surrounding the topic. However, since the turn of the century, there has been some key UK based research into the area.

Two studies on licensing and skill levels are that of Gospel and Thompson (2003), and Gospel and Lewis (2010). Both studies are concerned with the effects the Care Standards Act 2000 has had on the skills of care home workers in the UK. The Act requires that a proportion of employees in a care home have to be licensed in order for the care home to operate legally. The reasoning for the change in regulation was concerned with up-skilling the profession. By requiring care home workers to sit NVQ assessments, there was assurance that individuals had good levels of literacy and numeracy. It was hoped that by introducing these tests and insuring minimum knowledge levels, workers would be more skilled at their job resulting in higher productivity and quality of care. Indeed, the second study found that higher proportions of workers are attaining the required qualifications. This, they concluded, shows that the Act has actively improved skill levels in the industry. However, caution must be taken as the earlier study indicated that, although skill levels may increase in terms of NVQ levels, the availability of additional training offered decreased. This meant that the minimum skill requirement quickly became the maximum for the industry. As employers had no legal obligation to provide further training in addition to the legal minimum, they ceased to run any additional in-house or external programmes. The regulation therefore did improve the bottom

end, but also removed any incentive for top end training to continue. As a result overall skill levels may have actually reduced.

Fernie (2011) and Lister (2001) focus on the security industry and conclude a similar result, finding that the minimum skill requirements for security guards were quickly becoming the maximum. Licensing in the security sector came into effect in response to the Private Security Industry Act 2001. The Act states that all security workers, who are not employed directly by the proprietor, must be licensed. The course that must be attended and exam that must be passed are equivalent to an NVQ level 2. The rationale for the act was that licensing was necessary to protect the public. The assumption was that by bringing in a minimum requirement, skill levels would increase, and a better quality of service would be provided. However, both Fernie (2011) and Lister (2001) found that licensing meant that minimum requirements are unlikely to be surpassed because there is little incentive for firms to continue offering in-house training schemes. In-house schemes, according to Fernie (2011) are often more comprehensive and detailed than those offered by the Security Industry Authority (SIA). As such they both found that skill levels have bottomed-out and few firms are offering any training above the requirements of the SIA.

One study which fails to see an improvement of NVQ levels as a result of regulation is Lloyd's (2005) case study into the effect of the Register of Exercise Professionals (REP). The register requires exercise professionals, mainly personal trainers, to attend courses and work towards an accreditation which could be mapped across to an NVQ level. The aim of the register is to create an element of professionalism in the industry and also to signal quality to the consumer. However, the scheme is largely unable to increase skill levels. This was, according to Lloyd, because the register was industry-led and too focused on the commercial benefit of the scheme rather than the skill levels of the members. As a result the scheme did not result in individuals attaining NVQ levels higher than they already achieved prior to entering the occupation.

The most recent study on the association between skill levels and regulation is that of Tamkin, Miller and Williams (2013). In their study they questioned a variety

regulated occupations which include, pharmacy technicians, retail investment advisers, gas engineers, domestic energy assessors, painters and decorators, chartered IT professionals, chartered dyers and colourists, electricians, youth workers and accredited travel professionals. In total the study had 439 respondents comprising of both employees and employers. A total of 66% of employers stated that since regulation came into effect in their industry they had noticed raised skill levels: 49% stated that they had increased to a great extent. However, many employers and employees felt the skill levels set by the schemes were set at the wrong level, with 22% of employers and 8% of employees stating they were set too low. Yet overall with 57% of respondents stating they would not possess such high skill levels without regulation, the conclusion appeared to indicate a positive association for those regulated occupations included in the survey.

The evidence presented suggests that regulation may have a positive association with skill levels in some occupations. The most recent and comprehensive study, which considers several regulated occupations, certainly suggests a positive association. However, all the evidence is a series of case studies on individual occupations. There is not a study that considers all occupations to confirm if regulation really does increase the skill levels, as measured by academic and vocational qualifications, of individual workers. As such this paper will test the hypothesis:

H₂: Occupational regulation has a positive association with skill levels

Summary of Impact

From the theory and evidence presented in these sections, two potential labour market areas could be affected by regulation: wages and skills. It is the aim of this paper to analyse if regulation has an impact in these areas. Therefore the following section will outline the method used to analyse the significance of this impact.

2.2 Methodology

The aim of this paper is to investigate the impact occupational regulation has on wages and skill levels. This section will outline how the aim has been addressed. First, the data used for the analysis are described. Second, the variables used in the analysis are defined. Third, the method of analysis is described, and lastly, the limitations of the method used are discussed.

2.2.1 Data

The aim of this paper is to ascertain the impact occupational regulation has on individuals in the labour market. Therefore it is necessary to use data that not only identifies individuals' wages and skill levels, but also their regulation status. Unfortunately no such dataset exists in the UK. As a result two datasets were merged in order to generate the variables needed in the analysis, they are: the Labour Force Survey (LFS) and the regulation database.

The Labour Force Survey (LFS)

The LFS came into existence in 1973. Between 1973 and 1983 the survey was conducted once every two years. However, because the data was increasingly used to formulate policy and evaluate existing policies, from 1984 the survey was then conducted annually. In 1992 the survey became quarterly and covered approximately 60,000 households. The current sample represents approximately 0.16% of the population in England, Wales and Scotland, and 0.23% of the Northern Ireland population.

The Office for National Statistics (ONS) is responsible for the design and implementation of the survey. The LFS uses a rotational sampling method where each respondent is included in five consecutive quarters. Each quarter in which the respondent is included is called a 'wave'. Each wave is exactly 13 weeks apart so the last wave is a year after the first. In any two consecutive quarters, approximately

80% of the respondents will be the same. The rotational design means that there is greater accuracy in the results and an analysis of annual changes can be conducted.

The method of respondent selection comprises two parts: first, the UK is separated into geographical areas and second, the respondents are selected via a stratified selection method. In each quarter there are 17,380 new respondents. As there are up to five waves in each quarter, there will be up to 86,900 potential respondents per quarter.

The LFS questionnaire itself is comprised of core questions which are included in every quarter of the survey and non-core questions which are only present in one or two quarters. Characteristic questions such as age, sex and ethnicity are also only questioned once, as these do not change over the course of the respondents' participation. The interviews in the first wave are conducted face-to-face and thereafter, if appropriate, via telephone. The results are recorded via Computer Aided Input (CAI), which ensures the results are consistent and accurate. The interviewers carry out the coding of the responses. With variables which need interviewer discretion and prove a more complex task to code, such as occupations, the coding takes place after the interview and is checked through a follow-up telephone call to the respondent. This ensures that the data collected is as representative of the respondent and the population as possible.

Errors

In theory datasets are completely accurate and representative of the population. However, in practice the potential for errors in a dataset is present. Errors can be categorised into two areas: non-sampling errors and sampling errors.

Sampling errors are those that occur in the selection of the sample. The aim of any national dataset is to represent the population but the sample chosen may not be truly representative. This may occur through selecting too small a sample, or not using a stratified sampling technique. With the LFS, the sample size is big enough and contains enough waves to imply validity. However the stratification is concerned with geographical area only. This results in a clustering effect concerning the

characteristics of the people living in any given postcode. This is resolved by the inclusion of a weighting variable which compensates for any over or under estimation. As such, the conclusion with using national data is that the sampling errors are minimised and at a far lower level than achievable with primary data collection.

Non-sampling errors are errors that occur after the sample has been selected. There are three broad types: observation, measurement and processing. Observation errors relate to the response rate of the sample and the ability of the sample to answer the questionnaire and contribute to the dataset. Measurement errors are errors that occur as a result of an interviewer error, an error on the questionnaire or a respondent error such as misinterpreting the question or the answer to a question they have asked. Processing errors occur after the answers have been given. Errors of this nature are the result of a problem in the system of inputting the answers or a problem with coding.

In the LFS there are scrupulous quality checks and training of both interviewers and data inputters, which reduce the likelihood of measurement errors. The questions on the LFS are reflective of the questions used on the census, which have been used on the population with no problems or respondent confusion. As such, although there are likely to still be some errors in the dataset it is unlikely that these errors would be large enough to impact on the validity of any analysis.

Regulation Database

The regulation database contains information relating to the regulation status of every Standard Occupational Classification (SOC) group. In addition, the database contains information as to whether every occupation in a SOC group is covered by the regulation or whether only some occupations are covered. The regulation database was constructed as part of the investigation carried out in paper one (see page 57 for more detail). As the database and the LFS contain the SOC variable, the two databases can be merged to result in the regulation status of individuals.

2.2.2 Defining Variables

As the aim of the paper is to analyse the impact that regulation has on wages and skills, and the dependent variables in the analysis are ‘wages’ and ‘skills’. The independent variable is ‘regulation status’. In addition to the dependent and independent variables, control variables are included to reduce the chance of the hypotheses being falsely accepted. Each of the variables is defined below.

Dependent Variables

A statistical analysis defines dependent variables as the factors which are potentially affected by the independent variable. In this investigation the dependent variables are wages and skill levels.

Wages

Wages are measured by recording the typical gross hourly wage. The *gross* hourly wage is used to eliminate any interference from income tax, national insurance, student loan repayments or variations in the number of hours worked. The aim of recording ‘typical’ income is to reduce the chance of distortion from a periodical change in working terms, for example, increased hourly rates if someone has just worked overtime for extra money. The gross hourly wage will be recorded in pennies and therefore will be a continuous variable.

Skill Levels

As discussed at length in the previous section, attainment of qualifications can be a good measure of an individual’s subsequent skill levels. Both educational and vocational qualifications are predictors of skill. Therefore, in order to measure skill levels these are the parameters used. In order to equate different types of qualifications, both academic and vocational, on the same scale the National Qualification Framework (NQF) is used.

The NQF came into existence to clarify how different qualifications relate to each other. The framework has changed over time. Initially there were five levels; however in 2004 the framework was restructured to allow for better inclusion of postgraduate level qualifications. The framework now has eight levels. Table 2.4 outlines the details of each level.

Table 2-4: NQF Levels

Level	Description	Example Qualifications	Equivalent Higher Education Qualifications	NVQ Levels
Level 8	The qualifications indicate that an individual is an expert in their field. They are involved in expanding and developing new ideas and knowledge.	City and Guilds Diploma of Fellowship Level 8 Advanced Professional Award	Doctorate Higher Doctorate	At least level 5
Level 7	The qualifications at this level indicate an individual's highly developed in-depth knowledge that can be applied to a variety of complex situations.	City and Guilds Membership Level 7 Advanced Professional Award	Master's Degree Medical Degree PG Cert/PG Dip	At least level 5
Level 6	The qualifications at this level indicate in-depth knowledge of a field of study. Individuals are able to apply their	City and Guilds Graduateship Level 6 Advanced Professional Award	Bachelor's Degree Graduate Certificate	At least level 4

Level	Description	Example Qualifications	Equivalent Higher Education Qualifications	NVQ Levels
	knowledge to a variety of situations.			
Level 5	The qualifications at this level indicate a high level of expertise and development of advanced knowledge of a subject.	Level 5 Professional Award Higher National Certificate	Foundation Degree Diploma in Further Education	At least level 4
Level 4	The qualifications at this level indicate higher knowledge and information than that of level 3 qualifications.	City and Guilds Licentiate Level 4 Professional Award	Certificate of Higher Education	Level 4
Level 3	The qualifications at this level indicate an ability to gain and learn new knowledge and information with some ability to apply knowledge with no supervision.	A Levels AS Levels City and Guilds Level 3		Level 3
Level 2	Qualifications at this level indicate an ability to learn new knowledge and information. With some guidance and	GCSE at grades A*-C City and Guilds Level 2		Level 2

Level	Description	Example Qualifications	Equivalent Higher Education Qualifications	NVQ Levels
	supervision knowledge can be applied.			
Level 1	The qualifications at this level indicate basic knowledge and the ability to learn with guidance.	GCSE at grades D-G City and Guilds Level 1		Level 1
Entry Level	The qualifications at this level indicate basic knowledge and the ability to learn under direct supervision and guidance.	Entry Level 1 Certificate BTEC Level 1 Certificate		Foundation learning tier

*Source: *Office of Qualifications and Examinations Regulation*

By using the NQF, a 9-scale variable will be generated. This means that almost all qualifications can be included in the analysis and ensures that vocational qualifications are given correct weighting to their academic counterparts.

Independent Variables

An independent variable is not dependent on any other variable in the analysis. It is the variable that is being analysed to see if it has a significant impact on the dependent variables. In this investigation the independent variable is regulation status.

Regulation Status

To determine the regulation status of an individual, each occupation in the UK had to be investigated so that its regulation status could be recorded. The first step was to categorise the occupations using the Standard Occupational Classification (SOC) system. Secondly, the regulation status of each group had to be determined. The process of coding the occupations follows the SOC system. The codes classify occupations in the UK using a coding system that groups similar occupations together. SOC is used in all of the major national datasets in the UK including the Labour Force Survey (LFS), Census and British Household Panel Survey (BHPS). The Occupation Information Unit (OIU) maintains SOC for the Office of National Statistics (ONS). Any changes made to the SOC have, so far, been made in conjunction with the Institute for Employment Research (IER) at the University of Warwick. It is because of its widespread use and the close monitoring of its validity by the ONS and IER, that the SOC codes are assumed to be a solid framework from which to analyse occupations. The structure of the SOC 2000 is a hierarchical grouping system. There are nine major groups, 22 sub-major groups, 81 minor groups and 353 unit groups. SOC groups occupations by drawing 'similar' jobs together.

Occupational regulation in the UK can take one of the following forms: registration, accreditation, certification or licensing. To analyse regulation in the UK accurately, as well as a binary variable ascertaining whether regulation is present in the SOC unit group a second variable, type of regulation, will be generated. As no dataset within the UK that collects data on occupational regulation exists, there is little guidance as to how to classify regulation statuses. As such, the criteria used to determine regulation type are drawn from Forth *et al.* 2010.

To classify an occupation as licensed, certified, accredited, registered or unregulated, two criteria are considered: whether there is any legal requirement by the government for individuals to comply with the occupational regulation,-and whether there is a requirement to demonstrate a minimum degree of competency. The criteria

relates to the classification as shown in table 2.5. Once the regulation status has been determined, four variables are formed.

Licensed: does the SOC unit code have licensing within it? (1=yes, 0=no)

Certified: does the SOC unit code have certification within it? (1=yes, 0=no)

Accredited: does the SOC unit code have accreditation within it? (1=yes, 0=no)

Registered: does the SOC unit code have registration within it? (1=yes, 0=no)

Once all occupations within the SOC unit group have been researched, the unit group is assigned an overall regulation status. The unit group regulation status is the 'highest' regulation status in terms of legality and levels of entry requirements. Where there are two regulations of the same status, the oldest regulation is used.

Table 2-5: Classification of regulation status

		Requirement to demonstrate a minimum degree of competence?	
		No	Yes
Any legal regulation by the government? (directly or through an appointed agency)	No	Unregulated The occupation may be subject to conventions, whereby employers will typically cite minimum entry criteria, but these are not co-ordinated, nor do they have any legal basis. <i>UK example</i> : retail assistant	Non-governmental accreditation schemes Practitioners may apply to be accredited as competent by an accrediting body, which is usually a professional body or industry association. May permit the accredited person to use a specific title or acronym but confers no legal protection of title, nor any legal protection of function. <i>UK example</i> : membership of Institute of Certified Locksmiths
	Yes, but confers no rights to practice	Empty Cell	Certification schemes There is no legal restriction as to who may carry out the tasks covered by the occupation, but practitioners may apply to be certified as competent by the state (or an appointed agent). This certification may sometimes (but not always) confer legal protection of title. <i>UK example</i> : certification by the Architects' Registration Board
	Yes, and confers rights to practice	Registration schemes Requires registration of personal details. May also make stipulations in areas other than competence (e.g. finance) <i>UK example</i> : registration of estate agents	Licensing schemes Only those who can demonstrate the specified level of competence may obtain a licence permitting them to undertake the tasks covered by the regulation. <i>UK example</i> : licensing of taxi drivers by local authorities

Source: Bryson, Forth, Humphris, Kleiner and Koumenta 2010

Where a unit group is concluded to be licensed, the Act enforcing licensing was confirmed, particularly if this had not been provided during the telephone interview with the enforcement body (more information on the construction of the regulation database can be found on page 57).

Coverage

The way SOC groups together occupations means that many occupations can be covered by one unit code. Therefore, it is possible that when a unit code has a positive regulation status recorded (licensing, certification, accreditation or registration); it may not translate to every occupation in the group being covered by the regulation. For example, lollipop traffic staff are in the same unit group as security guards, but are not licensed. In order not to overestimate the prevalence of occupational regulation, it is necessary to have a variable indicating whether there is complete or partial coverage. Ideally, the exact number of occupations that are regulated in each unit group is recorded, as this would give the most accurate results. However, titles used to be recorded without a classification system, so there are too many job titles to realistically and accurately assess each one beyond those explicitly defined in the unit group definition. Therefore, two variables are generated:

Complete Coverage: are all the jobs in the SOC unit group covered under the regulation status? (1=yes, 0=no)

Partial Coverage: are only a portion of the jobs in the SOC unit group covered under the regulation status? (1=yes, 0=no)

This will result in two estimates being created: a lower bound and an upper bound estimate. The lower bound estimate is computed by only considering unit groups where there is complete coverage; the upper bound estimate also includes unit groups where there is only partial coverage.

The presence of two estimates is the main weakness of the research. It will be impossible to accurately compute a single figure that is representative of the presence of regulation in the UK because of the way in which occupations are coded.

However, this is the most accurate approach that can be taken. Further, as this is the first initial investigation into all types of regulation, allowances for measurement error are inevitable and unavoidable until questions concerning regulation appear on national surveys.

Control Variables

Control variables are included in an analysis to prevent the impact an independent variable has being over inflated. As this investigation is concerned with impact in the labour market, the control variables used will reflect those included in traditional labour economic models. In order for reliable comparisons between the US and UK the variables used mirror those used by Kleiner throughout his research in the field. The control variables are separated into two categories: human capital variables and job characteristic variables. All of the variables used are taken directly from the LFS.

Each variable is defined below:

Human Capital:

- Gender: are you male or female? (1 = male, 0 = female)
- Age: how old are you? (1 = 16-19 years old, 2 = 20-29 years old, 3 = 30-39 years old, 4 = 40-49 years old, 5 = 50-59 years old, 6 = 60 years old or over)
- Disability: do you currently have a disability? (1= registered disability and work limited, 2 = registered as disabled, 3 = unregistered disability but work limited, 4 = no disability)
- Skill Level: what is the level of your highest qualification? (matched to the National Qualification Framework (NQF), a scale variable from 0-8 not a control variable when skill level is the dependent variable investigated)

Job Characteristics:

- Union Member: are you currently a member of a trade union? (1 = member, 0 = not member)
- Trade Union Coverage: is your pay and/or working conditions affected by a trade union? (1 = covered, 0 = not covered)
- Temporary Work: is the work you do in any way temporary? (1 = in some way temporary, 0 = permanent)

- Full Time: do you currently work full time? (1 = yes, 0 = no)
- Sector: do you currently work in the public sector? (1 = yes, 0 = no)
- Workplace Size: how many employees are currently working in your workplace? (1 = less than 25, 2 = 25-499, 3 = 500 or more)
- Major Occupational Ranking: what is your current and main occupation? (1 = managers and senior officials, 2 = professional occupations, 3 = associate professionals, 4 = administration and secretarial, 5 = skilled trades and occupations, 7 = sales and customer services, 8 = process, plant and machine operatives, 9 = elementary occupations)
- Region of Work: in which region is your main workplace located? (1 = central London, inner London, outer London and South East, 0 = somewhere else)
- Tenure: how long have you worked for your current employer? (1 = less than 3 months, 2 = 3 to 6 months, 3 = 6 to 12 months, 4 = 1 to 2 years, 5 = 2 to 5 years, 6 = more than 5 years)

2.2.3 Analysis

Since the aim of this paper is to determine the impact of regulation on wages and skill levels, in order to analyse the impact regulation has, it is necessary to conduct a statistical analysis on the data. The statistical analysis used is regression.

Regression Analysis

There are two types of least square regressions: ordinary least square and non-linear squares. Ordinary least squares (OLS), is appropriate for use on a finite set of variables and uses a closed expression in order to compute the associations between the dependent and independent variables. The OLS method is used because the LFS is a finite dataset and the variables used are scaled.

The aim of OLS is so that the overall solution or model minimises the sum of the squares of the errors made on normally distributed data. Hence the sum of the squared residuals is as small as possible, where the residual values are the difference between the predicted and observed values. The empirical model produced by OLS shows the association of variables and how they are correlated; the results do not

determine causality on non-longitudinal data. As a result, further analysis is needed to conclude, with statistical significance, the direction of the relationship.

The assumption of the process is that all variables follow the normal distribution and that the independent variables are not correlated with each other. However, the central limit theorem states that in large samples this implies that the variables can be approximated to the normal distribution. The datasets used are large enough to comply with the central limit theorem, and as a result, it is assumed that all variables used can be approximated with the normal distribution.

A significant association is concluded if the beta value calculated (the correlation between the variable in question and the dependent variable) has an associated significance of less than 0.05, and a very significant association is concluded if this value is less than 0.01. The effectiveness of the model is determined by its ability to explain the dependent variable. This is shown by the R-squared of the model. The R-squared shows the portion of the dependent variable explained by the model. The R-squared adjusted shows this in terms of the standard deviation of the dependent variable. The higher the R-squared, the better the model.

In order not to overstate the impact that regulation has on wages and skills, other variables that may also have an impact are controlled for. For example, gender has an impact on wages, so this impact must be accounted for in order not to assume the impact is as a result of regulation. As a result, the probability of a type 1 error is minimised.

Variables

A summary of the variables included in each regression is presented in table 2.6.

Table 2-6: Summary of Regression Variables

Variables	H₁: Occupational regulation has a positive association with wage levels in the UK	H₂: Occupational regulation has a positive association with skill levels
Dependent	Wage levels	Skill Levels
Independent	Occupational Regulation Status	Occupational Regulation Status
Control	Human Capital, Job Characteristics, Coverage of Regulation	Human Capital, Job Characteristics, Coverage of Regulation

Model

As a result of including the variables listed above, the model generated from the analysis into the impact regulation has on wages will take the following form:

$$Y_{\text{pay}} = \beta_{ih}X_{ih} + \beta_{ij}X_{ij} + \beta_{ir}X_{ir} + \varepsilon$$

Where X_{ih} represents human capital variables such as education, age and gender, X_{ij} denotes job characteristics such as sector and location X_{ir} is the regulation status of the individual and ε is the error.

The model relating to the impact regulation has on skill levels will take the following form:

$$Y_{\text{skill}} = \beta_{ih}X_{ih} + \beta_{ij}X_{ij} + \beta_{ir}X_{ir} + \varepsilon$$

Where X_{ih} represents human capital variables such as education, age and gender, X_{ij} denotes job characteristics such as sector and location, X_{ir} is the regulation status of the individual and ε is the error.

2.2.4 Limitations

The main limitation of this analysis is the unavoidable situation of two estimates relating to the prevalence of regulation. As explained in the first paper, two estimates occur because of the SOC classification system, and also because regulations are not always compulsory for every individual in a regulated occupations. As there is no other way of determining an individual's regulation status other than applying the regulation database, there is nothing that can be done to remedy the situation.

A further limitation relates to the human capital variables included in the analysis. The variables, whilst extensively cover many aspects which impact upon wage and skill levels, are a finite list. In reality there are many more factors that can impact upon wage and skill levels, however the variables used are reflective of traditional labour economic models. In addition, the measurement of skills may not capture every aspect of a skill. The NQF only approximates vocational and academic qualifications; some skills are not so easily quantified. Yet this is the most valid way in which to define skill levels in such a large sample.

Therefore, even though there are limitations to the analysis, the results presented in the next section are still deemed valid.

2.3 Results

The following section presents the results of the investigation outlined in the methodology. First, the sample will be presented with regard to the percentage of individuals that are regulated. Second, the regulation status of individuals will be disseminated by the human capital variables of the sample. Third, the regulation status of individuals will be presented with regard to job characteristics. Lastly, the results of the analysis will be presented.

2.3.1 Sample

In the previous paper, the prevalence of regulation at the occupational level was evaluated. It is only through the construction of the regulation database in paper one that individual estimates can be presented. This is because the regulation database was merged with the Labour Force Survey (LFS) to estimate the regulation status of individuals.

Table 2-7: Individual Regulation Status

Regulation Status	Upper Bound (%)	Lower Bound (%)
Licensing	31	14
Certification	3	3
Accreditation	19	10
Registration	6	2
Unregulated	40	72
Total	100	100
Base	152,191	152,191

**All employees and self-employed from QLFS Jan-Sept 2010*

The results indicate that up to 60% of individuals are regulated. Licensing is shown to be the dominant form of regulation with up to 31% of individuals being licensed followed by accreditation, registration and certification respectively. As discussed previously, the nature of occupation classification means that there will always be upper and lower bound estimates with no absolute number being reliably found. The estimates relating to the coverage of each regulation are presented below.

Table 2-8: Individual Regulation Status by Coverage

Regulation Status	All Jobs (%)	Some Jobs (%)	N/A (%)	Base (No.)
Licensing	14	17	0	48,206
Certification	3	1	0	5,107
Accreditation	10	10	0	28,970
Registration	2	4	0	8,661
Unregulated	0	0	0	61,247
Total	28	32	0	152,191
Base	42,948	47,996	61,247	

**All employees and self-employed from QLFS Jan-Sept 2010*

The results show that 28% of individuals are in occupations where regulation has complete coverage over the SOC unit group. This means that at least 14% of individuals are licensed and at least 2% are registered. Of the voluntary regulations, at least 3% of individuals have the choice of whether or not to become certified, and at least 10% have access to an accreditation scheme.

2.3.2 Human Capital Characteristics

By estimating the number of regulated individuals, it is possible to estimate coverage by human capital characteristics, such as those used in wage and skills models as control variables.

Gender

Table 2-9: Individual Regulation Status by Gender (lower bound estimates)

Regulation Status	Male (%)	Female (%)	Total (%)	Base (No.)
Licensing	52	48	100	21,863
Certification	87	13	100	4,097
Accreditation	69	31	100	14,575
Registration	55	45	100	2,413
Unregulated	50	50	100	109,243
All	53	47	100	152,191

**All employees and self-employed from QLFS Jan-Sept 2010*

Table 2.9 clearly shows that more men than women are in regulated occupations. This is true for all the different types of regulations. However, they are split equally in unregulated occupations. This may suggest that, relatively speaking, more women are unregulated than regulated. Similarly more men may be attracted to regulated occupations compared to women. In order to determine if there is a significant difference between the regulations with regard to gender composition, an Analysis of Variance (ANOVA) was conducted. The results are significant ($F= 720.56$, $Sig= 0.001$). This indicates that there is a significant difference in the gender composition between the regulation categories. In particular, certification and accreditation have a significantly higher proportion of men when compared to licensing and accreditation.

Age

Table 2-10: Individual Regulation Status by Age (lower bound estimates)

Regulation Status	16-19 (%)	20-29 (%)	30-39 (%)	40-49 (%)	50-59 (%)	60+ (%)	Total (%)	Base (No.)
Licensing	0	15	26	29	22	8	100	21,863
Certification	1	20	25	26	20	8	100	4,097
Accreditation	2	22	25	25	18	7	100	14,575
Registration	0	18	29	28	18	7	100	2,413
Unregulated	5	21	20	26	19	9	100	109,243
All	4	20	22	26	20	8	100	152,191

**All employees and self-employed from QLFS Jan-Sept 2010*

The results show that for all types of regulation the majority of regulated individuals are between 20 and 59. There are relatively few regulated individuals under the age of 20, which could relate to the skill levels of the regulations being at a level of at least compulsory education. However, the age distribution of regulated individuals is very similar to that of unregulated, suggesting there is no significant difference in the age profile of regulated workers. As a consequence of the age profiles being so similar, no ANOVA was conducted.

Ethnicity

Table 2-11: Individual Regulation Status by Ethnic Group (lower bound estimates)

Regulation Status	White (%)	Mixed (%)	Asian or Asian British (%)	Black or Black British (%)	Chinese (%)	Other (%)	Total (%)	Base (No.)
Licensing	88	1	6	3	0	2	100	21,847
Certification	92	1	3	1	1	1	100	4,094
Accreditation	93	1	4	2	0	1	100	14,565
Registration	89	1	7	2	1	1	100	2,413
Unregulated	91	1	4	2	0	1	100	109,182
All	91	1	5	2	0	1	100	152,101

**All employees and self-employed from QLFS Jan-Sept 2010*

In terms of ethnicity, licensing and registration are shown to have more individuals from ethnic minorities when compared to the composition of unregulated occupations, or indeed, the whole labour market. The voluntary regulations, certification and accreditation, are shown to have fewer individuals from ethnic minorities. An Analysis of Variance was conducted to observe if these differences were significant. The ANOVA results indicate that there is a significant difference between the proportions of ethnic minority groups within the regulation categories ($F= 10.75$, $Sig= 0.000$). Certification and accreditation have the lowest proportions of ethnic minority groups in comparison to licensing and registration.

Disability

Table 2-12: Individual Regulation Status by Disability

Regulation Status	DDA and Work-Limiting Disabled (%)	DDA Disabled Only (%)	Work-Limiting Disabled Only (%)	Not Disabled (%)	Total (%)	Base (No.)
Licensing	5	6	3	86	100	21,863
Certification	4	6	2	88	100	4,097
Accreditation	4	6	3	87	100	14,575
Registration	3	7	2	88	100	2,413
Unregulated	6	6	3	85	100	109,243
All	6	6	3	85	100	152,191

**All employees and self-employed from QLFS Jan-Sept 2010*

The results show that the proportion of disabled individuals is similar in regulated occupations to that of unregulated occupations. However there are differences between the types of regulation. Registration and certification are shown to have fewer individuals who are disabled. Due to these differences an ANOVA was conducted. The results were not statistically significant ($F=1.1726$, $Sig=0.999$). Therefore, there is no proven difference in the proportion of disabled workers between the different types of regulation, or in fact the labour market as a whole.

The results show that occupational regulation does have an impact on the composition of the workforce in occupations notable for ethnic minorities and women. The impact is particularly prevalent where accreditation or certification is present. However, there is no significant effect shown for the presence of disabled workers.

2.3.3 Job Characteristics

Not only can estimates be made concerning the human characteristics of regulated individuals, but estimates can also be made about the characteristics of jobs held by regulated individuals.

Occupation

Table 2-13: Individual Regulation Status by SOC Major Group (lower bound estimates)

	Licensing (%)	Certification (%)	Accreditation (%)	Registration (%)	Unregulated (%)	Total (%)	Base (No.)
Managers and senior officials	6	0	12	3	78	100	23,241
Professionals	40	13	22	0	24	100	21,102
Assoc Prof and Technical	26	4	10	5	55	100	22,485
Admin and Secretarial	0	0	3	4	94	100	17,147
Skilled Trades	2	0	21	0	77	100	15,771
Personal service	0	0	2	0	98	100	13,831
Sales and customer service	0	0	0	0	100	100	11,027
Process, plant and machine	51	6	1	0	42	100	10,054

	Licensing (%)	Certification (%)	Accreditation (%)	Registration (%)	Unregulated (%)	Total (%)	Base (No.)
operatives							
Elementary	0	0	7	0	93	100	17,533
All	14	3	10	2	72	100	152,191

**All employees and self-employed from QLFS Jan-Sept 2010*

The results indicate that the distribution of regulated individuals is not equal across all of the SOC major groups. The group with the highest percentage of workers, definitely covered by regulation, is the professionals, with 76%. The second most regulated group is process, plant and machine operatives, with at least 58% covered by regulation. Sales and customer service have no individuals who are definitely covered by regulation. In terms of the prevalence of each type of regulation, accreditation is the only type of regulation to be present in the most SOC major groups (8 out of 9), and registration is found to be in the fewest groups (3 out of 9). There appears to be no specific trends, such as licensing being found only in the upper groups. However, one notable finding is the lack of any regulation other than accreditation in the elementary major group.

Employment Status

Table 2-14: Individual Regulation Status by Employment Status (lower bound estimates)

	Licensing (%)	Certification (%)	Accreditation (%)	Registration (%)	Unregulated (%)	Total (%)	Base (No.)
Employee	14	3	9	2	73	100	129,530
Self-employed	14	3	15	2	67	100	22,643
All	14	3	10	2	72	100	152,173

**All employees and self-employed from QLFS Jan-Sept 2010*

With regard to employment status; licensing, certification and registration are all found to be just as prevalent for self-employed individuals as those employed. Accreditation is the only type of regulation that varies between the two groups of people. There are notably more self-employed individuals in occupations where accreditation has complete coverage than employed individuals.

Location

Table 2-15: Individual Regulation Status by Region of Workplace

	Licensing (%)	Certification (%)	Accreditation (%)	Registration (%)	Unregulated (%)	Total (%)	Base (No.)
North East	14	3	8	1	74	100	6,490
North West	15	3	9	1	72	100	17,535
Yorks and the Humber	14	3	9	1	73	100	13,625
East Midlands	15	3	8	1	73	100	11,066
West Midlands	14	3	9	1	74	100	12,963
East of England	14	3	10	1	71	100	13,608
London	14	2	12	4	67	100	17,255
South East	13	3	10	2	73	100	19,952
South West	13	3	9	1	73	100	13,559
Wales	15	2	9	1	72	100	6,624
Scotland	15	3	9	1	72	100	13,255

	Licensing (%)	Certification (%)	Accreditation (%)	Registration (%)	Unregulated (%)	Total (%)	Base (No.)
Northern Ireland	17	2	10	1	70	100	5,593
All	14	3	10	2	75	100	151,525

*All employees and self-employed from QLFS Jan-Sept 2010

The prevalence of regulation by geographical location of the workplace indicates that there are no distinct differences between the geographical locations presented. The only exception relates to registration. There are more registered individuals in London relative to other areas. One possible explanation is that London is the financial centre of the UK. The majority of registration relates to the Financial Services Authority (FSA) requirement for individuals working in the sector to join the register. Therefore, more people are registered in London because more people work in the financial sector in London than in other areas.

Industry

Table 2-16: Individual Regulation Status by Industry (SIC) (lower bound estimates)

	Licensing (%)	Certification (%)	Accreditation (%)	Registration (%)	Unregulated (%)	Total (%)	Base (No.)
A. Agriculture, forestry and fishing	3	0	0	0	96	100	2,012
B. Mining and quarrying	4	19	14	0	64	100	553
C. Manufacturing	4	10	7	1	78	100	14,903
D. Electricity, gas	3	16	11	1	70	100	896

	Licensing (%)	Certification (%)	Accreditation (%)	Registration (%)	Unregulated (%)	Total (%)	Base (No.)
E. Water supply, sewerage, waste	15	6	6	0	72	100	999
F. Construction	2	5	31	0	62	100	11,214
G. Wholesale, retail, repair of vehicles	6	0	3	0	89	100	20,645
H. Transport and storage	40	1	6	1	52	100	7,470
I. Accommodation and food services	13	0	15	0	71	100	7,459
J. Information and communication	1	1	23	0	74	100	4,889
K. Financial and insurance activities	1	0	14	25	60	100	5,667
L. Real estate activities	1	0	5	1	94	100	1,467
M. Prof, scientific, technical active.	9	10	21	2	58	100	9,526
N. Admin and support services	5	1	11	1	83	100	6,950
O. Public admin and defence	24	2	8	1	65	100	10,220

	Licensing (%)	Certification (%)	Accreditation (%)	Registration (%)	Unregulated (%)	Total (%)	Base (No.)
P. Education	31	1	4	0	64	100	17,223
Q. Health and social work	29	0	3	2	66	100	20,870
R. Arts, entertainment and recreation	1	4	9	0	85	100	4,132
S. Other service activities	3	1	7	0	89	100	3,957
All	14	3	10	2	72	100	151,052

*All employees and self-employed from QLFS Jan-Sept 2010

The notion that registered individuals are more likely in the financial sector is enforced by the results presented in table 2.16 above. The results show that registration is most prevalent in the financial and insurance sector. Accreditation has the most coverage in the information and communication sector. Certification has the most coverage in the mining and quarrying sector and licensing has the most coverage in the transport and storage sector. In terms of proportion, regulation has the greatest coverage in the transport and storage sector with at least 48% of individuals working in the sector being covered by regulation.

The distribution of regulated occupations across different job characteristics indicates that overall regulation mirrors unregulated occupations. There are some exceptions however; there are proportionally more registered individuals in the financial sector than one would expect, but this is accounted for by the registration of many financial occupations since 2000. This may also account for why there is more registration in London than expected. There are proportionally more self-employed individuals covered by accreditation schemes than one may expect. However, there are very few notable differences between each type of regulation, and indeed regulated and unregulated occupations.

2.3.4 Results of the Analysis

The aim of this paper is to investigate the impact that regulation has on wages and skill levels. In order to meet this aim, a regression analysis was conducted. The results for wages and skill levels are presented below.

Wages

By merging the regulation status and coverage of regulations of each SOC unit group with the labour force survey, an investigation into the wage levels of individuals could be undertaken. As discussed, the upper and lower bound estimates prevent an absolute mean wage for each regulation being found. However, this is unavoidable. The results are presented below.

Table 2-17: Mean Gross Hourly Wage by Regulation Status

	Mgrs & Snr Officials	Profs	Assoc Prof & Tech	Admin & Secret	Skilled Trades	Pers Servs	Sales & Cust Service	Proc, Plant & Mach	Elemen	All
Lic. full cov.	14.54	18.86	16.17		7.62			9.67		15.45
Lic. partial cov.	13.25		15.08		9.77	8.57	6.91	7.97	6.88	8.74
Cert. full cov.		17.78	13.38					10.83		15.72
Cert. partial cov.			12.35			6.79				8.42
Acc. full cov.	18.71	19.20	14.85	11.17	10.73	8.85		8.08	6.33	15.60
Acc. partial cov.	20.09	19.38	14.28	11.51	10.52	10.38		11.46	8.63	14.40
Reg. full	21.24		20.45	11.18						18.34

	Mgrs & Snr Officials	Profs	Assoc Prof & Tech	Admin & Secret	Skilled Trades	Pers Servs	Sales & Cust Service	Proc, Plant & Mach	Elemen	All
cov.										
Reg. partial cov.	22.61		13.47	10.67		7.21	8.62		6.30	16.88
Unregulated	18.26	17.24	13.76	10.49	11.81	9.13	8.14	10.09	7.72	11.84
All	18.14	18.57	14.96	10.70	10.70	8.58	7.42	9.79	7.49	12.55
Base	5,074	4,449	4,869	4,314	2,367	2,970	2,767	2,160	4,012	32,982

**All employees and self-employed from QLFS Jan-Sept 2010*

Overall, the mean gross hourly wage of the sample is £12.55. Individuals working in unit groups where there is no regulation present have a mean gross hourly wage of £11.84. For the total workforce, whenever regulation has full coverage over a unit group, the mean gross hourly wage is shown to be higher than those in unregulated groups. Where regulation has partial coverage, the mean gross hourly wage remains higher for accreditation and registration but the mean gross hourly wage is less for licensing and certification when compared to the average wage of individuals working in occupations where no regulation is present at all.

The results presented in table 2.17 appear to indicate sizable differences in the mean gross hourly wages between the different types of regulations and between regulated and unregulated individuals. For managers and senior officials, where licensing is present (either with full coverage of an occupational group or partial coverage) the mean gross hourly wage is less than the unregulated counterparts. Where accreditation and registration are present (either with full coverage or partial coverage) the average gross hourly wage is seen to be greater than unregulated individuals. For professional occupations, any presence of regulation (either with full or partial coverage) has a greater gross hourly rate than where no regulation is present. In the associate professional and technical group, all licensing and accreditation (regardless of the extent of coverage) is shown to have higher average

gross hourly wages than where no regulation is present. Where certification and registration have full coverage over a group, the average gross wage is higher than where there is no regulation. Where certification and registration have partial coverage over a group, the average wage is less than that found within unregulated units. In the administrative and secretarial major group, the average gross hourly wages are greater where any regulation is present, regardless of the extent of coverage, compared to where there is no regulation at all. Conversely, in the skilled trades' major group, where regulation is present (either covering a whole group or part of a group) the average wage is less than where there is no regulation. The same is true for personal services, apart from where accreditation has partial coverage of a unit group where average gross wages are greater than where no regulation is present. In the sales and customer services' major group where licensing has a partial coverage over unit groups, the mean gross hourly wage is less than that of where no regulation is present. Where registration has partial coverage, the average gross hourly wage is greater than where no regulation is present. Within the process, the plant and machine major group, where certification has full coverage and where accreditation has partial coverage, the mean gross hourly wage is greater than where no regulation is present. However, for all other incidences of regulation (either full coverage or partial coverage) the mean gross hourly wage is less than where there is no regulation. Where accreditation has partial coverage in the elementary major group, the mean gross hourly wage is greater than where there is no regulation; however in all other incidences of regulation the mean wage is lower.

Although the results appear to suggest an overall positive impact on wages from regulation, it is necessary to conduct a regression in order to control for other variables which may have an effect on wages. This prevents the impact of regulation being exaggerated.

Table 2-18: Regression results of wage effects

Regulation Status	Coverage	β (without controls)	β (with controls)
Licensing	All	27.000**	0.269**
	Some	34.040**	-0.272**
Certification	All	17.370**	0.320**
	Some	7.430**	-0.345**
Accreditation	All	16.760**	0.438**
	Some	7.900**	0.261**
Registration	All	21.890**	0.273**
	Some	17.130**	0.202**

Base: All individuals who are employees or self-employed, 31,914 respondents

Source: QLFS Jan-Sept 2010

** Significant at the 0.001 level, * significant at the 0.05 level

From table 2.18 it can be observed that all of the beta values are significant both without controls and with controls. Therefore, the first conclusion to draw is that regulation does have a significant impact on wages. Secondly, where regulation covers all of the SOC groups, the association is significantly positive both with and without controls. Thirdly, when controls are added, the magnitude of the beta values dramatically decrease, and in some cases changes sign. The only negative associations occur in licensing and certification, where the regulation only covers part of the SOC code. The overarching conclusion is, however, that in most situations occupational regulation will have a significantly positive association with an individual's gross hourly wage, even when human and job characteristics are controlled for.

To further investigate the association of regulation with pay, the same analysis was conducted on each of the major SOC groups individually. The results are presented in table 2.19. The results show that there are varying associations between the independent and dependent variables across the occupation spectrum. How the associations vary is described below by discussing each type of regulation in turn.

Table 2-19: Wage Impact by SOC Major Group

Regulation Status	Coverage	Managers and Senior Officials		Professionals		Associate Professionals and Technicians		Administrators and Secretaries		Skilled Trades		Personal Services		Sales and Customer Services		Process, Plant and Machine Operatives		Elementary Occupations	
		No controls	Controls	No controls	Controls	No controls	Controls	No controls	Controls	No controls	Controls	No controls	Controls	No controls	Controls	No controls	Controls	control	Controls
Licensing	All	6.85**	-0.356**	3.97**	0.097**	9.60**	0.166**			9.73**	-0.449**					2.38**	-0.050*		
	Some	12.13**	-0.328**			1.67**	0.063			8.99**	-0.216**	1.18**	-0.031	10.85**	-0.166**	7.36**	-0.230**	5.83**	-0.094**
Certification	All			2.41**	0.069*	0.57**	-0.024									0.99**	0.042		
	Some					0.92**	-0.040					5.51**	-0.315**						
Accreditation	All	1.63**	0.042	5.19**	0.136**	3.29**	0.081**	0.57**	0.031	3.69**	-0.112**		0.034				6.98**	-0.155**	
	Some	4.30**	0.108**	3.57**	0.126**	1.71**	0.047	05.78**	0.106**	5.34**	-0.140**	0.52**	0.132			1.66**	-0.223	4.76**	0.134**
Registration	All	3.88**	0.164**			8.04**	0.361**	3.17**	0.101**			1.12**				1.85**	0.121		
	Some	3.08**	0.142**			0.43**	-0.051	1.02**	0.042			2.74**	-0.160**	0.94**	0.050		3.18**	-0.116**	

Base: All individuals who are employees or self employed, 31,914 respondents, with controls

Source: QLFS Jan-Sept 2010

** significant at the 0.001 level, * significant at the 0.05 level

Licensing

Occupational licensing has a significant negative association on wages for managers and senior officials, skilled trades, sales and customer services, and process, plant and machine operatives. It has a significant positive association with professionals, associate professionals and technicians. All of the associations have the same significance and direction whether the regulation covers some or all of the SOC groups.

Certification

Certification has a significant positive association with wages for professionals with and without controls. For associate professionals and technicians, and process, plant and machine operatives, it only has a significant positive association without controls. The results are the same for when the regulation covers all of the SOC groups and when it only covers part of the group.

Accreditation

Accreditation has a significant positive association with wages across all of the SOC major groups before the controls are added. Once the control variables have been taken into account, accreditation has a significant positive association with the professionals in the cases where regulation covers the whole group, and where it covers part of the group. A significant positive association is also found when accreditation is found covering part of the group in managers and senior officials, administration and secretaries and elementary occupations. A significant negative association is found in skilled occupations where the regulation covers all or part of the group. A significant negative association is also found where accreditation covers the entire group in elementary occupations.

Registration

Registration has a significant positive association with wages across all of the testable major SOC groups before the controls are added, regardless of whether the

regulation covers some or all of the SOC groups. Once the controls are added, registration still has a significant positive association with managers and senior officials, for both full and partial coverage. Within the associate professionals and technicians, and administrators and secretaries groups there is a significant positive association only where there is full coverage of the regulation. For personal services and elementary occupations there is a significant negative association where registration has partial coverage.

Summary: Wages

In the results above, we can see that there are differing levels of associations across the major SOC groups. However, what is certain is the significant impact regulation has on the wage distribution; an impact which, in the majority of cases, is positive.

Skill Levels

As with wage levels, by applying the regulation and coverage variables to the Labour Force Survey (LFS) it is possible to collate information as to the average skill levels (in terms of highest qualification level in accordance with the National Qualification Framework) by regulation status.

Table 2-20: Mean NQF Level by Regulation Status

	Mgrs & Snr Officials	Profs	Assoc Prof & Tech	Admin & Secret	Skilled Trades	Pers Servs	Sales & Cust Service	Proc, Plant & Mach	Elemen	All
Lic. full cov.	4.9	6.9	6.2		3.9			3.8		5.8
Lic. partial cov.	5.0		5.8		4.6	5.1	4.4	3.7	3.8	4.7
Cert. full cov.		6.2	5.8					4.0		5.8
Cert. partial cov.			5.6			4.9				5.0
Acc. full cov.	5.7	6.4	6.0	4.7	4.6	5.0		3.9	4.8	5.6
Acc. partial cov.	5.8	6.4	5.8	5.0	4.6	4.3		4.2	3.7	5.2
Reg. full cov.	5.4		5.9	4.8						5.5
Reg. partial cov.	5.8		5.4	4.8		5.3	4.2		4.0	5.4
Unregulate d	5.7	6.6	5.8	4.8	4.9	4.5	4.7	4.0	3.8	5.0
All	5.6	6.6	5.9	4.9	4.6	5.0	4.5	3.9	3.8	5.2
Base	22,65 4	20,21 6	21,13 1	16,39 1	15,42 6	13,05 7	10,18 7	9,83 6	15,90 2	144,80 0

**All employees and self-employed from QLFS Jan-Sept 2010*

The results presented in table 2.20 show that skill levels vary between the SOC major groups and between different regulation statuses. In the managers and senior officials' major group, the average skill levels of individuals partially covered by

accreditation or registration are shown to be higher than the average skill levels where no regulation is present. However, all other forms of coverage and regulation have the same average skill levels or less than where no regulation is present. Within the professional major group where licensing has full coverage of a unit group, the average skill levels of covered individuals is higher compared to where there is no regulation. All other forms of regulation in the professional group are shown to have, on average, lower skill levels regardless of the extent of coverage of a regulation. Where licensing, accreditation or registration has full coverage of a unit group in the associate professionals and technician major group, the mean skill levels are higher than those where no regulation is present. All other regulation statuses and coverage within the major groups have the same or lower average skill levels compared to unregulated groups. In the administrative and secretarial major group, the only regulation to have a mean skill level exceeding that where no regulation is present is accreditation where there is partial coverage. In all other circumstances, individuals working in occupations where regulation is present do not have a mean skill level that exceeds individuals working in completely unregulated occupations. In all situations where regulation is present in an individual's occupational unit group, the average skill levels are less than those of their unregulated counterparts in the skilled trades' major group. The same is true of the sales and customer services' major group.

In the personal services' major group, where licensing or registration has partial coverage of a unit group, individuals have an average skill level greater than individuals where no regulation is present. This is also the case where accreditation has full coverage. In all other cases, the average skill levels do not exceed those where no regulation is present. In the process, the plant and machine major group is the only incidence where regulation is shown to have an associated mean skill level higher than that of unregulated occupations, but only where accreditation has partial coverage. The reverse is true within the elementary occupations' major group where accreditation of only partial coverage has a mean skill level less than that of unregulated workers. In all other situations, where regulation is present, a higher mean skill level is found.

There are differences between the SOC major groups. However, overall each type of regulation has a mean skill level greater than where no regulation is present, apart from where licensing or certification has partial coverage. Interestingly, it is where licensing or certification has full coverage over unit groups that average skill levels are found to be at their highest.

Yet the descriptive statistics are not enough to form conclusions as to the association between regulation and skill levels. In order to determine whether a statistically significant association does exist, a regression analysis was carried out.

Table 2-21: Regression results of the association between qualification levels and regulation

Regulation Status	Coverage	β (without controls)	β (with controls)
Licensing	All	38.18**	0.582**
	Some	15.97**	-0.167**
Certification	All	20.03**	0.554**
	Some	0.66**	-0.022
Accreditation	All	25.55**	0.385**
	Some	9.19**	0.134**
Registration	All	10.38**	0.337**
	Some	7.99**	0.256**

Base: All individuals who are employees or self-employed, 144,735 respondents

Source: QLFS Jan-Sept 2010

** Significant at the 0.001 level, * significant at the 0.05 level

Table 2.21 contains the results from the regression analysis on the association between regulation status and qualification levels. In all cases, apart from when certification covers part of the occupational group after controls are added, the association is significant, which implies that in nearly all circumstances, occupational regulation has an important association with an individual's highest

qualification level. Further, before controls are included, this association is significantly positive for all circumstances. After controls are added, the beta values decrease. However, in all but one of the circumstances, the significant associations remain positive. The exception is when licensing only partially covers an occupation group, here there is a significantly negative association when controls are added. Where a regulation covers the entire occupational group, the extent of the association reflects the regulation continuum. Licensing has the largest beta value, followed by certification and lastly accreditation.

Table 2.22 separates the results into the SOC major codes and shows that the effects change across the different groups. Each regulation status is discussed in turn.

Licensing

Licensing has a significant association with skill levels across all of the SOC major groups both with and without control variables and regardless of whether there is full group coverage. Although all the associations are positive when no controls are added, and after controls are included, a significant negative association is found within the managers and senior officials, skilled trades, sales and customer services and, process, plant and machine operatives groups, - both where there is full coverage and partial coverage. The professional major group, personal services' major group and elementary occupations' major group still have a positive significant association after controls are accounted for. Within the associate professionals and technicians' major group, only where there is full coverage is there a significant positive association after control variables are added. Where there is partial coverage, this association becomes negative after the inclusion of control variables.

Certification

Certification has a significantly positive association with skill levels in all of the SOC major codes where certification is present, before human and job characteristics are controlled for. After control variables are added there is only a significant association shown within the professionals and personal services major SOC groups.

Within the professionals' major group this association becomes negative after the control variables are added. Conversely, in the personal services group the association remains positive.

Table 2-22: Impact on Skills by SOC Major Group

Regulation Status	Coverage	Managers and Senior Officials		Professionals		Associate Professionals and Technicians		Administrators and Secretaries		Skilled Trades		Personal Services		Sales and Customer Services		Process, Plant and Machine Operatives		Elementary Occupations	
		No controls	Controls	No controls	Controls	No controls	Controls	No controls	Controls	No controls	Controls	No controls	Controls	No controls	Controls	No controls	Controls	No controls	Controls
Licensing	All	11.40**	-0.510**	10.84**	0.554**	12.34**	0.377**			6.97**	-0.675**					2.02**	-0.076*		
	Some	14.23**	-0.449**			0.07**	-0.003			5.56**	-0.190**	9.43**	0.385**	6.01**	-0.185**	2.75**	-0.163**	2.09**	0.061*
Certification	All			11.05**	-0.568**	0.69**	-0.039									0.56**	0.037		
	Some					1.39**	-0.177							3.44**	0.181**				
Accreditation	All	0.06**	0.002	7.87**	-0.382**	3.40**	0.042	1.16**	-0.086	6.64**	-0.227**	3.20**	-0.252**			0.35**	-0.069	12.91**	0.648**
	Some	2.77**	0.095**	4.90**	-0.308**	0.58**	-0.299*	3.66**	0.122**	4.85**	-0.173**	0.83**	-0.169			2.72**	0.178**	0.47**	-0.022
Registration	All	3.32**	-0.181**			0.77**	0.139**	0.08**	0.005										
	Some	2.12**	0.103*			2.52**	0.026	0.46**	-0.035			5.31**	0.472**	2.97**	-0.299**			0.71**	0.188

Base: All individuals who are employees or self employed, 144,735 respondents

Source: QLFS Jan-Sept 2010

** significant at the 0.001 level, * significant at the 0.05 level

Accreditation

Where accreditation schemes are present in SOC major groups they have a significant positive association with skill levels before control variables are included in the analysis, regardless of whether the regulation has complete or partial coverage. After human and job characteristics are added, the association between accreditation and skill levels varies across the SOC major groups. Within the managers and senior officials' group, accreditation is significantly positively associated with skills only where the regulation has partial coverage. In the professionals' major group once controls are added, the association between accreditation and skills becomes significantly negative where there is complete or partial coverage. The same is true in the skilled trades' major SOC group. In the associate professionals and technicians' group once the control variables are present; there is a less significant negative association, but only where the regulation has partial coverage. The administrators and secretaries' major group shows that there is still a significant positive association with skill levels but, again, only when the regulation has partial coverage, the same is true for the process, plant and machine operatives' group. Personal services show that once controls are added, there is a significantly negative association with skill levels but only where there is complete coverage of the SOC unit group. The elementary occupations' group also shows that there is only a significant result where a regulation has complete coverage, but this association is positive.

Registration

Where registration is present, either covering all or some of a group, there is a significant positive association with skill levels before human or job characteristics are controlled for. Once human and job characteristics are controlled for, a significantly positive association is still present in the managers and senior officials' major group and the personal services' major group, but only where the regulation has partial coverage. There is still a significant positive association in the associate professionals and technicians' major group where the regulation has complete coverage. Within the managers and senior officials' group where there is complete

coverage, the association becomes significantly negative. Similarly, the association within the sales and customer services group becomes significantly negative, but only where the regulation has partial coverage. In all other circumstances, the association between registration and skill levels becomes insignificant when control variables are added.

Summary: Skill Levels

Occupational regulation is significantly positively associated with skill levels, either where there is complete or partial coverage, before human and job characteristics are controlled for. After control variables are added, where a regulation has complete coverage, there is still a significantly positive association for all of the regulation types. The results for regulations with partial coverage vary, as does the impact across different SOC major codes. In conclusion there is partial support for the hypothesis that occupational regulations have a positive association with skill levels, but that one must be careful when drawing a universal rule as there is too much variation.

2.3.5 Summary of Results

The results of the analysis indicate that there is support for the following hypotheses:

H₁: Occupational regulation has a positive effect on wages in the UK

H₂: Occupational regulation has a positive association with skill levels

The following section will discuss the results in more detail.

2.4 Discussion

The aim of this paper is to investigate the impact of occupational regulation on wages and skill levels. By merging the regulation database (created in paper one) and the Labour Force Survey (LFS) it was possible to conduct a statistical analysis including all of the necessary variables. The merged dataset indicated that at least 28% of individuals work in occupations covered by regulation. At least 14% of individuals work in occupations that are licensed and at least 2% work in occupations that are registered, as such, at least 16% of the working population must be regulated in order to legally work. Of the voluntary regulation schemes, at least 3% of individuals are covered by certification. This means at least 3% of the working population needs to become regulated to carry out every aspect and task associated with their occupation. At least 10% of individuals are covered by accreditation schemes, though these schemes are completely voluntary and do not protect any functions. This suggests that regulation covers a substantial proportion of individuals in the labour market and cements the findings in paper one, which suggests that the prevalence of occupational regulation warrants greater research to be conducted on the impact regulation has.

This section will discuss some of the key findings of the results presented in the previous section. First, the impact on wages will be discussed. Second, the impact on skill levels will be considered. Lastly, the impact regulation has on the composition of the occupations it covers is discussed.

2.4.1 Wages

The results show that there is a significantly positive association between all the different types of regulations and wages where there is complete coverage of the SOC unit group. This association also stands once control variables are added. After the controls are included, the magnitude of the positive wage differentials range from .269 (licensing) to .438 (accreditation). Ekeland *et al.* (2002) argue that such wage premiums exist because regulation restricts supply and any restriction on supply will result in a rise in wages. However, Stigler (1971) argues that it is as a result of

increasing the supply in secondary markets, rather than as an absolute effect of restricting supply. Further, Spence (1973) and Frank (1988) argue that regulation impacts demand positively and when there is an increase in demand there will always be an increase in wages. In order to conclude which theory is correct, further investigation is needed, but what can be concluded is that regulation has a significant positive effect on wages overall. This supports studies by Muzado and Pazdeka (1980), Perloff (1980), Moore et al. (1981), Kleiner and Kudrle (1992), and Humphris *et al.*(2010).

The impact regulation has on wages varies in size and direction with the extent of coverage.

Coverage

The UK classification system clusters occupations together so it is often the case that only a portion of the clustered occupations are regulated. As a result many regulations are defined as having partial coverage, whilst others are defined as having full coverage if regulation covers every occupation in the group. The strong positive wage differential exists where regulations cover all of a SOC unit group. This is not always the case where regulations only have partial coverage. Where licensing and certification only have partial coverage in a unit group, there is a significantly negative wage differential. This is the first investigation into regulation that has dealt with the issue of varying coverage. Studies based in the US, where the majority of research into regulation has taken place, do not have to account for coverage because the datasets contain different variables (for more detail see page 57). Therefore, there currently exists no theoretical argument as to why this variation in wage premium should occur with changes in coverage. However, some possible theories now follow.

First, as a result of the occupational coding in the UK, sometimes very different occupations are grouped together. It may be the case that the regulation does have a positive wage effect in the occupations it covers, but that the average wage for the SOC group is reduced by unregulated occupations. Therefore, there is the possibility

that the wage differential is falsely and *negatively* altered because of the weighting of unregulated occupations in a given unit group.

Second, not all types of regulation have negative associations wages when there is partial coverage. Only licensing and certification have negative associations where there is partial coverage. One other explanation centres on the nature of the regulations in question; both licensing and certification legally restrict tasks associated with some occupations by testing competency levels. These tasks may not be unique to an occupation, for example a plumber may need to be on the gas safety register but an electrician may also need to be. For a consumer, it may be the case that where there is a choice between a regulated individual and an unregulated individual, they actively choose the latter as they believe them to be cheaper. As a result, demand for regulated individuals may decrease for all activities not covered by the regulation. This is enforced by Gresham's law that states when consumers are faced with a decision it will be based on price because they are not usually in a position to judge quality of work. This is because there is an asymmetry of knowledge between practitioners and consumers. When decisions are made on price, the result is a flooding of the market with 'lemons'; cheap inferior practitioners (Akerlof 1971). In this circumstance, cheap practitioners would be unregulated. If the drop in demand of regulated practitioners is great enough, it is possible that price, and therefore wages, could be reduced. This argument would support the study by Benham and Benham (1975) who find that regulation has a negative effect in the optometry sector, which results in lower wages. This argument is counter to that presented by Spence (1973) and Frank (1988) who both argue demand should increase.

The variation of wage premiums with regard to the coverage of regulation should be viewed with caution. Whilst every effort is made to code regulation accurately, until the coding can take place at the individual level and not the occupational unit group, any results drawn from analysis including partially covered groups will never be conclusive. This has two implications; first, when drawing conclusions on the impact that regulations have on wages, the emphasis should be on investigating occupations with full coverage of regulations. Second, far more resources need to be spent to

obtain precise estimates on the impact of regulation, which affects at least 28% of the working population.

Major Occupational Groups

Further investigation into the impact of regulation on wages shows that the associations vary across many of the SOC major groups. This suggests that far from being a static institutional characteristic, regulations are different across the labour market. Kleiner (2000) also finds that although regulation has an overall positive impact on wages, when the results are separated into different groups of occupations, the magnitude of the effects vary hugely. Kleiner's research is US based, but similar results are found in the UK where trade union wage effects are investigated. Blanchflower and Bryson (2010) find that union wage premiums also differ across occupations. There may be several explanations for the occurrence of regulation resulting in a negative wage differential and the variation in the magnitude of premiums across different occupations.

First, as shown in the previous paper, regulations often require qualifications that are markedly under what the SOC skill level suggests. As a result, entrance into a regulated occupation may not be restricted enough to result in wage premiums. Further, it might be the case that individuals obtain the regulations, which they can do relatively easily, and enter occupations that they could not otherwise because the qualification requirements were too high. For example, in the security sector individuals are often employed on the basis that they have obtained a licence and not on work experience or references. This has led to an influx of individuals gaining employment that would have otherwise been disregarded by employers (Fernie 2012). If there is an oversupply of regulated individuals, employers can pay them less.

Second, as is the case where regulations have partial coverage, faced with the choice between a regulated individual and an unregulated individual, a consumer is likely to choose the unregulated person unless they need a legally restricted service. This could result from a distorted perception as to the price of regulated workers. For

example, if a plumber is needed to change a tap, a consumer may seek a plumber who does not have certificates and accreditations because they think that this plumber will be much cheaper and the service they require does not need a certified individual. As with most occupations, simple tasks often comprise the bulk of the work and as such, if demand for unregulated workers increases as a result of this perception, then wages will increase for unregulated workers. If the demand is so great, they could eclipse the regulation wage premium.

Third, the value consumers attribute to regulation may not be the same across all jobs. For instance, managers and senior officials may be licensed but licensing in this group is shown to have a significantly negative association with wages. This might be because consumers do not have personal interaction with these individuals and therefore, they do not value the safeguard of regulation. As such they are indifferent between regulated and unregulated individuals and are likely to choose whichever they perceive as being better value for money. Consumers' choices may also be dictated by how well they believe they are placed to assess the work conducted. An example could be skilled trades where a significant negative association is also found. If an individual believes they can assess the quality of work conducted by a carpenter, then they are unlikely to pay a premium for a regulated worker because the insurance of the regulation to control quality is unneeded. Therefore, one reason for the different impacts on wages across the SOC major groups would be consumer choice; it is only if the consumer feels there is value to the regulation for themselves and they do not feel well placed to judge the work, that they likely to be willing to pay more for a regulated worker. As demand drops, so does the price and subsequently the wages.

Fourth, when employers are employing or promoting staff, they may reward attainment of a regulation in place of work experience or other qualifications. If work experience or other human capital demands a higher return than a regulation then the individual is going to receive less than they would have received had the regulation not been in place. This would account for why more negative wage differentials are present in the upper SOC major groups. Groups where individuals have accumulated

a wealth of human capital could find their attributes overshadowed by employers' wishes to identify regulated individuals.

Despite the ambiguity surrounding partial coverage of regulations and the difference in associations across SOC major groups, there are still statistically significant associations between all types of regulations and wages. Further, it is possible to conclude that where a regulation covers a whole unit group, this significant association is positive, thus showing support for the hypothesis and reinforcing the related theory. As a first investigation into the impact on wages from regulation, this study has provided a significant indication which can inform and lead future research.

2.4.2 Skill Levels

The aim of the analysis was to discern whether regulations have a positive association with skill levels, defined as qualification levels in accordance to the National Qualification Framework (NQF). After controls are included in the model, regulation is still shown to have an overall positive association with skill levels. This supports the findings of other studies into regulation and skill levels by Gospel and Thompson (2003), Gospel and Lewis (2010), and Tamkin, Miller and Williams (2013), who all find a positive association between regulation and skill levels in the occupations they analysed. The wider implications of the findings are that regulation could be used to reduce the skill shortages in the UK labour market. Regulation can do this because the qualifications demanded by regulations are heavily based on the knowledge and skills needed to conduct a certain occupation. Steedman (2003) states that the missing component to the UK system is a strong link between qualifications and occupational demands. Therefore, as regulation is designed to meet the occupational demands, it could fill the gap in the UK system.

However, as with wages, once the results are separated by the coverage that regulation has, and by the SOC major groups, the magnitude of the association varies.

Coverage

The results show that there is a significant positive association between skills and all types of regulation where the regulation has complete coverage over the SOC unit group. Where there is partial coverage of a unit group, a positive association is still significant with accreditation and registration, but there is a significantly negative association with licensing and no significant association with certification at all. The explanation as to why this could occur is similar to why there are differing wage premiums with different regulation coverage. The clustering of occupations in accordance with the SOC system means that regulated and unregulated occupations may be in the same unit group. There is no way to identify which individuals are regulated in such a group. If the unregulated individuals have a skill level significantly lower than the regulated workers, the mean for the whole group is reduced, and as a result can cause a negative association when included in the model.

Major SOC Groups

Not only does the association between regulation and skill levels differ with the coverage of regulation, but there are also variations in magnitude across the different SOC major groups. This may be expected given the differing conclusions of research into regulation and skill levels. Gospel and Thompson (2003) and, Gospel and Lewis (2010), find a positive association in the care home sector. However, Lister (2001) and Fernie (2011), both find a negative association in the security sector. There are some possible explanations as to why these variations occur which will now follow.

First, as shown in the previous paper, different regulations require different levels of entry qualifications. Many of the regulations do not require qualifications that are a higher level than would be needed to enter into a given unit group. In fact, in many cases the level of qualifications required is significantly lower. This would mean that regulated workers need lower qualification levels than would be expected by the occupations definition.

Second, employers are less likely to encourage workers to gain additional qualifications if they have already met the requirements of a regulation. This is

because they would increase their human capital, and as a result would be likely to demand higher wages. This will lead to the minimum requirements of a regulation becoming the maximum skill level of the occupation. As such, if the minimum requirements of a regulation are not set at a high level, the overall skill levels of an occupation could reduce as alternative or additional training and skills are reduced. Such an argument is made and proven by the research of Lister (2001) and Fernie (2010).

Third, different occupations have different demands. Not all regulations require qualifications to ensure that individuals are skilled. Nor do all customers demand services to be conducted by highly qualified individuals. In many circumstances there are other important factors that will result in a competent practitioner such as experience, CRB checks or age. These will not result in higher skills as shown on the NQF, but should result in higher competency.

Overall, regulation is shown to have a positive impact on skill levels (as measured by highest NQF level). If the qualification demands of regulations are set high enough then there should always be a positive association where a regulation has full coverage of a SOC unit group. However, it is important to highlight that not all occupations need high qualification levels to improve the quality of the service. Other attributes may be more important. Therefore, it is never going to be acceptable to use regulation to increase the barriers to entry through setting high entrance qualifications because quality workers may be deterred. As such, the aim of regulation should not solely be to increase skill levels but to increase the quality of the service in question.

2.4.3 Compositional Effects

The results show that there are significant differences in the composition of different types of regulation, and an overall difference between the compositions of regulated occupations compared to unregulated occupations. The significant differences are found with gender and ethnicity. No other significant difference is found in the other human and job characteristics used in the analysis.

Gender

The results show that fewer women are present in all regulated occupations than men. However, where no regulation is present, there are equal proportions of men and women. As a result, these differences are shown to be significant. Further, there are significant differences between the different regulations. Certification and accreditation are proven to have significantly fewer women than licensing and registration.

The results may be surprising given that female education levels have increased a lot since the early 20th century with roughly equal numbers of girls and boys leaving school with GCSEs and A-levels, and there are now more female graduates than ever before. With girls consistently attaining higher marks in course work and achieving higher grades in examinations, the academic barriers to entry implemented by regulatory bodies seem unlikely to pose disproportionate stress or concern for women relative to men. Even in terms of physical capability, it appears there are fewer and fewer occupations in which women cannot progress with their career in line with their male counterparts.

However, there are some key factors that may negatively influence a woman's decision to enter a regulated occupation. As in all cases, the cost of regulation may prove a great deterrent. It may be more of a deterrent for women when compared to men because of characteristics of women's activity in the labour market. First, women on average have a shorter tenure than men meaning the cost of meeting the requirements of regulation may not be fully paid off or they may not be able to progress to the same level once they have spent time out of work attaining the required skills. In addition, women are more likely to spend periods of time out of the labour market for family commitments such as children and elderly relatives. Spending periods of time out of the labour market may not only cause total income over the course of one's working life to decrease, but also makes promotion less likely. In addition, spending time out of the labour market may mean that women are not able to keep up with continuous professional development, which is required in some regulated occupations such as chartered accountants, lawyers and teachers.

Therefore, if women cannot see themselves continually benefitting from choosing a regulated occupation over an unregulated occupation, or if they predict that continuous development may not always be possible, then they may be deterred from choosing to enter the regulated occupation.

Money is another factor which may heavily influence whether a woman chooses to enter a regulated occupation. On average, women earn less than men when all other things are equal (Blackaby, Booth and Frank 2005) so it will take women longer than men to recoup the money spent on gaining entry into a regulated occupation. As with ethnic minorities, women have lower promotion rates than men and so have limited access to higher rents and benefits (Blackaby, Booth and Frank 2005). One of the benefits of working in a regulated occupation is the potential to earn higher rents (see section X). However if the wage differentials are different for men and women then regulated occupations could be less appealing for women than men. Men may benefit, when considering wages, from working in a regulated occupation more than women if the pattern for further education can be extrapolated to professional qualifications. Machin (1996) investigate the wage premiums of graduating university. They show that the wage differentials in how much more an individual earns after attending university, is higher for men than it is for women. Although both genders have a positive differential, university may still be perceived as benefitting men more and as a result could lead women to seek higher rents by other means. Assuming this could also occur with the attainment of professional qualifications often required by regulation, women may feel that they do not benefit as much as men. Not earning as much as men is a factor as it results in the cost of meeting the regulatory requirements taking longer to recoup.

In addition, there is a high proportion of female dominated occupations covered by licensing and registration. Occupations typically associated with women are disproportionately covered by licensing and certification compared to typically male occupations that are covered by accreditation and certification. All occupations in the caring sector (for example care workers, nurses and social workers) are covered by licensing and accreditation, and are occupations associated with women workers. Historically male dominated occupations, such as those in finance, are covered by

accreditation and certification. Therefore it may not be the regulation that deters women from entering certified or accredited occupations but the characteristics of the occupations and the tasks within them.

Therefore, occupational regulation may deter women because it may increase the wage inequality between the genders and be perceived as unfair; women may not be able to fully meet the terms of the regulations by continually developing professionally, and finally, the shorter tenure and gaps in the labour market may mean the cost of entering a regulated occupation take too long to recoup.

Ethnicity

The results show that in occupations where no regulation is present, 91% of individuals state their ethnicity as white. Regulated occupations are shown to vary in the proportions of individuals from ethnic minorities. Licensing and registration have a greater percentage of ethnic minorities than unregulated occupations. However, certification and accreditation have fewer. The ANOVA results prove that the different types of regulation are significantly different in their ethnic compositions.

Although individuals from ethnic minorities are often shown to excel in the workplace, (the highest earners being Asian men), on average the language skills of ethnic minorities are lower (Alpin, Shakleton and Walsh 1998) which may make the prospect of having to pass a written test or navigate the bureaucracy involved in joining the occupation daunting. Further, as such features may not be necessary to show competency in the occupation applied for. one has to question whether tests set by regulatory bodies are biased against non-natives.

Ethnic minorities also have a higher likelihood of less stable employment and shorter tenure (Demireva and Kelser 2011) resulting in taking longer to recoup the cost of entering a regulated occupation. At worse, the cost may never be recouped. Further, if employment is far from guaranteed on meeting the entrance requirements then the time, effort and money spent on becoming regulated may seem too great a risk. In line with less stable employment and shorter tenure, promotion rates are lower among ethnic minorities (Demireva and Kelser 2011) meaning access to higher

salaries and benefits may be restricted, which would also prolong the period of time needed to recoup any associated costs with entering the occupation. Both the unstable employment and low promotion rates are in spite of higher than average productivity rates (Dustmann, Fabbri, Preston and Wadsworth 2003). High productivity shows that, generally, one would assume individuals from ethnic minorities to be more than capable of competently working within a regulated occupation. However if they do not gain access to high level management or fear they cannot pass the exams it may be more in their interest to work their way up informally in unregulated occupations.

Another way in which ethnic minorities may be deterred from entering into regulated occupations is the formality of the application process. As with any application process there are many levels of bureaucracy when entering a regulated occupation. Many forms need to be submitted and procedures must be adhered to. Traditionally, individuals from ethnic minorities are more likely to gain a job or enter an occupation informally through family and friends' connections (Battu, Seaman and Zenou 2011), which is in stark contrast to the entrance process into regulated occupations. As such, minority groups may be further deterred from regulated occupations. Interestingly, the results are the same for individuals who are first and second generation immigrants, although second generations to a lesser extent. This may indicate that over time such deterrents may dissipate and any compositional impacts are dependent on cohort rather than ethnicity.

Summary of Results

Overall, regulation is shown to have a positive association with wages. However, where licensing and certification have partial coverage over a SOC unit group a negative association is found. There are two reasons why this may occur: first, where these regulations only have partial coverage there may be an alternative occupations that is unregulated and not subject to price controls or wage limits imposed. This is very prevalent in the public sector where licensing is most prominent but wages are set on a sector pay scale. Second, demand for licensed or certified service providers may not be high enough to result in a pay premium. Consumers may perceive

licensed and certified workers as too expensive, even if they are not, and actively seek unregulated individuals, raising their wages.

Similar trends are seen with regard to the impact of regulation on skill levels. Overall a positive impact is observed. However, as with wages, where licensing has partial coverage a significant negative association is found. This can be explained by considering the barriers to entry imposed through licensing. Through interviews with the enforcement bodies it became clear that the qualification levels demanded from licensing were often set considerably lower than the expected qualification levels described in the definition of the SOC unit group. For example, Chartered Accountants are covered by a SOC code where the majority of individuals hold a degree. However the qualification levels required by the Chartered Institute of Accountants are less than degree level.

As SOC major groups 2 and 8 are the highest in terms of individuals covered by regulation, results associated with these two groups are determined to be of great significance. The premise is that results from other SOC major codes may distort the findings particularly if few individuals within the group are regulated.

The impact of regulation on wages and skills in SOC major group 2 (professionals) is shown to be significantly positive, even after control variables are included in the model. This is case for all the types of regulation present within the major group (licensing, certification and accreditation). The same results are observed for skill levels before controls are added. After controls are included a negative association is found on skill levels from certification and accreditation. This supports the notion raised earlier in the thesis that the barriers to entry to regulations are often set lower than one would expect from the SOC code descriptor. However, given the existence of wage premiums the barriers to entry must still be restricting the supply of workers, though this may be the result of barriers other than qualification levels such as time, money and bureaucracy.

Within SOC major group 8 (process, plant and machine operatives) licensing is associated with a wage penalty after controls are added (all other regulations have no

significant impact after controls). This is likely to be the result of consumers not valuing licenses within the group because knowledge asymmetry is less extreme and alternative unregulated occupations are more likely. Similarly, licensing is negatively associated with skill levels in the group. This suggests, as in group 2, that the barriers to entry are set too low to have any impact on skills. However, in group 8 the lack of wage premium also suggests that other barriers to entry are also not restricting supply enough to increases wages.

Through considering these two prominent SOC major groups one could posit that regulation, particularly licensing, has the opposite impact to other labour market institutions such as trade unions. Unions are usually associated with wage premiums amongst the lower SOC codes (Gosling and Machin 1995, Machin 1997) where as licensing is having a significant impact on the upper SOC groups.

Paper 3

Occupational Regulation in the UK: Impact on Quality

Traditional economic theory would eschew the idea of any intervention in the labour market because if left, any market will eventually result in a natural equilibrium as resources are exchanged in a free market (Leland 1979). However, Akerlof (1970) argues that in certain circumstances, a lack of regulation would result in market failure. Market failure occurs when there is gross asymmetry between the knowledge of consumers and the knowledge of practitioners. Where consumers are incapable of assessing the quality of a service, they will be led predominantly by price (Akerlof 1970). This would mean that occupations would be flooded with non-professionals who could undercut good-quality practitioners and take advantage of consumers' naïvety. Akerlof (1979) likens this to second-hand cars. If second-hand cars are cheap enough they will be more desirable than new cars. As such, most people will demand them even though many are 'lemons' (see page 41 for more information). This results in the market being flooded with 'lemons' because no one recognises the value of a new car. Similarly, Gresham's law states that in a market where there are two coins identical in monetary value but one has a higher value in terms of mineral composition, only the 'cheaper' coin will be left (Giffen 1891). This is because those aware of the worth of the coins in terms of metal will melt down the more 'valuable' coins and sell the melted metal for more than the original coins' monetary worth. Therefore, bad money will always chase good money out of the market.

Leland (1979) argues that where there are information asymmetries in a market, any equilibrium reached will be suboptimal because there will be an oversupply and demand for cheaper, less quality goods. Where this occurs, it becomes socially desirable to have a minimum standard of quality implemented (Leland 1979). It is desirable because imposing such a standard would prevent low quality services being present and limit the loss of good quality practitioners leaving the market because they do not want to reduce their prices.

This argument appeals to the notion that one of the main reasons to regulate is to protect the public (see page 40). Regulation can protect the public by filtering out bad practitioners: it can achieve this through enforcing barriers to entry. However, in order for anything to be in the public interest, it must have an overall positive impact on the general public. For occupational regulation to be in the public's interest, the implementation of the regulation must aid society in some way. Moore (1961) argues that occupational regulation can be said to be implemented in the interest of the public if the following is true in relation to the given occupation: 'lack of information', 'society knows best' and 'social costs exceeding private costs'. Therefore, for regulation to be truly in the public interest, it must increase quality levels so social costs are reduced.

Given the clear importance for regulation to increase quality levels before it can fulfil its prominent aim of protecting the public, it is the intention of this paper to investigate the impact regulation has on quality. As Kleiner and Kudrle (2008) note, in order to make a universal conclusion relating to the impact regulation has on quality; one would have to investigate every occupation at workplace and national level to understand the micro and macro impact of regulation. This would be a colossal task. Instead this paper will assess the impact regulation has had with particular reference to one growing occupation: nursery workers.

The structure of this paper will be as follows - first, the theory and evidence surrounding the association between regulation and quality, and quality within the childcare sector are presented; second the methodology used to analyse the impact regulation has had on the quality of childcare are outlined and third the results of the analysis are presented. Lastly, the results are discussed with regard to their importance and implications.

3.1 Theory: Occupational Regulation, Quality and Nursery Workers

The aim of this section is to present the theory and evidence surrounding the impact regulation has on quality. As this paper is concerned with investigating the impact of regulation on childcare, this section is split into two subsections: first, the theory

concerning regulation is presented and second, the theory surrounding the regulation of nursery workers and quality of childcare is described.

3.1.1 Theory of the Impact Occupational Regulation has on Quality

In order to begin an investigation into the association between regulation and quality, it is necessary to consider what is meant by quality. According to Larsen (2013), when one considers quality the two elements are: quality of input and quality of output.

Quality of input measures the quality of individuals who conduct a service. This might be measured in terms of their human capital such as their highest level of qualification, or the number of years work experience they have.

Quality of output measures the quality of work produced by individuals through a service. Quality of work could be assessed through customer satisfaction, or the reduction in societal costs related to a certain occupation.

The nature of regulation is to restrict entry only to individuals that meet the entry requirements. In this way, regulation can influence the quality of input. However, it cannot directly control the quality of output. It can only try to increase the quality of output through influencing the input. Therefore, the relationship between regulation and quality can be depicted as follows:

Figure 3-1: Relationship between regulation and quality



In order for regulation to have an impact on the quality of output, both associations must be satisfied.

Regulation and Quality of Input

When an employer is looking to recruit or a consumer is looking for a practitioner, they select individuals based on some signal of quality (Spence 1981). There is often no way of really knowing how good an individual is at their occupation until after they have been employed, so employers and consumers may go to great lengths to investigate the quality of a practitioner. Regulation can act as such a signal because it indicates that an individual has had to meet some requirements in order to become regulated.

The entry requirements imposed by a regulation are barriers to entry that applicants must overcome. Barriers to entry can take many different forms. However, all barriers to entry can be broken down into three categories, which are cost, numerical limitations and age (Rottenberg 1980).

Cost covers any requirement that imposes a charge onto the applicant, often even when they do not ultimately gain entry. Some costs are easily identifiable. For example, the fees for gaining a specific qualification or membership costs but, arguably, there is a cost element to all barriers to entry. For instance, even if there are no fees associated with gaining a certain qualification or there are no membership costs, there is still an opportunity cost (the individual forgoes the opportunity to earn money while time is spent applying for entry).

The second way in which regulation can create a barrier to entry is through creating a *minimum age requirement*. This restricts supply and creates exactly the same effects as a cost of entry. There will still be a cost to entry, as there will have to be an application process and proof of age.

Numerical limitation (restricting the number of individuals who can have a licence, certificate or accreditation) is the final way in which entry into an occupation can be restricted. Here there will also be an application process, and so a cost borne by the applicant in terms of time and possibly fees for applying.

Regulations implement all barriers to coincide with their main aim. As the majority of regulations are stated to be in place to protect the public (see page 40) this suggests that the barriers to entry have an association with the quality expected from a regulated individual. However, consumers can only use regulation as a predictor of quality if there is a positive association between quality of input and quality of output.

Quality of Input leads to Quality of Output

Whilst regulation may be a signal for consumers, not all signals directly link education, qualification and regulation directly to productivity and quality. Spence (1981) states that the three types of signalling are pure signalling, pure human capital and the rationing model.

Pure signalling relates to using qualifications to distinguish between two groups of people. This could also be applied to regulation. Regulation is used to split the population into two parts - regulated individuals and unregulated individuals. In this case signalling is not relating qualifications or regulation to productivity but indicates the nature of a practitioner. If consumers are using regulation to indicate personal attributes, then they are not linking regulation to quality of output, but to the quality of the individual.

Human capital signalling occurs where there is an accepted relationship between qualifications (and acceptance into a regulated occupation) and to levels of quality and productivity. Where this signalling holds true, the relationship between quality of input and quality of output is realised.

The *rationing model* is where qualifications and entry into a regulation are used to ration highly productive or professional jobs. There is no proven association between qualifications and regulation with productivity and quality. Nor is there any perception of human qualities being linked to quality. Here qualifications and regulation are used purely to restrict entry into occupations so monopolistic power and professional image remain intact.

As a result, regulation may be a signal, but not indicative of quality. Only human capital signalling has a direct link with predicting increased productivity and quality. If regulation is a pure signal, its only use is to differentiate between two people, regulated and unregulated. It does not serve to signal that one group is of better quality than another. Similarly if regulation is part of the rationing model then it is not being used to predict quality, rather as a way in which to keep exclusivity within certain occupations. Therefore what regulation signals is heavily dependent on its ability to filter out poor quality practitioners and leave only competent individuals able to enter a regulated occupation.

For the requirements of a regulation to filter applicants so that only competent practitioners enter a regulated occupation, entrants must require minimum levels of competency to be attained by the applicants. In order for competency to be reliably assessed qualities needed by the occupation must be deconstructed into measurable tasks in order for competency to be rated objectively. Whilst there is a general movement to deconstruct many occupations and tasks to undertake such monitoring and assessment, call centres and many civil service jobs for example, it is often very difficult to do this with every aspect of an occupation. For instance many good quality practitioners have characteristics that are very difficult to measure; a doctor's bedside manner, for instance. However, it is often such qualities that effect how the overall output is assessed by consumers. Therefore, whilst many competencies can be tested for, many of the underlying triggers of quality cannot be screened (Goldhaber 2004).

One may assume, therefore, that testing as many competencies as possible would increase the likelihood of improving the quality of output. However, this approach may actually decrease quality levels. This is because the cost of entering the occupation will increase. An increase in cost may deter some individuals from entering the regulated occupation. It may be the case that the more competent individuals are, the greater opportunities available to them outside of the regulated occupation, and they are therefore likely to pursue these avenues (Wang and Weiss 1998). This results in a loss of some of the most able individuals from an occupation. Even if the cost does not deter individuals from meeting the requirements, once

regulated, this cost may be passed on to the consumers in the form of increased prices (Cox and Foster 1990). If this happens, regulation will only increase quality for high earners, since low earners may cease to be able to afford the service in question (Shapiro 1986). Assuming that no service is worse than a bad service, this would decrease the average levels of output quality across the occupation (Currie and Hotz 2004).

From the above theories, doubt is cast over the ability to predict quality of output by filtering input, either because there is too little or too much testing of relevant competencies. Yet many have asserted that even if only some of the competencies are tested and the practitioners' abilities to perform only some tasks are signalled, this should still have some positive impact on the market (Arrow 1963, Leland 1979, Weingast 1980 and, Law and Kim 2005). This is because there will still be an increase in the minimum levels of quality even if those levels are not optimum (Larsen 2013).

Evidence

The theory surrounding the association between regulation and quality is ambiguous in predicting the direction and significance of the association. In order to predict how quality may be affected by regulation, it is necessary to consider the evidence surrounding the topic. As highlighted previously in this thesis, for regulation to have an impact on the quality of a service it must firstly improve the quality of input by improving the skill levels of practitioners. As the impact of regulation on skills has been discussed at length in the previous paper, and a positive association is found, the evidence in this section will focus on the impact regulation has on the quality of output.

The following studies find a positive association, a negative association or no association between regulation and the quality of output.

Positive Association

In 1980 Dorsey investigated occupations relating to cosmology in the US. The sample consisted of 374 Illinois-based practitioners and 575 based in Missouri. The findings suggest that quality varies when different measures of competency are in place. Also, the more thorough the measures of competency, then the higher the quality levels. However, the written licensing examinations appeared biased against the less educated, ethnic minorities, apprentices and non-natives. Testing for competencies not directly associated with productivity, he suggests, could prevent good quality practitioners entering the profession.

Begin (1980) investigated the link between restrictive licensing and quality in the optometry industry. He finds that different states have different laws restricting optometrists. Restrictiveness was measured by ranking states in terms of requirements for education, advertising, location and training. The quality measures used were examination length, examination complexity, and use of technology and equipment. Through questionnaires of optometrists across different states he concludes that there is a positive association between restrictiveness of licensing and the quality of care provided, and yet the reliability and validity of the conclusion was tarnished by the low response rates of the questionnaire (54%).

Holen's (1977) study into the licensing of dentists took place between 1966 and 1969. The aim of the research was to determine if there was an effect on quality by reducing the pass rates of dentists through more restrictive licensing. The measure of quality used was participation in further professional qualifications. The analysis concludes that the more restrictive the licensing, the greater the probability of further professional qualifications being pursued. The issue with the research is based upon the assumption that further professional qualifications lead to a better quality of service. This link is debatable as highlighted previously in this paper (see page 42). In a further study Holen (1978) found that the restriction of dentists through lower pass rates of licensing exams has a negative effect on quality. In this study the measure of quality was the availability of dentists. The results conclude that the lower the pass rates, and the fewer dentists there were in a state has no effect on the

number of visits made to a dentist *per capita*. However, this is disputed by Carroll and Gatson (1981) who find that lower pass rates lead to fewer dentists resulting in long waiting lists and fewer visits *per capita*.

Shilling and Sirmans' (1988) investigated the impact licensing had on the quality of work conducted by real estate agents. Using data from the National Association of Real Estate License Law Officials (1983) and the National Association of Realtors they analyse the link between the pass rates and the level of demand, and also, the pass rates and number of complaints. In the US the law states that real estate agents must be licensed. To gain a licence, individuals must pass a written test, pay fees and meet certain educational requirements. The pass rates and difficulty of the tests vary from state to state and the sample consisted of data from 35 states. They concluded that an increase in demand generated a decrease in the pass rate of real estate licensing examinations. In addition they found that a decrease in pass rates reduced the total number of complaints made about the industry. Yet this is contrary to an earlier study. Carroll and Gaston (1979) analyse the association between the restriction of real estate agents through licensing and the quality of their work. Using the duration of a vacancy prior to sale as a measure of quality they find that in states where the restriction of agents is high, and there are fewer *per capita*, there are lower levels of quality. In essence, the more restrictive the licensing of an occupation, the longer real estate remains vacant.

Another study to use the number of customer complaints as a measure of quality is that of Maurizi (1974) who analysed 32 licensing bodies in California. He investigates whether there is a link between the restrictiveness of a licensing scheme and the number of complaints the licensing board receive. The results show that the more restrictive a licensing scheme, the fewer complaints are received about the practitioners. This suggests that the higher the barriers to entry are for an occupation, the better the quality of work and the fewer complaints. However, in a later study Maurizi found that licensing was associated with an increase in customer complaints (1977). Through investigating the restrictiveness of licensing in the construction industry, and the association restrictiveness had on the level of complaints, Maurizi finds that the number of complaints increases when entry becomes more restrictive.

Instructors began teaching students how to pass the written test, rather than the practical skills needed to excel in the occupation when the tests became harder to pass.

In 2004, Currie and Hotz investigated the association between the regulation of childcare workers and the quality of childcare provided in the US. From data on the leading causes of death in young children they find that unintentional injuries are the number one cause of death for 1-5 year olds. Under the assumption that good care prevents such injuries, they measured the quality of care by the occurrence of unintentional injuries. Using state level data about childcare regulations and individual data on medically attended injuries they tested to see if the restrictiveness of licensing results in fewer injuries. Restrictiveness of licensing was measured with regard to the ratios of adults to children, the number of mandatory inspections and the education levels required for care providers. The sample consisted of 50 states studied between 1987 and 1998. The results show that the higher minimum education levels are for childcare workers the lower the frequency of injuries, although the impact of inspections and ratios of staff to children is unclear. The main issue with the study is that a number of states do not act as the results expect. Therefore, the conclusions may not be universally applicable. The conclusion suggests that tighter educational requirements for childcare workers lead to higher quality care. However, prices increased resulting in fewer children being served. Therefore, the average quality, when taking into account the increase in lack of access, may be ambiguous.

Negative Association

There is more research that finds a negative association between regulation and quality.

Hogan (1983) found that despite restrictive licensing and pass rates, physicians were still found to be incompetent. Through reviewing studies of physicians' competency he found that physicians were not investigating patients' medical history, recognising emotional problems or keeping good records. Of more concern was the finding that

physicians were not up to date with treatment development or diagnosis. Licensing was therefore shown to be no guarantee of competency. This evidence is supported by Gaumer (1984) who finds that when tested, pathologists missed 37% of evidence crucial to diagnosing patients. Even after more monitoring and continuous training became part of the licensing of physicians, Derbyshire (1983) finds that there is a 5% rate of incompetent physicians in the US. He suggests that this showed the regulation of medical staff to be ineffective.

Maurizi (1980) finds that regulation has a detrimental effect in terms of number of customer complaints. The research is conducted in the construction industry and finds that the number of complaints post regulation is higher than in the period prior to regulation. The conclusion was that restricting entry reduced quality. This may be the result of increasing the quality of input not resulting in increasing the quality of output. A similar conclusion was reached by Carroll and Gaston (1981). They investigated the impact regulation had on quality levels with regard to electricians and dentists. They argue that electrical accidents increased since the increase in regulation, and significantly longer waiting times at the dentist occurred. This could have been as a result of deterring competent workers and/or restricting supply so much that demand could not be met.

Carroll and Gaston (1981) investigate the link between licensing and quality with regard to plumbers and electricians in the US. Their first study considers the licensing of plumbers. By using sales of do-it-yourself plumbing equipment as a measure of quality, they found that the more restrictive licensing is, the fewer plumbers there are and the lower the quality of plumbing work.

The study assumes that individuals cannot produce the same quality of plumbing work as a licensed plumber. Therefore, in their second study of electricians, Carroll and Gaston (1981) used the number of accidental deaths by electrocution as their measure of quality. They found that where licensing is more restrictive, as measured by pass rates, there are fewer electricians and more deaths by electrocution. This shows an inverse relationship between licensing and quality.

Negative associations are found in the security sector by Lister (2001) and Fernie (2010). The explanation for such a finding is the inability of the Security Industry Authority (SIA) to adequately test the competencies needed to be a good security worker. In addition, it is felt that the pass marks are too low to be able to filter out incompetent workers, but because of the requirement for the tests to be written, some potentially very good security workers are unable to pass the exam. The research questioned the need for comprehensive written English skills in such an occupation. They argued that this may have deterred some very competent individuals who felt they might not have the required literacy skills, skills which, according to the authors, may not even be good predictors of a quality output.

Berger and Toma (1994) investigate the effects of state teacher certification requirements on SAT performance across US states. They use SAT data from 1972 to 1990 as the measurement of quality. The research appreciated that many factors can affect SAT scores. As a result of this, many variables that may influence scores are included. These factors include: pupil-teacher ratios, annual salaries of teachers, availability of schools, number of private schools, *per capita* incomes, ethnic population, average family size and percentage of students in a metropolitan area. The inclusion of so many control variables reduced the chances of inflating the impact of minimum education requirements for a teacher. The results show that there is a negative association between minimum education standards of teachers and average SAT scores. This is especially prevalent where teachers are required to hold a Master's level degree.

Angrist and Guryan (2008) also find the regulation of teachers can have a negative effect on quality. Their concern is with the quality of individuals who become teachers. In the US the regulation of teachers is fairly standardised with regard to the minimum levels of education required to meet the demands of the regulations. They found that after these standardised education requirements were enforced the quality of individuals enrolling on the courses decreased. They measured quality by recording the undergraduate degrees individuals attain prior to beginning the training course. The main issue with the research is the assumption that individuals with

better undergraduate degrees will be better teachers. This link was neither investigated nor shown to be valid.

All of the research concluding a negative association between regulation and quality prove that regulation does not always improve the quality of input, and that quality of input does not always result in increased quality of output.

No Association

Just as some research has found a positive association between regulation and quality, and some has found a negative association, some research has found no association present at all.

Martin's (1982) research into the association between the regulation of pharmacists and quality in the US concludes that there is no association between the restrictiveness of licensing schemes and quality. The measure of quality used is the number of malpractice suits brought against pharmacists per state. The measure of restrictiveness is the pass rate of the pharmaceutical licensing exams.

Goldhaber and Brewer (2000) investigate the association between different types of teacher certification and quality in 12th grade US classes. Using the National Educational Longitudinal Study of 1988 their sample consisted of 3,786 12th grade students in mathematics and 2,524 students in science. Using test scores as a measure of quality they concluded that there is little evidence to suggest that teacher certification is related to student achievement. They suggested that the results cast doubt over the need to enforce standardised certification across all states and all subject areas.

Using six years' of student test performance data across public schools in New York, Kane *et al.* (2008) investigated the association between the certification status of teachers and quality. The reading and mathematics scores of students measured quality. The control variables are students' prior test scores, number of students per class, classroom (size and quality), grade, school related factors and the experience

of the teacher. The research concludes that there is no association between certification status and student performance.

Kleiner and Kudrle (2000) sampled 464 US air force recruits across 50 states with regard to the quality of dental work in different states, and the extent of regulation varies. Using the air force recruits' evaluation of dental services as the measure of quality, the findings suggest that there is no association between regulation and quality.

Lloyd (2009) investigated regulation in the fitness industry in the UK. She interviewed 17 gym managers to gauge how fitness accreditation schemes, aimed at fitness instructors, are viewed by employers. The results indicate that there is an over-supply of 'qualified' individuals in the sector. This had led to a lack of employer-led training schemes. The minimum level of competency ensured by the accreditation schemes has become the average level across the industry. As the accreditation schemes are often not as comprehensive as employer training schemes used to be, overall quality in the industry may have decreased. Yet in order to make such a conclusion, more extensive research is needed. Therefore, this paper concludes a lack of association between regulation and quality.

Evidence suggesting a lack of association between regulation and quality implies that regulation does not fulfil one of its key aims of protecting the public. Whilst quality is not decreasing, given the social costs associated with regulation, a lack of impact on quality may be as detrimental as a negative effect.

Summary

The evidence presented above shows the association between regulation and quality of services to vary hugely between different occupations. Further, where different research is conducted on the same occupations, it is clear that the way in which quality is measured can greatly influence the results. For example, where the quality of real estate agents is measured by complaints, a positive association with licensing is found. However, where quality is measured by length of time houses are unoccupied, a negative association is found. This highlights the need for careful

consideration in defining and recording quality in such research. The mixed conclusions also show that different occupations may respond very differently to regulation.

As it is the intention of this paper to investigate the impact regulation has on quality in the UK with regard to childcare, time must be spent considering the aims of the Childcare Act 2006; why it was deemed necessary and how quality can be measured before a valid analysis can be undertaken.

3.1.2 Regulation of Nursery Workers

In the run up to the 2005 general election Labour's manifesto included many family friendly policies to try and sway the female vote. The aim was to increase the number of women in the labour market. As a consequence, after the election, as Labour was voted in for their third term, the government looked to how they could realise their manifesto.

In order to encourage greater female participation in the labour market, changes to childcare had to be made. Beyond the availability and cost of childcare, the quality of childcare had to be set at a level acceptable to working families.

The perception of childcare in the media was poor. The following headlines are a selection of Daily Mail newspaper headlines:

“Working mothers risk damaging their child’s prospects” (Steve Doughty 2001)

“Daycare can make toddlers grow up unruly” (Steve Doughty 2002)

“Children of working mothers lag behind” (Sarah Harris 2003)

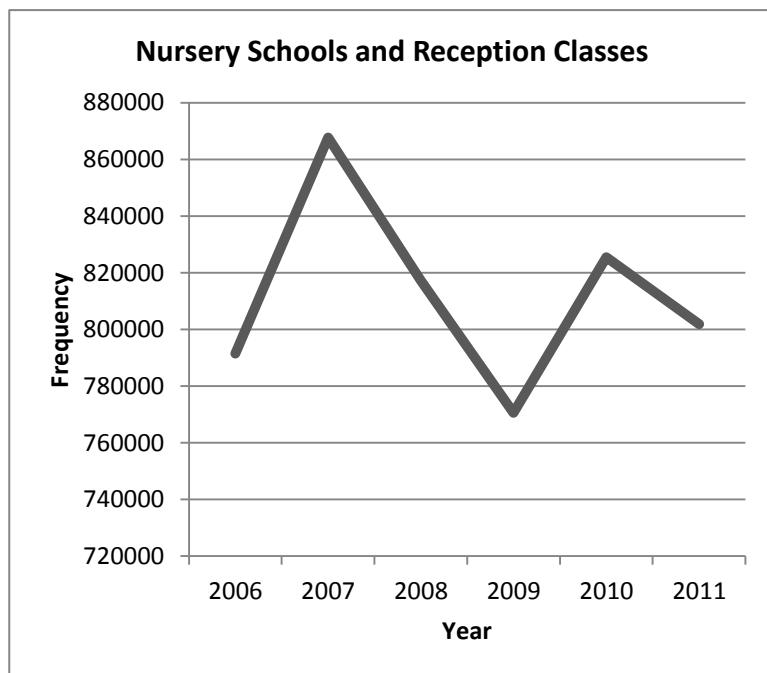
“My nursery nightmare” (Barry Collins 2004)

“Childcare ‘no substitute for mum’” (Barry Collins 2005)

With parts of the media portraying childcare as expensive and low quality, a childcare reform was needed. As a result, in 2006 the Childcare Act was passed. The aim of the Act was to increase the quantity and quality of childcare. Further to the Act addressing quantity and quality, the government put in place provisions to subsidise childcare for working families.

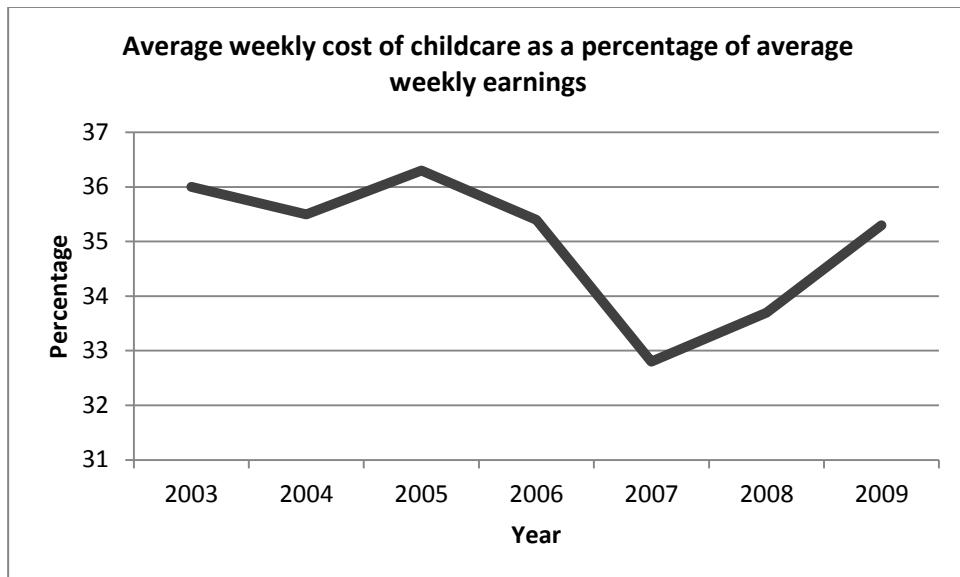
With regard to the quantity of nursery schools (including reception classes), there was an initial increase, as shown in figure 3.2. However, the number of childcare providers decreased after 2007. Overall, since 2006, when the Act came into force, the number of childcare provisions has increased, though not to the same degree as witnessed directly after the act in 2007.

Figure 3-2: Frequency of nursery schools and reception classes by year



Source: Childcare and Early Years Survey Results 2011

Figure 3-3: Average weekly cost of childcare in relation to earnings



Source: Childcare Trust 2011 and the Annual Survey of Hours and Earnings 2003-2009

With regard to the average cost of childcare, as can be observed from figure 3.2 above, there was a sharp decline between 2006 and 2007. However, from 2007 to 2009 the average cost of childcare, measured as a percentage of average earnings, increased. Yet the cost in relation to earnings is still lower than before 2006. Further, as the results do not take into account subsidisation of childcare by the government, the cost is likely to account for a lower percentage of one's earnings than indicated.

From the data presented in figure 3.2 and figure 3.3, one can conclude that the government was effective at increasing the provision of childcare and reducing the costs relative to average earnings, yet the impact was not long-standing with quantity decreasing and costs increasing after 2008. It is the impact government policy and the Childcare Act had on the quality of childcare that is unclear. There exists no comprehensive study into the effect that regulation had on the quality of childcare. Therefore, it is the aim of this paper to fill the gap in the evidence surrounding the relationship between regulation and quality in relation to childcare.

Quality and the Regulation of Nursery Workers

The Childcare Act 2006 was introduced in response to the Labour government's objective to increase the availability and quality of childcare. The Act came into effect during the 2006/2007 academic year. The Act requires all childcare workers to register with the Office for Standards in Education, Children's Services and Skills, (Ofsted), if they work with children aged seven and under. To join the register certain background checks have to be conducted, most notably a Criminal Record Background (CRB) check. Within six months of registering, all supervisors and childcare managers must attend and pass a training course, which is equivalent to a National Vocational Qualification (NVQ) level 3. In addition, 50% of all other staff working within a nursery school or reception class must attend and pass a training course, which is equivalent to an NVQ level 2. Prior to the Act, training courses were voluntary and only primary childcare workers were required to undergo background checks. CRB checks were present before the regulation, therefore they will not be considered in this paper as an impact upon quality.

The change in regulation relating to childcare workers was shown to have a significant positive effect on the qualifications of childcare workers (Forth *et al.* 2011). Following a diff-in-diff analysis on childcare occupations (6121 nursery nurses, 6122 childminders and related occupations, 6123 playgroup leaders and assistants, and 6124 education assistants) the authors find that although there was an increase in workers qualified to NVQ level 2 and above post regulation, there already existed an upward trend with regard to qualification levels, therefore the results are not conclusive.

Although the Act uses the terminology joining a 'register', under the parameters defining different types of regulation presented in paper one, the 'register' is actually a form of licensing. This is because, not only must childcare workers join a register but many must also meet minimum levels of competency in order to legally work with children. It is the legal requirement for competency that is unique to licensing. Therefore, throughout this paper the regulation of childcare workers is referred to as the licensing of childcare workers.

Quality in the Act

The Childcare Act (2006) aims to increase the quality of childcare. To assess if it has achieved this, it is necessary to understand how quality is defined in the Act.

“An Act to make provision about the powers and duties of local authorities and other bodies in England in relation to the improvement of the well-being of young children; to make provision about the powers and duties of local authorities in England and Wales in relation to the provision of childcare and the provision of information to parents and other persons; to make provision about the regulation and inspection of childcare provision in England; to amend Part 10A of the Children Act 1989 in relation to Wales; and for connected purposes.

In this Act “well-being”, in relation to children, means their well-being so far as relating to—

(a) physical and mental health and emotional well-being;

(b) protection from harm and neglect;

(c) education, training and recreation;

(d) the contribution made by them to society;

(e) social and economic well-being.

An English local authority must prepare assessments of the sufficiency of the provision of childcare (whether or not by them) in their area (“childcare assessments”).”

The Childcare Act 2006 (Chapter 21 11th July 2006)

From the extract above it is clear that the primary concern of the legislation is children's well-being. Using well-being as a measure of quality may be problematic

given the difficulty in forming a reliable scale. However, the Act outlines five distinct areas of well-being that are targeted: health and emotional well-being, protection from harm and neglect, education, training and recreation, the contribution to society, and social and economic well-being. Therefore, by using the aims of the Act as a basis for improving children's well-being, five distinct measures by which to test quality can be identified.

Table 3-1: Childcare Act 2006 aims and quality measures

Aim	Quality Measure
<i>Physical and mental health and emotional well-being</i>	Quality of caring
<i>Protection from harm and neglect</i>	Quality of leadership and management
<i>Education, training and recreation</i>	Learning standards
<i>The contribution made by them to society</i>	Behaviour of the Children
<i>Social and economic well-being</i>	Quality of the provision

By using the aims of the Act to form variables by which quality can be measured, it is possible to investigate the impact of licensing. However, before further investigation can take place, an understanding of why regulation is needed must be evaluated in order to justify why an increase in quality is so important.

Need to Regulate

Licensing of nursery workers was deemed necessary by the Labour government to assure parents that their children will receive a good quality of care, which in turn leads to a greater use of childcare and more women entering the labour market. However, the importance of childcare in the early years had far greater impacts on society than easing parental concern. The impact of early years childcare is visible not just at the time the childcare is provided, but long after the care is given.

Future Effects

The impact that experiences in one's early years has on the rest of one's life is substantial. Early years experiences can affect emotional, social and behavioural characteristics. The early years are critical in introducing individuals to social situations and are key in introducing monitoring and evaluating appropriate responses to a range of different situations (Corsaro 1985). If socialisation and behaviour are not instilled during the early years, success within the education system and in the workplace is dramatically reduced. Linked to the notion of socialisation and behaviour is emotional development. Stroufe (1997) argues that emotional development in the early years is key because this is the period of time that will affect emotional control and interpretation to the greatest extent throughout one's life. Neglect in the early years is also linked with socialisation, behaviour and emotional development. Kotch, Lewis, Hussy and English (2008) argue that neglect in the early years by care providers, parents or others will have adverse effects on one's well-being later in life. The chances of antisocial behaviour and poor performance in the education system are greatly increased where neglect is experienced. Mustard (2006) shows that beyond emotional, academic and behavioural development, early years experiences can alter the physical biology of

the brain. He shows that experience-based development can change neurological functions and establish neurological pathways that affect the competence and health of individuals throughout their lives. He further proves a link between negative experiences during early years and antisocial behaviour during teenage years. He states that the quality of caregiving in the early years is one of the key components in development.

All of the evidence presented above suggests that early years care will have a lasting impact on individuals who receive the care. The effects cannot only impact on individuals' success in the education system but also in society generally. This in turn can impact upon success in the labour markets and have greater effects on society through employment rates, crime levels and expenditure on benefits. However, some of the impacts of childcare can be seen immediately.

Present Effects

As noted earlier, the government's initiative in the 1990s was to encourage women back into the labour market and a key component of this was to make childcare much more accessible. The availability of childcare was therefore paramount in increasing the levels of employment, particularly amongst women. This had wider implications than affecting individual families. The supply of childcare actively affected the supply of labour, especially in sectors dominated by women such as the care professions. However, it was not just the availability and price of childcare that would affect an individual's choice to work. The quality of childcare is very important since it takes the place of a traditional family arrangement. The attachment and responsibility towards one's children creates a need for good quality childcare. With monitoring from external bodies like Ofsted and regulation by local authorities, the quality of any given childcare provider is more transparent than ever before, making the relationship between quality and demand significantly more direct.

Therefore, immediate effects of childcare centre on the availability and the quality of the care provided. If there is not enough childcare available or the quality is too low for parents to accept, then labour supply decreases which affects productivity and

prices throughout the labour market. It is because of the potential impact that early years childcare may have that makes the regulation of nursery workers, and the investigation as to the effects that such regulation has, so important.

The impact on wages and skills is addressed in a feasibility study conducted for the department of Business Innovation and Skills (Forth et al 2011). The results indicate that licensing has a negative impact on wages and a positive impact on skill levels. However, the impact on wages was only significant after controls were added and the increase in skill levels may have been part of an upward trend of skill levels occurring pre-licensing. As such there are no strong conclusions that can be made as to the impact licensing has on wages and skill levels of childcare workers.

The Childcare Act 2006

The Childcare Act 2006 focused on ensuring that the demand for childcare would be met and the care provided would be of good quality to prevent the detrimental effects of bad childcare outlined above. The Act is split into 101 sections, comprehensively covering aspects of childcare. The sections of particular interest are 39-98, which outline the regulation of childcare providers and workers. These sections focus on the implementation of the Early Years Foundation Stage (EYFS) and the raising of standards through implementation of the Ofsted childcare register.

Early Years Foundation Stage

Sections 39-48 of the Childcare Act 2006 outline the introduction of the EYFS. The EYFS is a mutation of Birth to Three Matters Foundation Stage and the standards for daycare, all of which were the prominent guides for childcare after the Childcare Act 2006. The aim of the EYFS according to the Department for Education follows:

“The Early Years Foundation Stage (EYFS) sets the standards that all early years providers must meet to ensure that children learn and develop well and are kept healthy and safe. It promotes teaching and learning to ensure children’s ‘school readiness’ and gives children the broad range of knowledge and skills that provide the right foundation for good future progress through school and life.”

In order to fulfil its aim the EYFS endeavours to ensure both quality and consistency across all care providers, a secure foundation that prepares children for entering school, and learning and development to aid children in the level demanded by year 1 education in England and Wales. To do this, the EYFS have implemented strict guidelines similar to the syllabus demands of later education. Care providers are required to incorporate the areas presented in table 3.2.

Table 3-2: EYFS educational programme requirements.

Area	Definition
Communication and Language	Involves giving children opportunities to experience a rich language environment; to develop their confidence and skills in expressing themselves, and to speak and listen in a range of situations.
Physical Development	Involves providing opportunities for young children to be active and interactive and to develop their co-ordination, control and movement. Children must also be helped to understand the importance of physical activity, and to make healthy choices in relation to food.
Personal, Social and Emotional Development	Involves helping children to develop a positive sense of themselves, and others; to form positive relationships and develop respect for others; to develop social skills and learn how to manage their feelings; to understand appropriate behaviour in groups, and to have confidence in

Area	Definition
	their own abilities.
Literacy	Involves encouraging children to link sounds and letters and to begin to read and write. Children must be given access to a wide range of reading materials (books, poems and other written materials) to ignite their interest.
Mathematics	Involves providing children with opportunities to develop and improve their skills in counting, understanding and using numbers, calculating simple addition and subtraction problems, and to describe shapes, spaces and measures.
Understanding the World	Involves guiding children to make sense of their physical world and their community through opportunities to explore, observe and find out about people, places, technology and the environment.
Expressive Arts and Design	Involves enabling children to explore and play with a wide range of media and materials, as well as providing opportunities and encouragement for sharing their thoughts, ideas and feelings through a variety of activities in art, music, movement, dance, role-play and design and technology.

All of these areas are monitored when Ofsted inspections take place. There must be detailed plans of how each area is covered and how the outcomes are measured. A further requirement of the framework is to regard every child as a unique individual, for example, where English is not the first language of a child, extra support should be given which should be evident in the planning documents.

There is also emphasis on providers to reflect upon how activities have worked. As the aim is to develop children, the reflections should be based on how effective activities and teaching have been in enhancing children's learning. The Department for Education (2012) states that effective teaching should involve three aspects in the early years: playing and exploring, active learning and, creating and thinking critically.

It is important to note that while all childcare workers can become fully licensed, only a certain percentage of workers in a nursery need to be licensed by law. Table 3.3 details how many licensed individuals are legally required to be present.

Table 3-3: EYFS Ratio Requirements

Age of Children	Ratio Requirements
Under Two	There must be at least one member of staff for every three children; at least one member of staff must hold a full and relevant NVQ level 3 qualification, and must be suitably experienced in working with children under two; at least half of all other staff must hold a full and relevant level 2

Age of Children	Ratio Requirements
	<p>qualification;</p> <p>at least half of all staff must have received training that specifically addresses the care of babies; and where there is an under two-year-olds' room, the member of staff in charge of that room must, in the judgment of the provider, have suitable experience of working with under twos.</p>
Aged Two	<p>There must be at least one member of staff for every four children;</p> <p>at least one member of staff must hold a full and relevant level 3 qualification; and, at least half of all other staff must hold a full and relevant level 2 qualification.</p>
Aged Three and Over (no qualified teacher present)	<p>There must be at least one member of staff for every eight children;</p> <p>at least one member of staff must hold a full and relevant level 3 qualification; and,</p> <p>at least half of all other staff must hold a full and relevant level 2 qualification.</p>

Age of Children	Ratio Requirements
Aged Three and Over (qualified teacher present, operating between 8am and 4pm)	There must be at least one member of staff for every 13 children, and at least one other member of staff must hold a full and relevant level 3 qualification.
Aged Three and Over (qualified teacher present, operating between 8am and 4pm and outside the hours of 8am to 4pm)	There must be at least one member of staff for every eight children; at least one member of staff must hold a full and relevant level 3 qualification; at least half of all other staff must hold a full and relevant level 2 qualification.
Aged Three and Over (affiliated with a school but not a reception class)	There must be at least one member of staff for every 13 children; at least one member of staff must be a school teacher as defined by Section 122 of the Education Act 2002 and the Education (School Teachers' Qualifications) (England) Regulations 2003, and at least one other member of staff must hold a full and relevant level 3 qualification.

Age of Children	Ratio Requirements
Reception Classes (aged 4-5)	<p>The School Standards and Framework Act 1998 (as amended by the Education Act 2002) limit the size of infant classes to 30 pupils per schoolteacher. 'School teachers' do not include teaching assistants, higher level teaching assistants or other support staff. Consequently, in a normal teaching session, a school must employ sufficient schoolteachers to enable it to teach its infant classes in groups of no more than 30 per school teacher.</p>

Source: Department for Education 2012

The framework states that the ratios must be kept to and that all nurseries must supply information relating to the childcare provider and anyone else who will be in unsupervised charge of children. Each child is also to be assigned a key person who is responsible for specifically monitoring that child and liaising with parents. Additionally, providers must ensure all staff have a good understanding of English to the extent that they are capable of liaising with parents, emergency services and social services. There must also be someone with a paediatric first aid certificate on the premises at all times.

Ofsted Childcare Register

Sections 31-98 of the Childcare Act 2006 outline the implementation of the Early Years register. All providers caring for children aged 0-5 must, by law, join the register and commit to adhering to the EYFS as detailed above. The aim of the

register is to improve the quality and standards of care. It does this by forcing care providers to attend training courses that cover skills needed to care for children, the content of the EYFS, health and safety and business skills. These courses combined with a CRB check are the only way in which an individual can join the register and legally work as a childcare provider. The qualifications that are granted through successfully completing the course are equivalent to at least a level 3 NVQ. Additionally, all staff must also attend health and safety training and first aid training if they are to be in sole charge of children. At all times someone with a current paediatric first aid certificate must be present.

The Childcare Act places the onus on the manager and main provider of care to ensure all staff have the relevant qualifications. If there are significant changes, Ofsted should be informed. A valid copy of registration certificates should be made available to the parents and guardians of children. As Ofsted accredits the certificates, all parents and guardians should also be provided with Ofsted's contact details should they wish to complain.

As discussed earlier, although Ofsted refers to the regulation as a register, because of the minimum degrees of competency which must be met in order for many workers to legally work in childcare, the regulation status of childcare workers is considered equivalent to licensing in this paper.

Course Contents

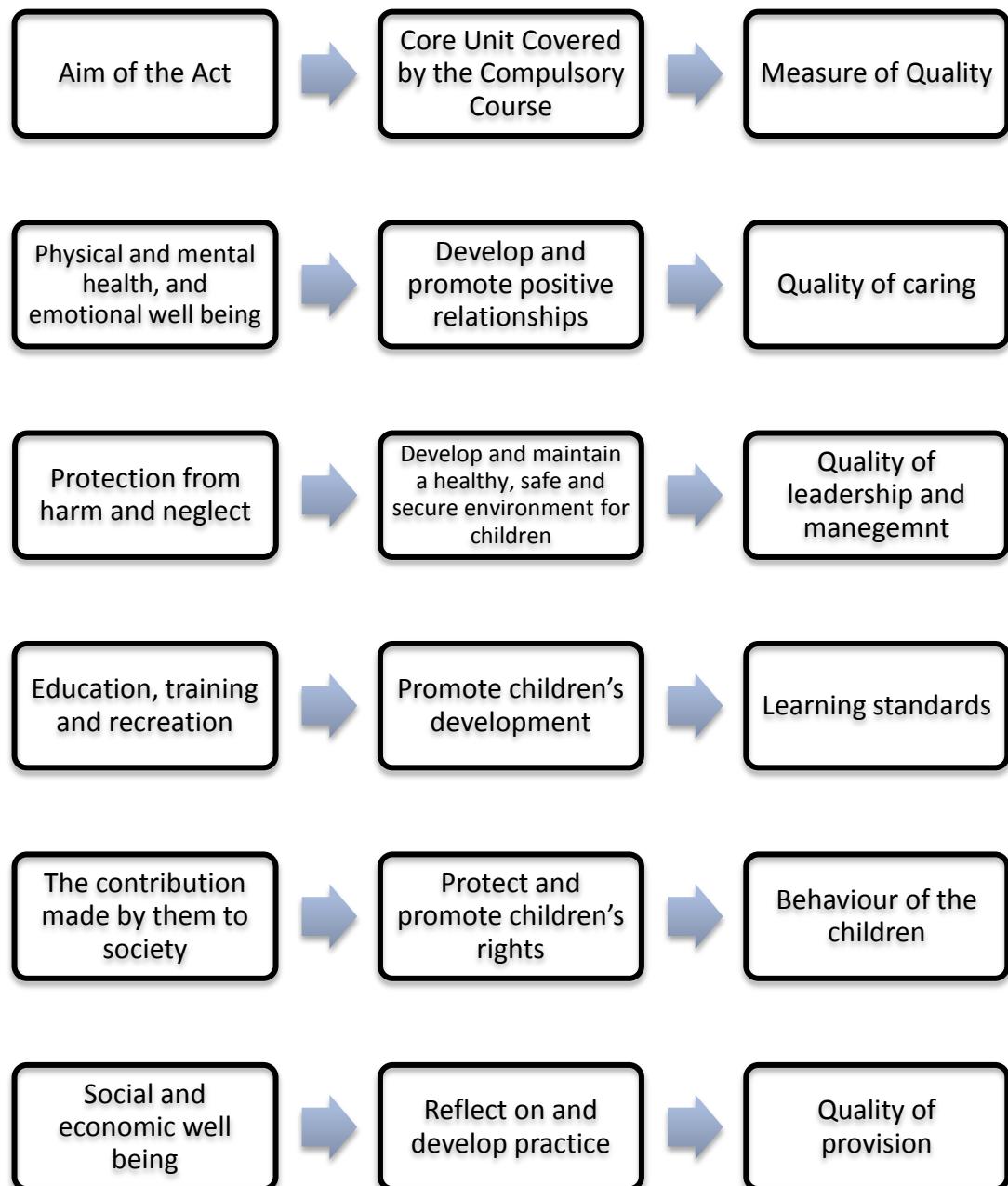
The training courses that childcare workers need to attend in order to become licensed are provided nationwide by various different Ofsted-accredited trainers. All of the courses must contain the following core units (though the title may vary):

1. Develop and promote positive relationships
2. Develop and maintain a healthy, safe and secure environment for children
3. Promote children's development
4. Reflect on and develop practice
5. Protect and promote children's rights

**Source: City and Guilds "Children's care, learning and development" course (2013)*

The aims of the Act, the core units covered, and the measures of quality are all heavily related.

Figure 3-4: Mapping the aims of the Childcare Act 2006



On completion of the course, the qualification level received ranges from an NVQ level 2 up to NVQ level 4. The level received depends on the complexity of the material covered and the amount of individual research conducted by the students.

The cost of the course varies between different colleges. However City and Guilds advise that the cost of a year-long, full-time course should be around £1,500 before tuition top-ups, and at most £9,000 after. If students are below the age of 18 when commencing the course there are no tuition fees. As many childcare workers have to be licensed to work with children they may have to fund their study themselves in order to find employment. Yet, as the onus is on the sector leaders to ensure staff meet the minimum requirements, employer funding may be available.

Penalties

Despite the attainment of the necessary qualifications and the completion of a criminal background check, childcare workers are still subject to penalties. Care workers who breach the guidelines imposed by the Act or are party to any criminal activity may result in expulsion from the register. If this occurs the individual, or individuals in question cannot legally work in early years childcare. Further, those living or working with such an individual may face investigations and restrictions on their work. Ofsted are particularly well-placed to execute such bars because under the Act all personal information involved in childcare is provided and a daily record of the children being cared for is also available. If extreme cases of malpractice occur, the case can be passed over to social services and the police where prison sentences may be applicable.

Purpose of Regulation

The purpose of regulating nursery workers is, therefore; firstly to allow the government to achieve its ambition of increasing the number of women in the labour market. By concentrating on the quality of provision, the government believed that more women would be encouraged back into the workplace. Secondly, the regulation aimed to increase the perception of childcare, given the important role it plays in the labour market and economy. The aim was to prevent any of the detrimental effects

resulting from poor childcare discussed above. The way in which licensing may enhance quality and perceptions of nursery workers is discussed below.

Quality of Childcare

The quality of childcare on offer is often a parent's primary concern, along with price and availability. The availability of good care in the early years is so important for children's development and well-being (Mustard 2006). However, as discussed, it is only once a child is placed with a childcare provider that the true quality of childcare is known. Where such information asymmetry exists in a market the result is often market failure (Leland 1979). If this occurs, the market is flooded with poor practitioners because they can undercut the price of quality providers. Customers are attracted by lower prices as they are unable to observe the difference in quality between providers.

Even if children are aware that the care they are given is poor, it may be some time before any conclusions can be made. This is because early years care can have a lasting impact upon individuals throughout their lives. As a result of the important role childcare plays in developing children and on the wider economy, it is necessary to implement measures of quality and monitoring. With the government's initiative to make childcare available to everyone who desires it, came a shift from local authorities regulating and monitoring childcare to a national agency from 2001: Ofsted. Good quality became incentivised through targets, training and regular inspections (Tanner *et al.* 2006). Such measurement and monitoring of quality provides a transparent way for the public to compare different childcare providers. Further, as Ofsted could recommend the closure of poor quality childcare providers there was a real incentive for all to provide at least a satisfactory level of care.

In order to allow for comparison and monitoring of quality over time, Ofsted targets specific qualities and measures them on a scale ranging from unsatisfactory to excellent. There are several issues with measuring quality in this way. First, assuming that measures of quality can be executed objectively by many different inspectors who will observe, evaluate and record quality may be too naïve an

assumption (Moss and Pence 1994). Any number of factors could impact upon a report, either positively or negatively, and prevent a true depiction of the quality of care provided. There are also issues with the scales and measures used, for example it is very difficult to rate an inner city and a rural play group on the same scale for quality of provision when they both offer such different experiences.

Second, the process of determining how quality should be measured is very long and detailed; the length process suggests that the results should be reliable and valid. However, there is a danger that the measures can become static and immutable (Williams 1994). This may happen because the process of implementing any nationwide survey demands resources in terms of time and money. Changing a survey is equally draining. As a result official documents are often treated as fixed (Williams 1994) and do not change to suit changes in demand for different characteristics of quality or changing public concern. This may affect the usefulness of such quality measures and make them outdated.

Lastly, the ethical issues surrounding measuring the quality of care cannot be overlooked. Childcare can be observed as a series of instrumental tasks based on functional knowledge (Cameron and Boddy 2006). However, many would view childcare as encompassing many different demands (Moss *et al.* 2006). For many, childcare is a replacement for care given by mothers (Mooney and Munton 1997), if childcare is meant to mimic the mother-child relationship (Stinger 1993), how can one define a good parent? In this situation quality is dependent on the child, the situation, the tasks and issues present, and the other children present. There are so many influencing variables that a generic scale of bad to good is not appropriate, as it cannot capture the complexities of what is needed from the care provider. As a result, whilst most would agree to basic core standards the extended measures of quality encompassed in Ofsted's crude measures are not likely to reflect everyone's view of quality care (Tanner *et al.* 2006).

Despite some clear issues surrounding the measurement and monitoring of quality, the importance of childcare and the impact it has on individuals and the general economy make quality a key issue. Any attempt at measurement and providing the

public with more information is better than no attempt at all. Further, it is only through a standardised national approach to defining, monitoring and recording quality levels that transparency can be found. That said, one must always view the measurement of quality in the childcare sector with caution and allow for other immeasurable characteristics of quality.

Improving Perceptions of Childcare

The regulation of nursery nurses and assistants may also improve the public perception of the occupations.

Despite the importance of childcare, nursery nurses and assistants are often regarded as low status, low skilled and sometimes not even regarded as 'proper' occupations. The explanation of such perceptions lies in the nature of the tasks associated with the occupation, the levels of skills and pay in the occupation, and the characteristics of the workforce.

The reason why the perceptions of childcare are so important are first, because how we perceive a service affects how much we are willing to pay for it. Second, because how we perceive a service impacts on the level of quality we expect. Third, how we perceive an occupation affects if we will work within it. This is important because the Labour government wanted to increase the number of women in the labour market. As female workers dominate childcare positions, increasing the perception may attract more women into the occupation and therefore the labour market. This would in turn aid the aim to increase the availability of childcare because there would be a greater supply of childcare workers.

Nursery nurses and assistants are caregivers. Such care is heavily linked to the maternal nature. Indeed the common discourse associated with childcare is suggestive of a natural, instinctive process by which caregivers, predominantly women, fulfil their jobs (Greener 2009). The issue of moral order and responsibility is a central theme when providing care as it is for mothers (Mooney and Munton 1997). As a result of the perception of work being natural and instinctive, the

understanding of childcare may be that no additional skills are required beyond one's female nature.

Indeed the female nature of the work associated with providing care, particularly to children, is one explanation as to why it is not regarded as a profession. Osgood (2009) argues that professionalism is associated in neo-liberal discourse with masculine traits. These include control over one's occupation and the tasks within it, the extent of monitoring and inspection, and the rate of pay received (Greener 2008). Whilst nursery workers have a great amount of autonomy, they also have high levels of monitoring and inspection, ultimately in the form of Ofsted inspections. The rates of pay are generally low (Rolle 2005), which is not a common trait of professional occupations. In addition, nursery workers are price takers: they cannot individually influence the industry norms of pricing and pay (Greener 2009). Therefore, despite autonomy in task there is little autonomy over fees. As such, nursery workers are not demonstrating enough masculine traits to be regarded as professionals. There is also the issue surrounding ease of entry into an occupation. If an occupation is easy to enter then it is unlikely to be regarded as a high status occupation (Turner 1987). Although nursery workers do require an NVQ level 3 in order to enter the occupation, the poor public visibility of skill requirements, results in occupation inequality (Grimshaw and Rubery 2007)

There is also general debate concerning all occupations that require 'soft' skills. There is great difficulty with regard to quantifying the soft skills required by certain jobs (Littler 1982). As a result of an inability to quantify these types of skills, there is often no direct association with pay (Findlay *et al.* 2009). As such, many skills associated with female dominated occupations that rely on soft skills, like childcare, are undervalued (Grimshaw and Rubery 2007). This problem is even more prevalent in the childcare occupations because it is inconceivable to quantify what skills are learned and what skills are a part of one's nature - particularly given the closeness of tasks to mothering.

Some prospective care workers may also fail to differentiate between formal childcare and babysitting children as an addition to their routine of work (Wheelock

and Jones 2010). This is despite the tasks associated with childcare being very diverse and often centring, not just on the practice of caring, but also on the monitoring and interpreting of infant behaviour and development (Moss *et al.* 2006). As such, there is debate as to what extent childcare is a skilled profession. This is important because how professional society views childcare will affect how much parents are willing to pay for it. It will also affect how many women will be attracted to working as childcarers.

Further to the nature of tasks, are the general characteristics of the workforce. Childcare providers, in general, have lower levels of education particularly when compared to those that use their services (Cameron *et al.* 2002). Those demanding childcare generally work in high status occupations and have high levels of education. The paradox in the characteristics of care providers and their customers shines a light on the low status and skill of nursery workers and assistants with regard to education levels (Cameron *et al.* 2002). It also poses an interesting premise: perhaps it is through observing such a paradox that the occupation of childcare can be justified as a true profession. If highly educated individuals are choosing the service and are reliant upon it, then those within childcare must be providing something that is highly desirable and necessary to high status individuals. If the customer-provider mirror is correct, the status of the providers should be similar to that of their customers. However, there appears little evidence that this is the case (Calder 1990).

Some scholars argue that the general perception of childcare is deeply affected by the circular process of care (Bryson *et al.* 1999). It is only when individuals experience childcare first-hand that they are likely to assign appropriate value to the service and observe the skill required in order for good quality care to be provided. Even though around one third of households are joint earners or lone parents, who presumably rely on some sort of childcare if they wish to work (Hutton 1996), the vast majority of the public may not have had personal experience with childcare and so are incapable of assessing its 'true' value.

In all, despite the quality of care given by nursery workers affecting the development of self-esteem, confidence in abilities and development in children's relationships with others (Pugh *et al.* 1987), nursery workers are generally viewed by society as low status workers who, as a result of their lack of academic ability, chose to enter into the occupation (Calder 1990). The lack of pay, training and skill levels are compensated by the high levels of satisfaction in nursery nurses and assistants (Greener 2009) but the low pay observed by the public may deepen the perception that the occupation is not professional and is low status.

If an occupation is licensed, then this conveys that there is an element of skill associated with the tasks of the occupation. Licensed individuals must display competency and gain the relevant qualifications. This makes the occupations exclusive and limited to a select group. As such, through licensing the public may recognise childcare not as an extension of maternal instinct but as a learned profession.

Licensing may further the professionalism of the sector through its ability to make the occupation closed. One of the defining characteristics of professional occupations is their ability to restrict and control who can enter them. Licensing has the ability to do just this. Pre-regulation, any individual could become a nursery nurse or assistant. That resulted in a very fluid movement of employees. Turnover and retention rates in the sector have traditionally been very poor. The movement of employees was influenced by growing competition in other sectors. Supermarkets and other service sector jobs often pay more and have less emotional strain than childcare. As such, jobs in other sectors became desirable for many individuals who were already working in childcare or considering doing so. This has clear implications for the availability of childcare but can also be detrimental to children as consistency in care is a major component in emotional development. Licensing may aid turnover and retention issues by increasing an individual's identity with childcare. The premise would follow that if an individual spends time and resources becoming licensed to work in an occupation they are less likely to want to leave the occupation. However, one obvious negative impact that licensing may have is if the barriers to entry are set too high, then other sectors may become even more desirable.

Summary

One of the main aims of the Childcare Act 2006 and the subsequent licensing of nursery workers was to increase the quality of care provided to children. This could be achieved through licensing because incompetent potential workers could be filtered out via the minimum degrees of competency demanded. It could also occur because licensing can increase the perception of nursery workers and as a result attract more competent individuals into the occupation.

It is the intention of this paper to analyse if an increase in quality occurred as a result of licensing. Quality is measured by the quality of the provision, the behaviour of the children, the learning standards, the quality of caring, and the quality of leadership and management, all of which are derived from the aims of the Childcare Act 2006 and the core units covered in the compulsory training course. The hypothesis to be tested is as follows:

H₁: Licensing of nursery workers has increased the quality of childcare

The following section will outline the method used to analyse the impact regulation has had on the quality of childcare.

3.2 Methodology

The aim of this paper is to analyse whether licensing has increased the quality of childcare in nursery schools following the Childcare Act 2006. This section will outline how the hypothesis has been investigated. The section will take the following form: first, the data used in the analysis are described; second, the variables used in the analysis are defined; third, the method of analysis used is outlined and finally, the limitations of the method are discussed.

3.2.1 Data

As the aim of the paper is to ascertain the impact licensing has had on the quality of childcare within nursery schools it was necessary to use a dataset that covered as many nursery schools as possible from both before and after the change in regulation that occurred in 2006. As a result, the data used is sourced from Ofsted.

Office for Standards in Education, Children's Services and Skills (Ofsted)

Formal inspections of schools have occurred since 1833 to monitor how well state grants are used in providing education to children (McLaughlin *et al.* 1996). Initially the inspections were concerned with grants awarded to religious institutions that provided education to poorer children. However, under the Education Act 1902, inspections were expanded. From 1902, all state-funded schools have been subject to inspection by local authorities to monitor the levels of education provided.

Under the Conservative government, the Education (Schools) Act 1992 was passed. The Act highlights a need for standardisation of education throughout the country. In response to the Act, Ofsted was created to assess providers using a national framework. Ofsted is a non-ministerial government department of Her Majesty's Inspector of Schools in England. Initially, Ofsted was only responsible for inspecting primary and secondary schools. However, since 2001, Ofsted has also been responsible for inspecting early years education and care. Before 2001, the

Daycare Standards Act 1992 and the Children's Act 1989 placed responsibility for monitoring upon local authorities.

Prior to 2005, Ofsted inspections took place every 6 years, unless a school performed particularly badly in which case inspections would be conducted more frequently. Providers were inspected for approximately one week by the inspectors having been given two months' notice prior to inspections. From 2005 to 2012 inspections were conducted, on average, every three years. Providers are now inspected for between two and three days and are given two days' notice. The increased frequency of inspections and reduced notice periods are hoped to have increased the accuracy of the inspectors' reports because providers have less time to prepare for a visit.

The increased frequency of the inspections and the reduced notice period from 2005 onwards were to increase the accuracy of the inspectors' findings. If the accuracy of the reports is not consistent, then comparing quality results over time may result in falsely accepting hypotheses, resulting in a type I error. However, as the hypothesis to be tested is suggesting that quality should increase as a consequence of licensing, wrongfully accepting the hypothesis is less likely as a result of the increase in accuracy over time. This is because if accuracy increases because providers cannot portray higher quality than is usual, then overall scores of quality will reduce, thus refuting the hypothesis. Further, as Ofsted reports provide the only nationwide, longitudinal data in the sector, it is still the most reliable measure of provider quality because it is the only survey to capture such a large sample.

As the licensing of nursery workers came into effect in 2006 as a result of the Childcare Act 2006 it is necessary to observe quality levels before this date and after in order to be able to conclude whether a difference in quality has occurred as a result of the regulation. Therefore, the period of time where quality is observed is from 2000 to 2011. This provides six years' data for pre-licensing quality and six years' data post-licensing. In order to construct the dataset every Ofsted report from 2000 to 2011 relating to nursery schools was found, read and the results recorded. This resulted in a dataset containing the results from 1,139 Ofsted reports. Whilst every nursery school should have been captured at least once in the dataset, there is

still a possibility that the data does not capture the whole population. For example, nurseries set up post 2009 may not have experienced their first inspection before 2011. As such, whilst the data is a very good representation of the population, it must still be defined as a sample. The number of reports included in the analysis is shown in table 3.4.

Table 3-4: Number of Ofsted reports by year

Year	Number of Ofsted Reports	Per cent	Cumulative Per cent
2000	81	7.1	7.1
2001	93	8.2	15.3
2002	72	6.3	21.6
2003	20	1.8	23.4
2004	54	4.7	28.2
2005	47	4.1	32.3
2006	113	9.9	42.2
2007	159	13.9	56.1
2008	122	10.7	66.8
2009	155	13.6	80.4
2010	151	13.2	93.7
2011	72	6.3	100
<i>Total</i>	<i>1139</i>	<i>100</i>	

As can be observed in the table above 32.3% of the reports included occurred prior to the Childcare Act 2006, which enforced licensing in the occupation. As such 67.7% of the reports included were recorded after licensing came into force. This could result in ‘licensed’ reports being artificially present in the sample, however, there are still 367 ‘unlicensed’ reports included. Yet the unequal weighting of pre- and post-licensing reports limits the reliability of the results.

3.2.2 Defining Variables

As the aim of the paper is to analyse the impact regulation has on the quality of childcare, the dependent variables in the analysis are measures of quality. The independent variable is regulation status. In addition to the dependent and independent variables, control variables are included to reduce the chance of the hypotheses being falsely accepted. Each of the variables is defined below.

Dependent Variables

Quality

As shown previously, quality can be measured through many different variables. However, within this study the measures of quality used are derived directly from the aims of the Childcare Act 2006 and the core units present on the compulsory training course, which must be attended and passed before a licence can be issued.

The five measures of quality used in the analysis are as follows:

1. The quality of the provision
2. The behaviour of the children
3. The quality of the leadership and management
4. The quality of caring
5. The learning standards

Despite the questionnaire that the inspectors need to complete evolving over time, these key areas of quality have remained a permanent feature over the period included in the analysis.

The universal appearance of these variables in every inspector's report and each measure being heavily associated with the development and ability of children to successfully transition into year 1 level education, as supported by the results from the practitioner interviews, means that these measures of quality should reflect the aim of the Act and the definitions of quality from the practitioners.

However, as discussed, the questions that feature in the inspectors' reports have varied over the period of time in question. As such, the different measures of quality must be identified in each version of the report. Table 3.5 contains an outline as to how each dimension is defined and coded.

Table 3-5: Definition of variables

Dimension	Year	Question		Measure	Recoding
Quality of Provision	00/04	13	Quality and range of curriculum	Excellent Very Good Good Satisfactory Unsatisfactory	1=Unsatisfactory 2=Satisfactory 3=Good 4=Very Good
		15	Provision for special needs		
		16	Provision for language		
		17	Provision for personal development		
		18	How well the school cares		
	05/06	20	How effective is the teaching and learning in meeting the full range of learners' needs?	1=Outstanding 2=Good 3= Satisfactory 4=Inadequate	1=Inadequate 2=Satisfactory 3=Good 4=Outstanding

Dimension	Year	Question		Measure	Recoding
		21	How well do the curriculum and other activities meet the range of needs and interests of learners?		
		22	How well are learners cared for, guided and supported?		
	07/09	20	How effective are the teaching and learning in meeting the full range of learners' needs?		
		21	How well do the curriculum and other activities meet the range of needs and interests of learners?		
		22	How well are learners cared for, guided and supported?		
	10/11	9	How effectively are children in the EYFS helped to learn and develop?		
		10	The quality of teaching		
		11	The extent to which curriculum meets children's needs		
		12	The effectiveness of care, guidance and support		

Dimension	Year	Question		Measure	Recoding
Behaviour	00/04	9	Behaviour in and out of class	Excellent Very Good Good Satisfactory Unsatisfactory	1=Unsatisfactory 2=Satisfactory 3=Good 4= Excellent
	05/06	13	The behaviour of learners	1=Outstanding 2=Good 3= Satisfactory 4=Inadequate	1=Inadequate 2=Satisfactory 3=Good 4=Outstanding
	07/09	13	The behaviour of learners		
	10/11	4	Children's behaviour		
Leadership and Management	00/04	19	Leadership and management from the head	Excellent Very Good Good Satisfactory Unsatisfactory	1=Unsatisfactory 2=Satisfactory 3=Good 4=Excellent
		20	Governors fulfilling roles		
		21	Value for money		
		22	School's evaluation of performance		
		23	Strategic Use of Resources		
	05/06	23	How effective are leadership and management in raising achievement and supporting all learners?	1=Outstanding 2=Good 3= Satisfactory 4=Inadequate	1=Inadequate 2=Satisfactory 3=Good 4=Outstanding
		24	How effectively leaders and managers at all levels set clear direction leading to improvement and promote high quality of care and education		
		25	How effectively performance is monitored,		

Dimension	Year	Question		Measure	Recoding
			evaluated and improved to meet challenging targets		
		26	How well is equality of opportunity promoted and discrimination tackled so that all learners achieve as well as they can?		
		27	How well and efficiently are resources, are deployed to achieve value for money?		
		28	The extent to which governors and other supervisory boards discharge their responsibilities		
		29	The adequacy and suitability of staff to ensure that learners are protected		
	07/09	23	How effective are leadership and management in raising achievement and supporting all learners?		
		24	How effectively leaders and managers at all levels set clear direction leading to improvement and promote high quality of care and education		

Dimension	Year	Question		Measure	Recoding
		25	How effectively performance is monitored, evaluated and improved to meet challenging targets		
		26	How well is equality of opportunity promoted and discrimination tackled so that all learners achieve as well as they can?		
		27	How well and efficiently are resources deployed to achieve value for money?		
		28	The extent to which governors and other supervisory boards discharge their responsibilities		
		29	Do procedures for safeguarding learners meet current government requirements?		
	10/11	13	How effectively is provision in the EYFS led and managed?		
		14	The effectiveness of leadership and management in embedding ambition and driving improvement		

Dimension	Year	Question		Measure	Recoding
		15	The effectiveness of the governing body in challenging and supporting the school so that weaknesses are tackled decisively and statutory responsibilities met		
		16	The effectiveness of the school's engagement with parents and carers		
		17	The effectiveness of partnerships in promoting learning and well-being		
		18	How well equality of opportunity is promoted and discrimination eliminated		
		19	The effectiveness of safeguarding procedures		
		21	How effectively and efficiently are resources, including staff, deployed to achieve value for money?		
Caring	00/04	18	How well the school cares	Excellent Very Good Good Satisfactory Unsatisfactory	1=Unsatisfactory 2=Satisfactory 3=Good 4=Excellent

Dimension	Year	Question		Measure	Recoding
	05/06	22	How well are learners cared for, guided and supported?	1=Outstanding 2=Good 3=Satisfactory 4=Inadequate	1=Inadequate 2=Satisfactory 3=Good 4=Outstanding
	07/09	22	How well are learners cared for, guided and supported?		
	10/11	12	The effectiveness of care, guidance and support		
Learning Standards	00/04	1	Language and Literature	Excellent Very Good Good Satisfactory Unsatisfactory	1=Unsatisfactory 2=Satisfactory 3=Good 4=Excellent
		2	Maths		
		3	Personal and social development		
		4	Knowledge and understanding of the world		
		5	Physical development		
		6	Creative development		
		7	Other areas		
	05/06	7	How well do learners achieve?	1=Outstanding 2=Good 3=Satisfactory 4=Inadequate	1=Inadequate 2=Satisfactory 3=Good 4=Outstanding
		8	Are the standards reached by learners?		
	07/09	7	How well do learners achieve?		
		8	Are the standards reached by		

Dimension	Year	Question		Measure	Recoding
	10/11	learners?			
		1	How effective is the provision in meeting the needs of children in the EYFS?		
		2	Children's achievement and the extent to which they enjoy learning		

As can be observed from the table above, each dimension of quality is measured by calculating the mean of several associated questions. In order to determine if this is a valid way to measure each dimension, a statistical calculation of internal consistency is conducted. As a result of the calculation a Cronbach's alpha for each dimension was found.

Cronbach's alpha is an estimator of reliability. The calculation is used for scaled data to confirm that each item included in the overall measure is correlated with the group total. As such, the results range from 0 (indicating none of the items are correlated with the group total) to 1 (indicating that all items are perfectly correlated with the total). Within social science a coefficient of 0.7 or above is usually acceptable, though for scientific research much higher coefficients are needed (Kline 1999). Where the coefficient is less than 0.7 further factor analysis is needed in order to identify which item is not correlated with the group total and should be reversed or removed from the variable. However, for every dimension of quality the coefficients were above 0.7 so no further analysis was required. Therefore, analysis proceeds with the items and variables listed in table 3.5.

Independent Variables

An independent variable is not dependent on any other variable in an analysis. It is the variable that is being analysed to see if it has a significant impact on the

dependent variables. In this investigation the independent variable is regulation status.

Licensing

Licensing is the legal requirement for an individual to obtain a licence before they can legally work. Licences can only be obtained once a given level of competency is displayed. Licensing came into effect as a result of the Childcare Act 2006. As such, reports conducted before 2006 occurred pre-licensing and reports conducted in 2006 or later, occurred post licensing. The variable created for licensing is binary: 1 signifies presence of licensing and 0 indicates an absence. As each report contains the date of inspection this is used to generate the licensing variable.

It is the intention of the remainder of this paper to investigate the impact licensing has had on these 5 different measures of quality. However, in order not to inflate the results, some of the analysis will also take into account other factors which may have an impact on quality, and these will be the control variables.

Control Variables

Control variables are other factors that may impact the quality of childcare provided. Their inclusion prevents the impact licensing may have had, becoming over exaggerated. To ensure key factors were included as control variables, interviews were conducted with experienced childcare workers. In all, 15 interviews were conducted with the aim of defining variables that should be included in the analysis as controls.

The 15 interviews conducted consisted of 9 with nursery school leaders and 6 with head teachers of primary schools across England. The interviews were conducted between July and August 2011. Each interview lasted between 90 and 120 minutes. The sample was selected out of convenience. Although this may result in some bias, location was not considered a significant factor in forming an opinion with regard to childcare. In addition, as the interviews are used to support the methodology and do not contribute directly to the results, the restricted sample of interviews is not of

grave concern. The interviews were largely unstructured but one main question was posed: what factors, beyond the quality of staff, have a significant impact on the quality of childcare given?

When asked, eight of the respondents thought that the smaller the age range covered, the greater the amount of attention each child would receive and as a result the greater the development of the child would be. The smaller the size of the nursery was also believed to have a positive association with quality, according to nine of the respondents. The majority of respondents (12 out of 15) highlighted the need for consistency in care for children. As such, most of the nursery leaders (7 out of 9) stated that a change in nursery leader could have an impact on the quality of care, either negatively because of a lack of consistency or positively because new ideas and approaches are introduced. A sizeable portion (6 out of 15) also mentioned the possibility that single sex classes can affect the behaviour and learning of children; both identified as signals of quality.

In addition to internal nursery factors such as size and leadership, respondents also stated that factors external to the nursery school may also have an impact on quality. Although many different factors were mentioned including the amount of green space surrounding the nursery school, whether it was located in an urban or rural setting, and how involved the parents were, there is one key factor that was mentioned by all of the respondents: “affluence of the area”. All of the respondents identified affluence as instrumental in how ‘good’ a nursery school is. Some stated (6 out of 15) that this was linked to the financial pressure faced by parents because it affected how much demand for care there was and how much time was given at home to developing children academically and emotionally. No other factors were agreed upon by a majority of respondents.

It is clear from the results of the interviews that there are some factors that are commonly regarded by nursery leaders and head teachers as having the ability to affect the quality of a nursery school. These are identified from the sample as, size of the nursery, the age range of children, if the class is mixed or single sex, and if the

leader has changed. The external factor raised was the affluence of the area in which the nursery school is located. Therefore the control variables used in the analysis are:

Year

The year the report was conducted is found through the date of inspection. The need for inclusion of the year variable is to account for any trend, either positive or negative, over time. As such this is a continuous variable.

Experience

This variable is found by recording how many times the nursery school had been inspected after 2000. The rationale for the inclusion of this variable is that the more experienced a nursery is at undergoing inspections, the more areas for improvement they have been given, the better their quality will become. Further, the more inspections a nursery experiences, the greater their ability to clearly signal the qualities to an inspector.

Change in Provision Leader

This variable is found through observing who the provision leader was at the time of the report and who the provision leader was the last time the nursery was inspected. This is a binary variable coded 1 for a change in provision leader and 0 for no change. The reason for including a variable is to account for the impact a leader has on the quality of nursery care given by the provider.

Number on Roll

This is found on the inspection report. The number on the roll is a discrete variable with a minimum value of 1.

Single Sex

The gender composition is recorded in the inspectors' report. The variable is coded 1 for a single sex cohort and 0 for mixed. The reason for including the variable is in response to some interviewees reporting that the gender composition of the cohort may impact upon the behaviour and learning of the children.

Age Range

The ages covered by a provision are recorded on the inspectors' report. The variable is generated by counting all the possible ages that could be present in the nursery school. For example, if a nursery school covers children between 3 and 5, the ages a child could be are 3, 4 or 5, as such the age range is 3. This variable is continuous. The reason for including age range as a control is the assumption that the smaller the age range of the children, the higher the quality of care.

All of these control variables are present within the Ofsted dataset. However, the last control variable, affluence, does not feature in the Ofsted reports. Therefore, an additional database had to be used: Community Analysis Methods and Evaluative Options (CAMEO).

CAMEO classification is a UK system for analysis and segmentation of the population by postcode. CAMEO is executed in the UK by "Callcredits", a London based company that markets itself as a tool for marketing and customer analysis for businesses across the economy. It was first established in 1991 and contains data on each of the 1.9 million postcodes in the UK.

CAMEO can define various characteristics of any given postcode but the characteristics of interest, as highlighted from the interviews, is affluence and financial pressure. As such, every postcode of the nurseries included in the dataset had to be found, following on from which, the CAMEO results for the affluence and credit risks of each postcode were researched. The dataset consists of 1,139 investigations, as there are 1,139 reports included in the dataset. The variable derived from CAMEO to be used in the investigation is defined below:

Affluence

CAMEO measures of affluence are based upon the following variables:

- Average income
- Occupation
- Number of directorships
- Number of part-time workers
- Unemployment rates
- Tax credits
- Pension rates
- Student grants and loans

CAMEO uses government reports and data including the Family Resources Survey (FRS), British Household Panel Survey (BHPS) and, the Annual Survey of Hours and Earnings (ASHE). As such, it is used by many of the top-ranking companies in the UK (Callcredit 2013).

The overall measure comprises of all of these measures and is postcode specific. The results are broken down into 57 categories. In turn these categories are divided into 10 main classification groups which are further reduced to 5 broad measures of affluence. The categorisation is presented in table 3.6 below.

Table 3-6: CAMEO Social Types

Affluence	Social Group	Social Sub-Group
Amongst the Most Affluent in the UK	Affluent Singles and Couples in Exclusive Urban Neighbourhoods	1A: Opulent couples and singles in executive city and suburban areas
		1B: Wealthy singles in small city flats and suburban terraces
		1C: Urban living professional singles and couples
		1D: Wealthy and educated singles in student areas
	Wealthy Neighbourhoods Nearing and Enjoying Retirement	2A: Opulent older and retired households in special urban properties
		2B: Affluent mature families and couples in large exclusive detached homes
		2C: Affluent mature couples and singles some with school age children
		2D: Wealthy suburban professionals in mixed tenure
Higher than Average	Affluent Home Owning Couples and Families in Large Houses	3A: Wealthy older families in spacious and rural detached and semis
		3B: Young and mature couples and families in large rural dwellings
		3C: Well-off older couples and families in large detached and semis
		3D: Wealthy mixed households living in

Affluence	Social Group	Social Sub-Group
		rural communities
	Suburban Homeowners in Smaller Private Family Homes	4A: Executive households in suburban terraces and semis
		4B: Professional home owners in detached and semi suburbia
		4C: White collar home owners in outer suburbs and coastal areas
		4D: Mature owner occupiers in rural and coastal areas
		4E: Couples and families in modern rural and suburban developments
		4F: Mature couples and families in mortgaged detached and semis
Average	Comfortable Mixed Tenure Neighbourhoods	5A: Singles, couples and school aged families in mixed houses
		5B: Young and older single mortgagees and renters in terraces and flats
		5C: Mature and retired singles in areas of small mixed housing
		5D: Young and older households in coastal, rural and suburban areas
		5E: Mature households in Scottish industrial suburbs and rural communities
		5F: Young and older households in areas of

Affluence	Social Group	Social Sub-Group
		mixed tenure
		5G: Older couples and singles in suburban family semis
Lower then Average	Less Affluent Family Neighbourhoods	6A: Less affluent communities in areas of mixed tenure
		6B: Older and mature households in suburban semis and terraces
		6C: Mixed households in mostly welsh suburban communities and rural areas
		6D: Couples and families with school age and older children in spacious semis
		6E: Mature households in less affluent suburban and rural areas
		6F: Less affluent couples in suburban family neighbourhoods
		6G: Young singles and family communities in small terraces and rented flats
	Less Affluent Singles and Students in Urban Areas	7A: Single mortgages and renters in pre-school family neighbourhoods
		7B: singles and families in ethnically mixed inner city and suburban areas
		7C: Young flat-dwelling singles and couples in inner city student areas
		7D: Young singles, couples and students in

Affluence	Social Group	Social Sub-Group
		urban areas
		7E: Young singles in privately rented and housing association properties
	Poorer White and Blue Collar Workers	8A: Poorer retired households in owned and rented accommodation
		8B: Older and mature households in suburban areas of mixed tenure
		8C: Older households with school age children in towns and suburbs
		8D: Poorer young singles in suburban family areas
		8E: Mixed mortgagees and council tenants in outer suburbs
		8F: Singles and couples in smaller terraced properties
Low	Poorer Family and Single Parent Households	9A: Poorer singles in outer suburban family neighbourhoods
		9B: Poorer singles and families in mixed tenure
		9C: Suburban Scottish households in small terraces and flats
		9D: Ethnically mixed young families and singles in terraced housing
		9E: Poorer couples and school aged families

Affluence	Social Group	Social Sub-Group
		in terraced and semis
		9F: Flat dwellers in council and housing association accommodation
		9G: Young and older households in housing association and mortgaged homes
	Poorer Council Tenants Including Many Single Parents	10A: Hi-rise flat dwellers in cosmopolitan areas of mixed tenure
		10B: Council tenants and mortgagees in Scottish suburbia
		10C: Poorer mortgages and council renters in family neighbourhoods
		10D: Singles and single parents in suburban high-rise flats
		10E: Mature households in small terraces and semis
		10F: Poorer singles in local authority family neighbourhoods
		10G: Single renters in mixed age high-rise communities

Source: CAMEO Handbook 2013

As a result, affluence is measured on a 5-point scale from 1-5, where 1 represents the least affluent and 5 the most.

Therefore, the data used in the quantitative analysis concerning the impact licensing has on the quality of childcare provided by nursery workers are drawn from two sources: Ofsted and CAMEO. The data source used for each variable is outlined in table 3.7.

Table 3-7: Data source for analysis

Variable	Data Source	Type of Variable
Quality	Ofsted	Dependent
Licensing	Ofsted	Independent
Year	Ofsted	Control
Experience	Ofsted	Control
Change in Provision Leader	Ofsted	Control
Number On Role	Ofsted	Control
Single Sex Cohort	Ofsted	Control
Age Range	Ofsted	Control
Affluence of the Area	CAMEO	Control
Credit Risk	CAMEO	Control

3.2.3 Analysis

The aim of this paper is to determine whether the following hypotheses are correct:

H₁: Licensing of nursery workers increases the quality of childcare

H_{1a}: Licensing of nursery workers increases the quality of provision

H_{1b}: Licensing of nursery workers improves the behaviour of children

H_{1c}: Licensing of nursery workers increases the quality of leadership/management

H_{1d}: Licensing of nursery workers increases the quality of caring

H_{1e}: Licensing of nursery workers improves learning standards

In order to investigate these hypotheses and conclude if a significant effect has been made on quality since the Childcare Act 2006 came into force and required the licensing of nursery workers, a statistical analysis is undertaken. Two statistical tools are used, t-tests and regression.

t-Test

In the first instance, to observe if there is a significant difference in the mean scores relating to each of the quality dimensions, a ***t-test*** is conducted.

Although a ***t-test*** is a good tool for an initial assessment, the test is limited by its inability to control for other factors that may influence the mean of the variable of interest. In this case, there may be other factors affecting the levels of quality beyond the presence of licensing. Therefore, in order not to inflate the influence licensing has had, a further statistical analysis is conducted that takes into account these variables.

Regression

A regression is conducted to assess the relationship between licensing and quality whilst controlling for other factors that may moderate the relationship.

There are two types of least square regressions: ordinary least square and non-linear squares. Ordinary least squares (OLS), is appropriate for use on a finite set of variables and uses a closed expression in order to compute the associations between the dependent and independent variables. The dataset being constructed is finite and the variables used are scaled, thus the OLS method is used.

A significant association is concluded if the beta value calculated (the correlation between the variable in question and the dependent variable) has an associated significance of less than 0.05, and a very significant association is concluded if this value is less than 0.01. The effectiveness of the model is determined by its ability to explain the dependent variable. This is shown by the R-squared of the model. The R-squared shows the portion of the dependent variable explained by the model. The R-squared adjusted shows this in terms of the standard deviation of the dependent variable. The higher the R-squared, the better the model.

A summary of the variables included in each regression is presented in table 3.8.

Table 3-8: Summary of Regression Variables

Type	Variable
Dependent	Learning Standards Behaviour of Children Quality of Care Quality of Provision Quality of Leadership and Management
Independent	Presence of Licensing

Type	Variable	
Control	Characteristic of the Nursery	Year Experience Change in Provision Leader Number on Role Single Sex Age Range
	Characteristics of the Area	Affluence of the Area Credit Risk of the Area

As a result of including the variables listed above the model generated from the analysis into the impact regulation has on quality will take the following form:

$$Y_{\text{quality}} = \beta_{ih}X_{ih} + \beta_{ij}X_{ij} + \beta_{ir}X_{ir} + \varepsilon$$

Where X_{ih} represents characteristics of the nursery variables, X_{ij} denotes area characteristics, X_{ir} is the licensing variable and ε is the error.

3.2.4 Limitations

Despite every effort to produce reliable and valid results, every analysis has limitations. Through using Ofsted reports spanning 10 years as the basis for the dataset, one would presume that every nursery must be present in the data. However, it is possible that some are missing. As mentioned previously, this may have occurred because the nurseries were not in existence long enough to require an Ofsted inspection, or it may be because they started after 2008 and are not due their first inspection before 2011. As the population cannot be assumed to be included, one of the limitations of the analysis is one faced by any analysis using a sample. The results may not represent every nursery in the population.

An additional limitation is the process by which the control variables were defined. Whilst interviewing professionals with experience of providing childcare may be

useful, the sample size is small at 15 and the results are likely to be very subjective because they are based on personal experience. However, as the majority of interviewees mentioned the same variables, the results would be suggestive of reliability.

The Ofsted inspection reports may also pose a problem. Although Ofsted accredits the compulsory training courses for nursery workers, and the reports focus on the EYFS, there may be issues with the reliability of the reports. First, the reports assess quality on a restrictive framework containing a 5-point scale. Therefore, the reports may not capture the full picture of the quality of a nursery school. Second, although a scale is used, the inspectors' perceptions of a nursery school are fairly subjective and heavily influenced by the quality of other nursery schools inspected. Third, the limited number of questions within an Ofsted report may mean that not everyone's definition of quality in childcare is covered. However, as this investigation intends to assess the implications of licensing on a national level, no other data is available on the quality of childcare over the period 2000-2011. As a consequence, despite potential issues with its reliability, Ofsted is the only valid option.

3.3 Results

The aim of this paper is to investigate whether the Childcare Act 2006 and the subsequent licensing of nursery workers has had a positive effect on the quality of childcare. The measures of quality used are based upon the 5 aims of the Act with regard to quality, and the 5 core units covered by the compulsory training scheme for licensed workers. In order to investigate the association between licensing and the quality of childcare data were derived from the Ofsted reports and the CAMEO postcode database.

First, a description of the quality measures will be provided followed by the t-test results that analyse if there has been a significant change in the mean score of each provision since the change in regulation.

Second, a description of the characteristics of nursery schools is presented, following on from which the results from a correlation analysis concerned with the association of each characteristic and each measure of quality is presented. Then the results from a t-test are tabulated. The t-test analysed if there had been a significant change in each of the variables since the change in regulation.

Third, a description of the affluence of the nurseries' area are provided, after which the association between affluence and the characteristics of nurseries, and the different measures of quality is shown through a presentation of a correlation analysis. Lastly, t-test results analyse if the affluence of the area nurseries are located has significantly changed since the change in regulation.

Fourth, the regression results are presented. The results are from a regression analysis that tests the relationship between licensing and each measure of quality whilst also controlling for the characteristics of the nursery and the affluence of the area.

3.3.1 Measures of Quality

As discussed, the quality of childcare provided is defined by five parameters: learning standards, the behaviour of children, the standard of care delivered, the quality of provision and the quality of leadership and management.

Descriptive Statistics

Table 3.9 contains the average levels of quality found within each measure.

Table 3-9: Description of quality measures

Quality	Learning Standards	Behaviour of Children	Standard of Caring	Quality of Provision	Quality of Leadership and Management
Mean	3.26	3.62	3.47	3.47	3.43
Median	3.00	4.00	3.50	3.50	3.50
Mode	3.00	4.00	4.00	4.00	4.00
Std. Dev.	0.62	0.53	0.55	0.55	0.56
Range	3.00	2.00	3.00	3.00	3.00
Minimum	1.00	2.00	1.00	1.00	1.00
Maximum	4.00	4.00	4.00	4.00	4.00
Responses	1139	1139	1139	1139	1139

It is clear from table 3.9 that all the measures of quality are positively skewed. This is concluded because the mean of each parameter is greater than the respective median. It is also interesting to note that whilst the majority of the measures of quality span the whole scale (1:unsatisfactory to 4:excellent), no report records behaviour of children as unsatisfactory. However, all measures record some observations as excellent.

Learning standards and behaviour of children have higher mean scores compared to the other measures. Similarly, the quality of leadership and management has the lowest mean scores when compared to the other measures. In terms of standard deviation, learning standards has the greatest variance, whereas behaviour of children has the least variance, though this could be partly because of the lack of unsatisfactory observations.

Table 3-10: Quality of learning standards over time

Learning Standards	Mean	Median	Mode	Std. Dev.	Responses
2000	2.72	3.00	3.00	0.65	81
2001	3.11	3.00	3.00	0.49	93
2002	3.56	3.50	4.00	0.42	72
2003	3.24	3.00	3.00	0.37	20
2004	3.24	3.00	3.00	0.39	54
2005	2.82	3.00	3.00	0.63	47
2006	2.87	3.00	2.50	0.63	113
2007	3.77	4.00	4.00	0.40	159
2008	3.07	3.00	3.00	0.54	122
2009	3.28	3.00	3.00	0.56	155
2010	3.48	3.50	4.00	0.60	151
2011	3.36	3.50	4.00	0.63	72
Total	3.26	3.00	3.00	0.62	1139

Table 3.10 breaks the average scores of learning standards down by year. The results indicate that there are no obvious changes in the mean scores for learning standards over the 11-year period, although some fluctuations do occur. There are also no marked changes in variance over the period in question.

Table 3-11: Behaviour over time

Behaviour	Mean	Median	Mode	Std. Dev.	Responses
2000	3.72	4.00	4.00	0.47	81
2001	3.68	4.00	4.00	0.51	93
2002	3.67	4.00	4.00	0.53	72
2003	3.45	3.00	3.00	0.51	20

Behaviour	Mean	Median	Mode	Std. Dev.	Responses
2004	3.31	3.00	3.00	0.47	54
2005	3.09	3.00	3.00	0.62	47
2006	3.50	4.00	4.00	0.54	113
2007	3.75	4.00	4.00	0.45	159
2008	3.61	4.00	4.00	0.55	122
2009	3.71	4.00	4.00	0.48	155
2010	3.68	4.00	4.00	0.48	151
2011	3.61	4.00	4.00	0.52	72
Total	3.62	4.00	4.00	0.53	1139

Similarly, table 3.11 indicates no obvious trend in the average scores concerning the behaviour of children, or the variance of scores. However, a dip in the average scores is seen between 2003 and 2006 when the mean recorded scores are lower than in other years.

Table 3-12: Quality of care over time

Standard of Care	Mean	Median	Mode	Std. Dev.	Responses
2000	3.61	4.00	4.00	0.51	81
2001	3.61	4.00	4.00	0.53	93
2002	3.68	4.00	4.00	0.50	72
2003	3.30	3.00	3.00	0.47	20
2004	3.33	3.00	3.00	0.47	54
2005	3.00	3.00	3.00	0.69	47

Standard of Care	Mean	Median	Mode	Std. Dev.	Responses
2006	3.57	4.00	4.00	0.56	113
2007	3.62	4.00	4.00	0.55	159
2008	3.61	4.00	4.00	0.55	122
2009	3.54	4.00	4.00	0.54	155
2010	3.70	4.00	4.00	0.49	151
2011	3.56	4.00	4.00	0.55	72
Total	3.57	4.00	4.00	0.55	1139

With regard to the standard of care observed in the inspections, there appears to be no obvious trend in the average scores. There are fluctuations, particularly in 2004 and 2005 when the mean score of observations is lower than in other years. The variance is very similar across all the years, though 2004 is lower relative to the other years.

Table 3-13: Quality of provision over time

Quality of Provision	Mean	Median	Mode	Std. Dev.	Responses
2000	3.51	3.50	4.00	0.43	81
2001	3.52	3.75	4.00	0.52	93
2002	3.62	4.00	4.00	0.47	72
2003	3.25	3.00	3.00	0.47	20

Quality of Provision	Mean	Median	Mode	Std. Dev.	Responses
2004	3.24	3.00	3.00	0.41	54
2005	2.89	3.00	3.00	0.63	47
2006	3.30	3.00	3.00	0.59	113
2007	3.48	3.50	4.00	0.54	159
2008	3.61	3.50	4.00	0.46	122
2009	3.64	4.00	4.00	0.46	155
2010	3.51	4.00	4.00	0.61	151
2011	3.39	3.50	4.00	0.65	72
<i>Total</i>	<i>3.48</i>	<i>3.50</i>	<i>4.00</i>	<i>0.55</i>	<i>1139</i>

Table 3.13 contains the results concerning the quality of provision. There is no obvious trend in the average scores of the observations. However, the mean score for 2005 is particularly low at 2.89, which is classified as below average (average=3). There is also no obvious pattern in the variance of the observations but the standard deviations do fluctuate between 0.41 and 0.65. This may suggest inconsistency between inspectors in years where the standard deviation is high.

Table 3-14: Quality of leadership/management over time

Quality of Leadership/Management	Mean	Median	Mode	Std. Dev.	Responses
2000	3.56	3.75	4.00	0.49	81
2001	3.55	4.00	4.00	0.56	93
2002	3.58	4.00	4.00	0.55	72
2003	3.21	3.00	3.00	0.38	20
2004	3.24	3.00	3.00	0.40	54
2005	2.89	3.00	3.00	0.64	47
2006	3.23	3.17	3.00	0.61	113
2007	3.44	3.50	4.00	0.52	159
2008	3.41	3.36	4.00	0.57	122
2009	3.52	3.75	4.00	0.48	155
2010	3.54	3.75	4.0	0.53	151
2011	3.42	3.56	4.00	0.59	72
Total	3.43	3.50	4.00	0.56	1139

Similar results are displayed in table 3.14. As with the other measures of quality, there appears to be no obvious trend across the time period analysed. There are fluctuations in the average scores (2005 has a relatively low mean score), but there is no clear pattern to be observed. The same is true for the variance of observations, where there is also no clear trend seen.

t-Test Results

To understand the relationship between licensing and the different measures of quality, the point of departure is to observe if there are significant changes in the mean quality scores for each time period. The results of the t-tests conducted are presented below.

Table 3-15: T-test results for licensing by measures of quality

Quality		N	Mean	Difference in Mean	t	Sig. (2-tailed)
Learning Standards	Pre-Licensing	367	3.1042	0.22933	5.885**	0.000
	Post-Licensing	772	3.3335			
Behaviour	Pre-Licensing	367	3.5450	0.11178	3.371**	0.001
	Post-Licensing	772	3.6568			
Standard of Care	Pre-Licensing	367	3.4905	0.11446	3.290**	0.001
	Post-Licensing	772	3.6049			
Quality of Provision	Pre-Licensing	367	3.4040	0.10123	2.897**	0.004
	Post-Licensing	772	3.5052			
Quality of Leadership/Management	Pre-Licensing	367	3.4080	0.03115	0.882	0.378
	Post-Licensing	772	3.4392			

**. Difference in mean is significant at the 0.01 level

*. Difference in mean is significant at the 0.05 level

The t-test results, as shown in table 3.15, indicate that there is a significant increase in most of the measures of quality in the post-licensing period compared to the means in the pre-licensing period. The only exception is the quality of leadership and management, which shows no significant difference between the two time periods.

As significant differences were found, further investigation into the significance of the relationship has been undertaken in the form of regression analysis. In order to produce reliable and valid results, the investigation must account for other variables that might impact upon the quality of childcare. The variables included form two categories: characteristics of the nursery and characteristics of the location of the nursery. Each is presented in turn.

3.3.2 Characteristics of Nurseries

The characteristics considered in this analysis are: changes in leadership, age range covered by the provider, gender composition of the children and, the number of children on roll. A description of each variable, followed by the results of a correlation analysis assessing their association with each measure of quality, is presented. Following on from that, the results from a t-test conducted to observe if there are any significant changes in each of the characteristic variables since licensing came into effect are provided.

Table 3-16: Leadership changes

Leadership	Frequency	Per cent	Cumulative Per cent
Changed Provision Leader	877	77	77
No Change in Leader	262	23	100
Total	1139	100	

Table 3.16 details the change in leadership. Change in leadership is determined if the provision leader has changed since the last inspection, within the 2000-2011 time period. The results indicate that of the 1,139 reports, 77% indicate a change in provision leader since the previous report. Therefore, only 23% have the same provision leader for every report conducted between 2000 and 2011.

Table 3-17: Age range of children

Age Range of Children (years)	Frequency	Per cent	Cumulative Per cent
2	543	47.7	47.7
2.5	1	0.1	47.8
3	502	44.1	91.8
4	27	2.4	94.2
5	30	2.6	96.8
6	35	3.1	99.9
8	1	0.1	100
Total	1139	100	

The results presented in table 3.17 show that nearly 92% of the sample provides care for children of up to 3 consecutive ages. This suggests that nurseries and playgroups have a very low variance in age with regard to children in their care. However, compared to an average primary school class that has children of up to two different ages, for example a year two class which comprises 6 and 7 year olds, perhaps nurseries and playgroups are shown to merely mirror the approach taken higher up in the education system.

Table 3-18: Gender of children

Gender of Children	Frequency	Per cent	Cumulative Per cent
Mixed	1135	99.6	99.6
Single Sex	4	0.4	100
Total	1139	100	

The results in table 3.18 show that almost all nurseries and playgroups in the sample have a mixture of girls and boys on roll. Only 0.4% are recorded as being single sex.

Table 3-19: Number of children on roll

	Number of Children on Roll
Mean	86.15
Median	80.00
Mode	80.00
Standard Deviation	31.24
Range	255.00
Minimum	5.00
Maximum	260.00

In terms of the number of children on roll, the results presented in table 3.19 show that nurseries and playgroups have a mean number of 86 children on their books. This may appear to be high, especially compared to class sizes in schools. However, it is very unlikely that every child on roll will be present in every session. Some will enrol but have low attendance. Many children may come to a handful of sessions a

week, not every day. Or nurseries may offer morning and afternoon sessions to different children reducing the attendees to half the enrolled number. The results also show that there is a large variance between the sizes of nurseries; some have 260 enrolled where as others have only 5. The difference in size indicates how diverse the care providers are and how important it is to consider the characteristics of care providers when embarking on any analysis in the sector.

In summary, of the characteristics relating to the size, composition and leadership made available through the Ofsted reports, one can conclude that there is vast variance amongst nurseries and playgroups. Some are small whilst others potentially provide care for hundreds of children. Some focus on caring for a narrow age range, whereas others cover many ages. Some provider leaders remain with the same nursery for many years and others change leaders frequently. The differences serve to show how important it is to consider each nursery or playgroup as unique and limit the temptation to stereotype the sector into rigid definitions.

Correlation Results

Table 3.20 contains the results of the associations between the characteristics of the nurseries and playgroups with the five measures of quality.

Table 3-20: Correlation results: Quality by characteristics of the nursery

		Learning Standards	Behaviour of Children	Standard of Care	Quality of Provision	Quality of Leadership Management
Year	p	0.199**	0.034	0.035	0.04	0.002
	Sig. 2-tailed	0.000	0.253	0.243	0.173	0.949
	N	1139	1139	1139	1139	1139

		Learning Standards	Behaviour of Children	Standard of Care	Quality of Provision	Quality of Leadership Management
No. Inspection	p	0.209**	0.123**	0.069*	0.106**	0.074*
	Sig. 2-tailed	0.000	0.000	0.21	0.000	0.012
	N	1139	1139	1139	1139	1139
Change in Provision Leader	p	-0.18	-0.014	-0.037	-0.099**	-0.095**
	Sig. 2-tailed	0.551	0.627	0.209	0.001	0.001
	N	1139	1139	1139	1139	1139
Age Range	p	0.044	-0.021	-0.038	-0.007	0.009
	Sig. 2-tailed	0.134	0.475	0.196	0.812	0.751
	N	1139	1139	1139	1139	1139
Single-Sex	p	0.011	-0.014	-0.034	-0.024	-0.016
	Sig. 2-tailed	0.711	0.645	0.248	0.420	0.595
	N	1139	1139	1139	1139	1139

		Learning Standards	Behaviour of Children	Standard of Care	Quality of Provision	Quality of Leadership Management
Number of Children	p	0.063*	0.067*	0.098**	0.101**	0.100**
	Sig. 2-tailed	0.034	0.023	0.001	0.001	0.001
	N	1139	1139	1139	1139	1139

**. Correlation is significant at the 0.01 level (2-tailed)

*. Correlation is significant at the 0.05 level (2-tailed)

The results presented in table 3.10 indicate that all of the measures of quality are significantly positively associated with the number of inspections. This suggests that the more inspections a nursery or playgroup has over the time period, the observed quality is likely to be higher. All of the measures are shown to have a significant positive association with the number of children on roll. Therefore, the more children on roll, the higher the quality measures are likely to be. The results also show that learning standards are positively associated with the year suggesting that learning standards are increasing over time.

A significant negative correlation is found between the quality of provision and the quality of leadership/management, with a change in provider leader. This implies that when the leader of a nursery or playgroup has changed between two inspections, the observed quality of provision and quality of leadership and management is likely to reduce.

t-Test Results

In order to conclude if there have been significant changes in the characteristics of nurseries since licensing came into force, a t-test was conducted. The results of which are presented below.

Table 3-21: T-test results: Licensing by characteristics of the nursery

Characteristics of Nurseries		N	Mean	Difference in Mean	t	Sig. (2-tailed)
Number of Inspections	Pre-Licensing	367	1.0381	1.25848	36.592**	0.000
	Post-Licensing	772	2.2966			
Change in Leader	Pre-Licensing	367	0.0163	0.31526	12.602**	0.000
	Post-Licensing	772	0.3316			
Age Range	Pre-Licensing	367	2.5627	0.19640	3.452**	0.001
	Post-Licensing	772	2.7591			
Single Sex	Pre-Licensing	367	0.0027	0.00116	0.309	0.757
	Post-Licensing	772	0.0039			
Number of Children	Pre-Licensing	367	83.7520	3.53552	1.787	0.074
	Post-Licensing	772	87.2576			

**. Difference in mean is significant at the 0.01 level

*. Difference in mean is significant at the 0.05 level

The t-test results presented in table 3.21 show that there are some significant changes in the characteristics of nurseries over the two time periods. The number of previous inspections recorded is significantly increased post-licensing. This is expected, as licensing occurs in the latter part of the period covered by the data. As such, one would expect nurseries inspected during this period to have been inspected before. The results could also suggest that nurseries are inspected more frequently following coming into force, though further investigation is needed to make a firm conclusion.

Changing of the provision leader is also more likely post-licensing. This could be as a result of increased pressure to adhere to the licensing and Early Years Framework regulations. There is also a significantly greater age range being covered by nurseries post-licensing. This could be a way in which nurseries are recouping any cost incurred as a result of licensing. By increasing the ages covered by their provision, they are increasing their potential customer base and therefore, potentially, their turnover. However, the lack of a significant increase in children on the roll may dispute this. Instead, perhaps the change is a result of increased competition or demand from parents returning to employment.

3.3.3 Characteristics of the Location

In addition, considering the characteristics of the nurseries and playgroups, the characteristics of the area are also considered. This is in response to interviews held with head teachers and playgroup leaders who indicated that some characteristics are likely to influence the characteristics of a nursery or playgroup, and subsequently their quality levels. The characteristics highlighted centre on the affluence of the area in which the nursery or playgroup is located. The affluence of the area is recorded, as are two sub-components of affluence; average credit score and credit risk.

Descriptives

Table 3-22: Area information: credit score

Credit Score	Frequency	Per cent	Cumulative Per cent
1	79	6.9	6.9
1.5	90	7.9	14.8
2	125	11.0	25.8
2.5	67	5.9	31.7
3	448	39.3	71.0
3.5	20	1.8	72.8
4	205	18.0	90.8
4.5	62	5.4	96.2
5	43	3.8	100
Total	1139	100	

Table 3.22 indicates the median credit score associated with the postcode of each nursery or playgroup in the sample. The results show that over 25% of all those in the sample are located in a postcode with a lower than average credit score. However, this means that nearly 75% are located in a postcode with at least an average credit score. This may hint at an association between credit scores and presence of childcare provision. The suggestion would be that childcare provision is more likely to be in areas with a good credit rating. As credit scores are linked to income, savings and financial management this would enforce the notion that childcare is used predominately by those in higher status jobs.

Table 3-23: Credit score over time

Credit Score	Mean	Median	Mode	Std. Dev.	Responses
2000	2.81	3.00	3.00	1.09	81
2001	3.09	3.00	3.00	1.03	93
2002	3.08	3.00	3.00	0.88	72
2003	2.75	3.00	3.00	1.06	20
2004	2.96	3.00	3.00	0.91	54
2005	2.72	3.00	3.00	1.23	47
2006	2.91	3.00	3.00	1.08	113
2007	3.04	3.00	3.00	0.96	159
2008	2.93	3.00	3.00	1.05	122
2009	2.93	3.00	3.00	1.03	155
2010	2.98	3.00	3.00	0.97	151
2011	2.87	3.00	3.00	1.02	72
Total	2.95	3.00	3.00	1.02	1139

Table 3.23 shows the average and variance of credit scores by year. The results show that over time there is no obvious trend, either positive or negative. There are fluctuations in both the mean and standard deviations, but they follow no easily observable pattern.

Table 3-24: Credit risk over time

Credit Risk	Mean	Median	Mode	Std. Dev.	Responses
2000	716.63	750.00	656.00	163.82	81
2001	756.72	774.00	769.00	132.77	93
2002	762.28	769.00	724.00	103.62	72
2003	704.95	772.00	361.00	171.55	20
2004	719.81	769.00	774.00	175.79	54
2005	699.53	753.00	549.00	173.54	47
2006	727.77	769.00	656.00	162.24	113
2007	749.02	769.00	724.00	135.02	159
2008	731.05	769.00	769.00	155.16	122
2009	734.71	769.00	656.00	146.64	155
2010	739.08	769.00	769.00	139.79	151
2011	728.28	758.50	549.00	149.95	72
Total	735.37	769.00	769.00	148.08	1139

Table 3.24 contains the credit risk assessment for the postcodes where each nursery or playgroup is located. A credit risk is found by considering 'bad' debts, county court judgments and late payments. It is heavily linked to credit scores, however, the measurements are far more precise than a credit score (measured on a scale of 0 to 1000 rather than 0-5, as a credit score would be). The results do, however, mirror those of the credit score results presented in table 3.24. The findings show no clear

pattern or trend over time but do suggest that childcare provision is more likely in financially affluent areas.

Table 3-25: Are information: affluence

Affluence	Frequency	Per cent	Cumulative Per cent
Low	88	7.7	7.7
Lower than Average	589	51.7	59.4
Average	194	17	76.5
Above Average	231	20.3	96.8
Amongst Most Affluent	37	3.2	100
Total	1139	100	

Table 3.25 contains the results of the overall measurement of affluence. This takes into account credit scores but also average earnings. The results indicate that over 59% of care providers are located in a postcode which has lower than average affluence levels. Further, only 23.5% are recorded as being located in postcodes of higher than average levels affluence. This may suggest that the greatest demand for childcare in the form of nurseries and playgroups is in less affluent areas where more children are likely to reside in dual income families. As such, families in these areas rely on childcare in order to earn enough money, creating a big demand for childcare providers.

Given the lower than average income of childcare workers it could also be the case that less affluent postcodes have cheaper property costs. This is attractive to care providers as low property costs reduce overheads and increase the chance of making a profit or paying staff more to reduce turnover rates.

Table 3-26: Affluence over time

Affluence	Mean	Median	Mode	Std. Dev.	Responses
2000	2.58	2.00	2.00	1.04	81
2001	2.69	2.00	2.00	1.04	93
2002	2.63	2.00	3.00	0.98	72
2003	2.50	2.00	2.00	0.76	20
2004	2.50	2.00	2.00	0.91	54
2005	2.74	2.00	2.00	1.05	47
2006	2.65	2.00	2.0	1.01	113
2007	2.60	2.00	2.00	0.99	159
2008	2.58	2.00	2.00	1.03	122
2009	2.59	2.00	2.00	1.05	155
2010	2.54	2.00	2.00	0.96	151
2011	2.50	2.00	2.00	0.98	72
Total	2.60	2.00	2.00	1.00	1139

Table 3.26 shows the average and variance of affluence level by year for the observations in the sample. Despite fluctuations in the mean levels of affluence and the variation of these levels, there is no obvious pattern to the results suggesting a lack of a significant positive or negative association between affluence and time.

Correlation Results

Characteristics of Nurseries

To confirm if the characteristic of the location in which nurseries or playgroups are found is associated with the characteristics of the nursery or playgroup, a correlation was conducted. The results are presented in table 3.27.

Table 3-27: Correlation results: Affluence by nursery characteristics

		Year	Number of Children	Age Range	Change in Leader	No. Inspections
Affluence	p	-0.029	0.029	-0.091**	0.023	0.029
	Sig. 2-tailed	0.336	0.323	0.002	0.446	0.336
	N	1139	1139	1139	1139	1139

**. Correlation is significant at the 0.01 level (2-tailed)

*. Correlation is significant at the 0.05 level (2-tailed)

The results show that there is a significant negative association between affluence and the age range covered by a nursery or playgroup. This suggests that the nurseries or playgroups in affluent areas are more likely to provide care for children of a concentrated age range. Those nurseries or playgroups in less affluent areas are more likely to care for children of various ages. The results show no other significant associations.

In all the characteristics of the location of the nursery or playgroup they are not shown to be particularly significant with the characteristics of the care provider.

There are some significant associations between the location characteristic and the quality of care provided. However, these associations are not as prevalent or significant as the correlation results concerning the characteristics of the nurseries or playgroups.

Measures of Quality

In order to confirm if the characteristics of the location of a nursery are associated with each measure of quality a correlation was conducted. The results are presented below.

Table 3-28: Correlation results: Quality by affluence

		Learning Standards	Behaviour of Children	Standard of Care	Quality of Provision	Quality of Leadership/Management
Affluence	p	0.061*	0.033	-0.023	0.010	-0.019
	Sig. 2-tailed	0.039	0.270	0.428	0.744	0.521
	N	1139	1139	1139	1139	1139

**. Correlation is significant at the 0.01 level (2-tailed)

*. Correlation is significant at the 0.05 level (2-tailed)

Table 3.28 contains the results of a correlation analysis between the characteristics of the location of the nursery or playgroup, and the different measures of quality. There is a significant positive association of the affluence of an area and the average observed learning standards. The result implies that the higher the recorded affluence, the higher the learning standards are likely to be.

t-Test Results

The results from the t-tests concerning significant differences in where the nurseries are located are presented in table 3.29.

Table 3-29: T-test results: Licensing by affluence

Characteristics of Location		N	Mean	Difference in Mean	t	Sig. (2-tailed)
Affluence	Pre-Licensing	367	2.6240	-0.04108	-0.649	0.517
	Post-Licensing	772	2.5829			

**. Difference in mean is significant at the 0.01 level

*. Difference in mean is significant at the 0.05 level

The results in the table above show that there is no significant change in the affluence of the postcode where nurseries are located.

3.3.4 Regression Results

As significant changes are found in the mean scores of quality since licensing came into effect, further investigation into the relationship between licensing and quality was justified. In order not to inflate the impact licensing has on quality, control variables were added to the regression analysis. As both the characteristics of the nursery and the affluence (credit score and affluence are too heavily correlated with one another for both be included) of the area are found to be associated with quality, these variables were included.

The results of the regression conducted for each measure of quality are presented in turn below.

Learning Standards

Table 3-30: Regression results: Impact of licensing on learning standards (no controls)

	Beta	Sig.
Licensing	0.229*	0.000
R-Squared		0.030
R-Squared Adjusted		0.029
N		1139

**. Beta is significant at the 0.01 level

*. Beta is significant at the 0.05 level

The regression results presented in table 3.30 show that when only the licensing variable is included in the analysis, it has a significant positive relationship. However, when the control variables are added into the analysis, the significance and magnitude of the relationship is depleted.

Table 3-31: Regression results: Impact of licensing on learning standards (with controls)

	Beta	Sig.
Licensing	0.024	0.766
Year	0.015	0.277
No. Inspection	0.124**	0.002
Change in Provision Leader	-0.156**	0.001
Age Range	0.015*	0.464
Single Sex	0.055	0.857

	Beta	Sig.
No. Children	0.001**	0.134
Affluence	0.039*	0.033
R-Squared		0.062
R-Squared Adjusted		0.055
N		1139

**. Beta is significant at the 0.01 level

*. Beta is significant at the 0.05 level

The results presented in table 3.31 are the regression results when all the control variables are included. The results show that once the other variables are included there is no significant relationship between licensing and learning standards. As a result, the hypothesis that licensing will increase learning standards is rejected.

The results indicate that there is a significant positive relationship between the number of previous inspections a nursery has had and its score for learning standards. This means the more inspections a nursery has, the higher the learning standards tend to be. There is also a significant positive relationship between the age range of children and learning standards. This means the greater the range of ages covered by the provider, the higher their score for learning standards is likely to be. In addition there is a significant relationship shown between the number of children on roll and the learning standards scores. As a consequence, larger nurseries can be expected to receive higher learning standards scores.

There is also a significantly positive relationship between the affluence of the area in which a nursery is located and its learning scores. The more affluent the postcode the higher the scores are likely to be.

A significant negative relationship is found between a change in provider leader and learning standards. This suggests that, on average, where the leader of a nursery

changes between inspections, the scores for learning standards fall in the subsequent inspection.

In summary there is no significant relationship between licensing and learning standards once the control variables are included in the model. There are however, significant relationships between some of the control variables and learning standards scores.

Behaviour of Children

**Table 3-32: Regression results: Impact of licensing on behaviour of children
(no controls)**

	Beta	Sig.
Licensing	0.112**	0.001
R-Squared		0.010
R-Squared Adjusted		0.009
N		1139

**. Beta is significant at the 0.01 level

*. Beta is significant at the 0.05 level

The regression results presented in table 3.32 show that when only the licensing variable is included in the analysis, it has a significant positive relationship. When the control variables are added, the magnitude of the relationship and its significance changes.

**Table 3-33: Regression results: Impact of licensing on behaviour of children
(with controls)**

	Beta	Sig.
Licensing	0.356**	0.000
Year	-0.075**	0.000
No. Inspection	0.206**	0.000
Change in Provision Leader	-0.091*	0.018
Age Range	-0.008	0.652
Single Sex	-0.161	0.531
No. Children	0.001**	0.005
Affluence	0.008	0.606
R-Squared	0.061	
R-Squared Adjusted	0.055	
N	1139	

**. Beta is significant at the 0.01 level

*. Beta is significant at the 0.05 level

Table 3.33 contains the results from the regression analysis containing the licensing variable and all other control variables. The results indicate a significant positive relationship between licensing and the observed behaviour of children. Despite the inclusion of the control variables, the magnitude of their relationship increases in the second model. This may be because of the significant negative associations found between some of the control variables and observed behaviour scores. As a consequence of the results, the hypothesis that licensing will improve the behaviour of children is accepted.

A significant negative relationship is found between the year and behaviour scores. This suggests that over time the average scores for behaviour are decreasing. There is also a significant negative relationship found between a change in provision leader and observed behaviour. This suggests that where a leader has changed since the last inspection, the observed behaviour of the children worsens. However, a significant positive relationship is found between the number of children on roll and the observed behaviour. This means that the larger the nursery, the more positive the observed behaviour is.

In summary, licensing is shown to have a significant positive relationship with observed behaviour scores even once control variables are added. There are also some significant relationships, both positive and negative, between nursery characteristics and observed behaviour.

Standard of Care

Table 3-34: Regression results: Impact of licensing on standard of care (no controls)

	Beta	Sig.
Licensing	0.114**	0.001
R-Squared		0.009
R-Squared Adjusted		0.047
N		1139

**. Beta is significant at the 0.01 level

*. Beta is significant at the 0.05 level

The regression results presented in table 3.34 show that when the licensing variable only is included in the analysis, it has a significant positive relationship. The relationship remains significantly positive even when control variables are included in the model.

Table 3-35: Regression results: Impact of licensing on standard of care (with controls)

	Beta	Sig.
Licensing	0.367**	0.000
Year	-0.055**	0.000
No. Inspection	0.102**	0.005
Change in Provision Leader	-0.107**	0.009
Age Range	-0.031	0.097
Single Sex	-0.333	0.220
No. Children	0.002**	0.000
Affluence	-0.020	0.227
R-Squared	0.047	
R-Squared Adjusted	0.040	
N	1139	

**. Beta is significant at the 0.01 level

*. Beta is significant at the 0.05 level

Table 3.35 contains the results from the regression model that included the licensing variable and all other control variables. Licensing is shown to maintain a significantly positive relationship with the standard of care score. In fact, the magnitude of the association increases once the control variables are added. This might be caused by the significant negative relationship some nursery characteristics have on the standard of care provided. As a consequence of the results, the hypothesis that licensing will increase the standard of care is accepted.

There is a significantly negative relationship found between the year and the standard of care. This suggests that over time the standard of care is decreasing. Similarly there is a significantly negative relationship between changing the provision leader and the standard of care. This means that the average observed standard of care is reduced when a provider leader has changed since the previous inspection. However, a significantly positive relationship is found between the number of children and the observed standard of care. This means that the larger the nursery is, in terms of children on roll, the greater the average scores for standard of care are likely to be.

In summary, licensing is shown to have a significant positive relationship with observed standards of care scores even once control variables are added. There are also some significant relationships, both positive and negative, between nursery characteristics and standards of care.

Quality of Provision

Table 3-36: Regression results: Impact of licensing on quality of provision (no controls)

	Beta	Sig.
Licensing	0.101**	0.004
R-Squared		0.007
R-Squared Adjusted		0.006
N		1139

**. Beta is significant at the 0.01 level

*. Beta is significant at the 0.05 level

The regression results presented in table 3.36 show that when only the licensing variable is included in the analysis, it has a significant positive relationship. When the control variables are added, the magnitude of the relationship and its significance, changes.

**Table 3-37: Regression results: Impact of licensing on quality of provision
(with controls)**

	Beta	Sig.
Licensing	0.311**	0.000
Year	-0.060**	0.000
No. Inspection	0.186**	0.000
Change in Provision Leader	-0.212**	0.000
Age Range	-0.006	0.762
Single Sex	-0.234	0.386
No. Children	0.002**	0.000
Affluence	-0.001	0.931
R-Squared	0.064	
R-Squared Adjusted	0.057	
N	1139	

**. Beta is significant at the 0.01 level

*. Beta is significant at the 0.05 level

Table 3.37 contains the regression results for the model where licensing and all control variables are included. The results show that the relationship between licensing and the quality of provision have remained significantly positive. Overall, the magnitude of the relationship has increased with the inclusion of the control variables. As a consequence of the results, the hypothesis that licensing will increase the quality of provision is accepted.

However, some significantly negative relationships are found between some of the characteristics of the nurseries and the quality of provision. There is a significantly negative relationship between the year and the quality of provision. This suggests that over time the quality of provision is decreasing. There is also a significantly negative relationship between change in provision leader and quality of provision. As a result, if a leader changes after an inspection, then the scores relating to quality of provision are likely to be less in the subsequent report.

There is a significantly positive relationship found between the number of children on roll and the quality of provision. This suggests that the larger the nursery, in terms of children, the greater the quality of provision.

In summary, licensing is shown to have a significant positive relationship with observed quality of provision scores even once control variables are added. There are also some significant relationships, both positive and negative, between nursery characteristics and quality of provision.

Quality of Leadership/Management

Table 3-38: Regression results: Impact of licensing on quality of leadership/management (no controls)

	Beta	Sig.
Licensing	0.031	0.378
R-Squared		0.001
R-Squared Adjusted		0.000
N		1139

**. Beta is significant at the 0.01 level

*. Beta is significant at the 0.05 level

When only licensing is included in the regression, there is shown to be no significant relationship between licensing and the quality of leadership and management. However, when the control variables are added, a significant positive relationship is found.

Table 3-39: Regression results: Impact of licensing on quality of leadership/management (with controls)

	Beta	Sig.
Licensing	0.175*	0.017
Year	-0.053**	0.000
No. Inspection	0.191**	0.000
Change in Provision Leader	-0.176**	0.000
Age Range	0.005	0.809
Single Sex	-0.148	0.590
No. Children	0.002**	0.000
Affluence	-0.018	0.277
R-Squared	0.048	
R-Squared Adjusted	0.041	
N	1139	

**. Beta is significant at the 0.01 level

*. Beta is significant at the 0.05 level

Table 3.39 contains the results from a regression analysis where licensing and all other control variables are included. The results show that licensing has a significantly positive association with the quality of leadership and management;

licensing increased the quality. However, there are more significant relationships found between some of the control variables and the quality of leadership and management. As a consequence of the results, the hypothesis that licensing will improve the quality of leadership and management is accepted.

There is a significantly positive relationship between the number of children on roll and the quality of leadership and management. This means that larger nurseries, in terms of number of children, have higher mean scores for quality of leadership and management. However, there is a significantly negative relationship between the year and quality of leadership and management. This suggests that quality is decreasing over time. A significantly negative relationship is also found between a change in provision leader and quality of leadership and management. This implies that if a provision leader changes after an Ofsted inspection the scores on the next report are reduced.

In summary, licensing is shown to have a significant positive relationship, (once control variables are added), with observed quality of leadership and management. There are also some significant relationships, both positive and negative, between nursery characteristics and quality of leadership and management.

3.3.5 Summary

The results from the various regression analyses indicate many significant relationships between licensing and control variables, with the different measures of quality. The findings are summarised in table 3.40 below.

Table 3-40: Summary of results

Significant Relationships	Learning Standards	Behaviour of Children	Standard of Care	Quality of Provision	Quality of Leadership/Management
Licensing		+	+	+	+*
Year		-	-	-	-
No. Inspection	+	+	+	+	+
Change in Provision Leader	-	-*	-	-	-
Age Range	+*				
Single Sex					
No. Children	+	+	+	+	+
Affluence	+*				

* Only significant at the 0.05 level, all others are significant at the 0.01 level

As can be observed from the above table some of the variables have a significant relationship across many of the measures of quality.

Licensing, the variable of interest in this investigation, is shown to have a significantly positive association with all of the quality measures apart from learning standards. The relationship with the quality of leadership and management is shown to be significantly positive but only at the 0.05 level. The results therefore, confirm the following hypotheses:

H_{1a} : Licensing of nursery workers increase the quality of provision

H_{1b} : Licensing of nursery workers improves the behaviour of children

H_{1c} : Licensing of nursery workers increases the quality of leadership/management

H_{1d} : Licensing of nursery workers increases the quality of caring

Therefore, there is strong evidence to suggest that licensing has a positive impact on the quality of childcare.

R-Squared

In an ideal data set one could control for many factors that impact upon the observed quality of childcare. From the interviews conducted with nursery leaders and head teachers, it became clear that the quality of home life is very important in a child's development and behavior. Good parenting, resources and safety were stated as being of particular importance. The measure of affluence is used in the analysis to act as a proxy measure of some of these factors. However, the proxy is not an ideal measure of good parenting or how content and safe a child feels. This is likely to be why the R-squares are so low. However, given the restricted data that is available the variables included are as detailed and inclusive as possible.

3.4 Discussion

The aim of this paper is to assess the impact of licensing nursery workers on the quality of childcare. The measures of quality were derived from the aims of the Childcare Act 2006 and the core units of the compulsory training course all workers must attend and pass if they wish to become licensed. The measures of quality are as follows:

1. Quality of provision

2. Behaviour of children
3. Quality of leadership and management
4. Standard of caring
5. Learning standards

Data on the measures of quality were derived from Ofsted reports dating from 2000 to 2011. As licensing came into effect in response to the Childcare Act 2006, the data gives quality measures both before and after licensing was introduced. Whilst investigating the relationship between the measures of quality and licensing, other factors that may impact upon the quality of childcare were included in the analysis. Control variables were used to prevent the relationship between licensing and each measure of quality becoming exaggerated. The control variables used, consisted of internal characteristics of the nursery and characteristics of the location of the nursery. The variables included were formulated in response to interviews with head teachers and nursery leaders. The interviewees were asked what other factors, beyond the quality of nursery workers, would increase the quality of childcare. Their most common answers formed the basis of the control variables.

The results concerning each of the measures of quality are discussed below.

3.4.1 Quality of Provision

This measure of quality was derived from the Act's aim to ensure children's social and economic well-being. Licensing aims to meet this by requiring applicants to attend and pass a training unit entitled 'Reflect on and develop practice'. The course trains applicants in understanding the importance of developing and progressing their practice so that minimum standards of quality can be met and improved upon. The quality of provision measures a nursery's ability to observe, critique and develop their practices.

Licensing is shown by the results to have a significant positive relationship to the quality of the provision. This would suggest that, through licensing, the Childcare Act 2006 has achieved its aim to increase the quality of provision and raise the

development of nursery schools. As a result this suggests that licensing is rebalancing the knowledge asymmetry (Leland 1979). This is because licensing is a signal, which consumers can understand, which ensures a good level of quality for childcare. This fully supports the premise that training has a positive effect on quality levels in childcare (Tanner *et al.* 2006).

The quality of provision was shown to be declining over time. There is a significant negative association between the year and the quality of provision. This could be the result of inspectors becoming less forgiving the more nurseries they inspect or it may be a general downward trend as a result of lack of resources or continuous training. There is a significant positive association found between the number of children on roll and the quality of provision. This might occur because the more children that are present, the greater the revenues and as a result, the more resources available to the nursery and the children.

3.4.2 Behaviour of Children

Measuring quality by the behaviour of children is in response to the aims of the Childcare Act 2006 to ensure children and nurseries contribute to society in a positive way. The emotional control learned in the early years is key because it is the most influential period of a child's emotional development (Stroufe 1997). Further, in our early years, the way in which we learn how to respond appropriately predicts how we will respond throughout our lives (Corsaro 1985).

The compulsory unit in protecting and promoting children's rights realises the aim. The training course teaches the importance of nursery workers in detecting underlying issues with children. Such detection is achieved through observing children's behaviour. If the behaviour of a child causes concern or is unruly, nursery workers should endeavour to alter this pattern. If the behaviour cannot be controlled, then consultation should be sought from experts such as social services.

Licensing is shown by the results to have a significant positive relationship with the behaviour of children. This would indicate that through licensing the Act has

achieved its aim of ensuring a positive contribution to society. Further, the results suggest that issues of moral order surrounding childcare (Mooney and Munton 1997) are being addressed through licensing. This adds to the notion that childcare can be a taught profession and enforces the idea that licensing can have a positive effect on society in general. This is because the behaviour of infants is indicative of the behaviour of future adults and their contribution to society. If licensing improves behaviour of infants it may continue to have a positive impact in the future.

Beyond licensing and its positive impact on behaviour, the number of children on roll also has a significant positive impact. This might be the case because children are shown to learn better in larger groups, so perhaps learning standards also extend to learning socially acceptable behaviour. What is concerning is the significant negative association found between behaviour and time. This finding would suggest that over time the behaviour of children is worsening. This would mean that every generation is behaving worse than the previous. However, licensing and more extensive education of nursery workers could possibly slow the decline in standards of behaviour.

3.4.3 Quality of Leadership and Management

The quality of leadership and management is particularly important in meeting the Act's aim of protecting children from harm and neglect. Neglect is of particular importance because it is heavily linked with socialisation, behaviour and emotional development (Kotch *et al.* 2008). The importance of developing and maintaining a healthy, safe and secure environment for children is highlighted by the compulsory training course containing a specific core module in the area.

The results conclude that licensing is significantly positively related to the quality of leadership and management. This would suggest that the availability of healthy, safe and secure environments have increased as a result of licensing. As the skills of nursery workers have appeared to increase as a result of licensing, licensing may have rebalanced the paradox of skill levels between childcare managers and their customers (Cameron *et al.* 2002). This is, however, contrary to Angrist and Guryan

(2008) who find that standardising training reduces the quality of individuals entering into the education sector.

However, change of leadership is consistently negatively associated with quality. There are two main explanations for this: first, where there is a change in leadership the new leader has a settling in period, which may result in a drop in quality. This may occur because within the nursery sector nursery leaders are usually recruited externally; therefore they do not know the children, staff or children's parents. This results in initial conflict and unrest within the nursery. The other disadvantage of having a new leader is that they are not privy to all of the background and historical information gathered at the last inspection. Second, a reverse effect may be seen. If a nursery is seen to be declining in quality the leader may be replaced assuming that this is the root of the problem. If this assumption is wrong the nursery will continue to perform badly because of other factors.

3.4.4 Caring Standards

The quality of caring provided by nursery school workers is associated with the Act's aim to ensure the physical and mental, and emotional well-being of children. The quality of care-giving is one of the key components in development (Mustard 2006). This aim is of such importance that the compulsory training course contains a core unit solely covering the development and promotion of positive relationships between nursery workers and children, but also children and the wider community. It is through providing a good quality of care that such relationships can materialise.

Licensing is shown to have a significant positive relationship with care standards. This indicates that the development and promotion of positive relationships has increased since licensing was implemented. Such a finding also refutes the claim that training cannot enforce the mothering aspect of childcare (Mooney and Munton 1997). Though it may suggest that it is possible for childcare to be separated into a series of instrumental tasks that can be improved through increasing functional knowledge (Cameron and Boddy 2006). If this is the case then the perception of childcare as a natural extension of one's caring nature which requires no specialist

knowledge or training is incorrect. Childcare is shown to act as any other profession where training results in higher quality.

If the quality of care is indicative of the frequency of accidents within a nursery then the findings also support Currie and Hotz (2004). Their study finds that regulation of childcare workers in the US reduces the number of accidents and injuries involving young children. However, the results did show that standards of care were decreasing significantly over time.

The number of children on roll was found to have a significant positive association with standards of care. Therefore, the greater the number of children, the better the care is likely to be. This might be as a result of a requirement to have more licensed members of staff present the more children there are, as per the ratio requirements of the EYFS. It might also be the case that the more children a nursery has, the greater the income and the more resources available.

3.4.5 Learning Standards

Learning standards cover the quality of education, training and recreation provided through childcare. One of the Act's main aims is to ensure quality in such areas - so much so that one of the core modules that must be attended and passed in order to become licensed focuses solely on promoting children's development. Development, both academic and otherwise, in the early years is shown to be very important because it can affect how someone will succeed throughout the rest of their lives (Kotch *et al.* 2008). Beyond mental implications there are also physical impacts with regard to brain pathways, which form in response to early years' experiences (Mustard 2006).

Licensing is shown to have no significant relationship with learning standards. This would indicate that the Act and subsequent licensing has not achieved its aim to improve the training, education and recreation of children. This in turn suggests that there have been no significant improvements in children's developments as a result of licensing. Although the findings show that no improvement is found, they do

contradict Bergma and Toma's (1994) findings which are that, when teachers are regulated the SAT scores of children reduces. Therefore, whilst learning standards have not increased, at least they are no lower as a result of licensing.

Interestingly learning standards are shown to have a significant relationship with the number of children in the nursery. This is counter to many commonly held beliefs about the best learning occurring in small groups of children. Perhaps it is the case that in the early years, learning takes place best when children are in a larger groups rather than in more concentrated one to one situations. This might suggest that early years education is different to the compulsory education system. If this is the case, then one might question how appropriate it is to have the same inspecting body covering both early years and compulsory education. If this is a valid concern, then the reliability of the data used in the analysis is in question.

Learning standards are also significantly related to the affluence of an area in which a nursery is located. This suggests that affluence of parents is far more significant than the licensing of nursery workers. Perhaps in relation to learning standards, the quality of learning is extrinsic to the nursery setting. Learning is significantly affected by a child's home environment, so there is little training nursery workers can do to improve standards.

3.4.6 Summary

As significant positive relationships are found between licensing and four of the measures of quality, the results suggest that licensing has improved overall quality levels of childcare. Such a finding supports other research based in the education sector. Currie and Hotz (2004) also find a positive association between licensing and reducing the levels of accidents and fatal injuries in young children.

Where the analysis in this paper differs from previous research is the way in which quality is measured. The measurements of quality used are derived directly from the Childcare Act 2006 and the core modules required from the licensing. As such, this analysis has tested exactly what the licensing was intended to achieve, rather than

secondary effects such as exam results or more qualified staff. This is important because if the analysis was concerned with other measures of quality, not specifically mentioned in the Act, then different results may have been found. Therefore, one of the key limitations of the results is that they only present evidence relating to the measures Ofsted deems indicative of quality childcare.

The suggestion that licensing does have a positive effect on the quality of childcare is an important finding with regards to wider society. Early years care is shown to have significant effects on the well-being of children and their development (Mustard 2006). However, wider societal effects may be felt as a consequence of poor childcare. If childcare is not of a good quality then there is likely to be fewer parents willing to enrol their children. As a result there may be fewer women in the labour market because they remain unemployed to raise their children; given women are usually the primary carers of young children (Mooney and Munton 1997).

In addition, if childcare quality is low, then the perception of nursery workers will remain low. Therefore, fewer women (or men) are likely to want to work within the sector because it will not be regarded as a true profession (Osgood 2010). This may reduce the number of women in the labour market because nursery work is a female-dominated occupation (Greer 2009). The take up rate of childcare would also reduce, as confidence in the service decreases.

Therefore, if licensing is shown to increase the quality of childcare it is also shown to reduce the negative effects of poor childcare on society. Hence licensing is shown to reduce the costs to society borne from poor practitioners. This complies with Moore's (1961) argument as to how licensing can be concluded to be within the public interest.

Yet there are some areas of concern. First there is a significantly negative association between the year and measure of quality. This would suggest that over time the quality of childcare is decreasing. If licensing is to correct this, then it may be necessary to enforce compulsory top up and continuous training for nursery workers which could prevent complacency and outdated procedures. Second, the affluence in

a nursery's location is more significant than the licensing of nursery workers. This is concerning because licensing is failing to result in a standardisation of ability levels for children when they enter into full time education. It may be beyond licensing to reduce the differences in children's backgrounds, but it does suggest that there needs to be greater research into how to improve the learning for less affluent children. This is crucial if polarisation of learning between the affluent and poor is to cease. Third, every measure of quality is significantly positively related to the number of inspections a nursery has experienced. This may be because the nurseries are putting into practice the recommendations of the inspectors and are improving as a result. However, it might also be the case that the more inspections undertaken, the better managers understand what indicators an inspector looks for, and so the easier it is to portray higher quality than is actually being provided. If the latter is true then the reliability of the inspectors' reports might not be as high as first imagined. However, it is unlikely that a nursery could fool an inspector to a great degree, especially given the short notice periods given for a visit.

On balance, licensing is shown to have a positive impact on quality. However, in order for this to remain the case, enforcing continuous training for nursery staff and ensuring greater learning resources for less affluent areas may be necessary. These are both areas that warrant greater investigation given the importance early years education has for children, but also society as a whole.

Conclusion

Through this first investigation into occupational regulation in the UK, it is apparent that regulation is very prevalent with 189 occupations (out of 353) having regulation present, to some extent, within them. Licensing is shown to be the most prevalent form of regulation being present in 23% of occupation unit groups, and accreditation is the second most prevalent at 18% of unit groups. Certification is the third most prevalent at 6% and registration the least prevalent type of regulation, at 5% of unit groups. From the database constructed there are no obvious trends to the occupations covered by regulation; regulations appear across the spectrum of occupations. However, through observing the database, it is evident that each type of regulation has unique characteristics, and these now follow.

Licensing: is predominantly enforced by government agencies or regulatory bodies. It's almost always at least partly funded by the government and is very likely to be set up with the aim of protecting the public. Licences require a full spectrum of qualification levels from equivalent GCSEs up to postgraduate qualifications. Criminal Record Background (CRB) checks are also required by licensing far more than any other type of regulation.

Certification: is, like licensing, predominantly enforced by a government agency and is at least in part, government funded. Most certification requires qualifications equivalent to at least a degree. Out of all the types of regulation, certification requires the greatest levels of qualification. The main reason for their existence, as stated by certification schemes, is to protect the public.

Accreditation: is almost all enforced by professional bodies that are made up of industry experts. The schemes are also completely self-funded. The primary aim of accreditation schemes is to demonstrate competency to the public. It is rare that accreditation schemes require a CRB check but most require qualifications of at least A-level equivalency,

with many also require work experience from applicants. The main reason for accreditation is to enhance the professionalism of occupations.

Registration: is almost all enforced by a government agency, and is government funded. Given the nature, no levels of competency are required by registration. The main reason for registration, as stated by the enforcing bodies, is to protect the public.

After applying the regulation database to the Labour Force Survey (LFS) the prevalence of regulation could be determined at the individual level. The results showed that the upper bound estimate of regulation status was 60%, the lower bound estimate was 28%. This means that at least 28% of the working population is part of a regulated occupation. The results also show that more men work in regulated occupations than women, and fewer individuals from ethnic minorities work in regulated occupations. This was suggested to be as a result of reduced time in the labour market, job insecurity and language barriers (in the case of ethnic minorities), all of which reduce the chance of individuals recouping the costs of becoming regulated.

Impact

The application of the database to the LFS also allowed for the impact of regulation to be assessed. This is the first time an analysis involving all occupations and considering all types of regulation has been conducted. The results indicated that whilst there is a variation between different occupations with regard to the impact regulation has, overall regulation is shown to have a positive impact on both wages and skill levels.

The highest wage premiums are found where regulations have full coverage over occupation unit groups. Where this is the case, accreditation has the largest wage premium followed by certification, registration and licensing respectfully. Where regulation has partial coverage of an occupation unit group, the results are more

diverse. However, this indicates the need for improving data on regulation statuses rather than causing alarm.

With regard to skill levels, the greatest impacts are found where a regulation has complete coverage over an occupation unit group. Where this is the case, all regulations are shown to have a significant positive association with skill levels. The greatest impact is found with licensing, followed by certification, accreditation and registration respectfully. As is the case with the impact on wages, where regulations only have partial coverage, the results are far more diverse.

In order to assess the impact of regulation quality, an investigation into the effects licensing nursery workers has on the quality of childcare was conducted. The measures of quality were derived from the aims of the Childcare Act 2006 that led to the subsequent licensing of nursery workers. The data used were drawn from Ofsted inspector reports from 2000-2011. The results indicate that licensing has a significant positive impact on four of the five measures of quality used. This suggests that licensing has a significant impact on the quality of early years childcare. Although it is not possible to extrapolate such a finding to all types of regulation and all occupations, the investigation supports the theory that through controlling the quality of input, regulation can improve the quality of output.

Implications

As this is the first investigation into occupational regulation in the UK there are obvious contributions to the existing international literature surrounding the topic. However, in addition to contributing to the literature, the investigations conducted within this thesis have wider implications for other UK labour market institutions (such as trade unions) and wider policy implications.

Implications for Trade Unions

The closed shop in the UK is defined as the requirement to be part of a union in order to gain or maintain employment. There are two types of closed shop: pre-entry, where individuals have to be part of a union in order to be employed, and post-entry

where individuals have to agree to join the union once they are employed in order to get a job.

In a similar vein, occupational regulation (most notably licensing) aims to control the supply of labour through setting barriers to entry such as exams, fees or CRB checks. For the purpose of comparison, the closed shop will be considered in terms of licensing as they are the most similar in terms of labour restriction. Unlike the closed shop, licensing is enforced through legislation, and the reason for regulation is either to protect the public or because there is a vested interest for the workers to make their profession regulated. According to general theory (see page 40) there is only a need for licensing where there is a risk to public safety.

There are clear and fundamental differences between licensing and the closed shop. The closed shop is a union-led institution whose aim is to benefit its members. Licensing is a state-led scheme that is, theoretically, enforced to protect the public and not just to protect the interests of its members. Despite the aims of the two institutions being different, there are similarities. McCarthy (1964) argues that unionists feel the closed shop could achieve the following: first to reduce sporadic membership; second to ensure that working rules, disciplinary actions and strikes are complied with and; third, to reduce the chance of union workers being substituted with non-union workers. Through licensing, the government can exercise its power to coerce workers to restrict the entry into an occupation, to affect the use of complementary and substitution workers and to control the prices, and wages, of workers (Stigler 1974). The goals of the two institutions, therefore, appear to be very similar in that each is used to restrict entry to an occupation, stabilise the number of workers in a given occupation and control the substitutes and complements to union/regulated workers.

Yet how successful each institution is at achieving these goals is arguably what really matters. The closed shop is shown in various pieces of research (Blanchflower 1994, Brown and Wadhwani 1990, Greg and Yates 1991, Stewart 1987) to restrict supply and thereby increase wages. Unfortunately, the prevalence and impact of regulation in the UK has not been investigated to the same degree, so it is difficult to

conclude that licensing has the same effect as closed shops and trade union coverage. However, indicative research shows that licensing has a wage premium suggesting it may be effective at restricting supply (Humphris *et al.* 2010). Though in the US both licensing and unions are shown to result in a wage premium, only unionisation has the effect of significantly reducing wage variation (Kleiner and Kruegar 2011). This could enforce the notion that licensing is predominantly in place for the benefit of consumers and not necessarily practitioners. The closed shop has long ceased to exist in the UK but the presence of unions continues. Membership of a union is completely optional and can now no longer be enforced by employers or union officials. As such, unions can no longer restrict supply but can offer members legal protection and benefits from collective bargaining agreements focusing on pay and working conditions.

Licensing may offer an additional benefit over that of the closed shop or union membership; it is very rare that once an occupation becomes regulated it will become unregulated and as such, compared to a closed shop arrangement, licensing may offer a more secure occupational route (Kleiner 2000). This is the result of a key difference between licensing and union membership. When an individual moves workplace they need to re-join a union or enter a closed shop. This is not the case with licensing or other regulations that are attached to the individual worker and not the workplace or employer (Fossum 1999). As such, when an individual spends time, effort and resources obtaining a license, certificate, accreditation or joining a register it becomes permanently part of their human capital (as long as they maintain membership). This is not the case with union membership, which is external to the individual's locus of control.

Unions and licensing are not mutually exclusive. For example the BMA, a registered union, used to be responsible for the regulating of doctors (although this is now the responsibility of the GMC). As no in-depth research into the interaction of unions and occupational regulation in the UK currently exists, it is impossible to presume the effects with accuracy. However, research conducted in the US indicates that unionisation appears to increase the strength of licensing regimes although there is

little empirical evidence to support the claims that this enhances the outcomes of licensing schemes (Kleiner and Petree 1988).

Given the extent of research into unions and the closed shop it seems startling that an institutional actor so similar to unionisation should be neglected to such a degree. Occupational regulation should theoretically have many of the same effects as unionisation, and the closed shop, but because of the lack of research and mapping of such regulation in the UK it was previously impossible to conclude if regulation is as prevalent as unionisation or if its impact is as great. Yet, given how unionisation has shaped our labour market and employment relations into what we experience today, one would have expected regulation to have a similar effect. Indeed the results of the investigation conducted suggest that regulation is very prevalent and has a significant impact, not just on wages but also skill levels and, potentially, quality. Further, because regulation is still present in the labour market, any effects found can be extrapolated to predict future labour market behaviour. This is one of the reasons why it is imperative that regulation is mapped and investigated in the UK, and clearly indicates how the research has addressed a clear gap in the research into the UK labour market. Further, from the prevalence and impact regulation is shown to have through this research one could imply that resources would be better spent analysing regulation further rather than adding to the over saturated literature on trade unions.

Implications for Policy

The implications for policy resulting from this thesis hinge on the benefits and drawbacks of implementing regulation.

Benefits of Regulation

Occupational regulation has the potential to increase skill levels. Regulation can achieve this through setting barriers to entry that force entrants to attain a certain level of qualification. The results have shown support for this effect. This is particularly important given the current climate of skill miss-match and high unemployment in the UK.

As a result of increasing skill levels, regulation can increase the quality of output. This is based on the assumption that through increasing the quality of input (by increasing skill levels) the quality of output will also increase. Again, the results presented in paper three support such a claim within the childcare sector where licensing is shown to have a significantly positive impact on the quality of childcare available.

What is clear from the results is that regulation can have some significant benefits. However, these benefits vary in magnitude depending on the characteristics of the occupation and the type of regulation implemented. Certification, for example, is shown to have the biggest impact on skill levels, and registration is shown to have no effect. Therefore it is impossible to create an overarching statement that adequately describes the benefits drawn from regulation. Instead the complex regulation system in the UK lends itself to an equally complex range of implications.

Drawbacks of Regulation

Despite some significant benefits of regulation there are some potential drawbacks. As a result of setting barriers of entry and therefore limiting entrance, regulation may drive up wages and prices. This could result in consumers no longer being able or willing to pay for the practitioner or their services. This could be very harmful if the service in question is essential to consumers' well-being. The results show a significant positive wage differential associated with regulation. However, the impact on prices is not investigated. Therefore the results can only allude to such an effect.

Further to consumers' welfare, the social mobility of individuals may be negatively affected by regulation. The results show that there are significantly fewer women and individuals from ethnic minorities in regulated occupations. If this is purely as a result of the regulation, then the barriers to entry appear to be discriminating against certain proportions of society effecting the occupations they enter and the wages they earn. However, in order to make a firm conclusion as to the impact regulation has on mobility, further investigation is required.

Policy Decisions

The range of benefits and drawbacks resulting from regulation raise three important questions when considering policy:

1. Is there a case for regulation?
2. What type of regulation should be implemented?
3. Who will govern the regulation?

The most common case for regulation is the need to protect the public. The results have shown that this is almost exclusively the case for any form of legally enforced regulation. Different schemes are shown to be used depending on the extent to which the public may be harmed. Licensing and registration are most likely to be implemented when harm to the public is most likely and most costly. Certification is also heavily associated with public safety. Conversely, accreditation is more likely to be implemented to increase professionalism as opposed to concern over the public. As a result, when assessing if an occupation should be regulated and which type of regulation to implement, policy makers should assess the potential harm to the public that may result from poor practitioners and compare it to the cost of implementing and monitoring a regulation scheme.

Policy makers must also consider the governance of regulation. In legally enforced regulation covering both protection of title and function (licensing and registration) the enforcement body is at least partly funded by the government and is likely to be either a government department or a QUANGO. Where only a function is protected (certification) there are more cases of professional bodies being responsible for the governance of the regulation, but the dominant form is still a government department or a QUANGO. Only where there is no legal protection of title or function (accreditation) is a regulation exclusively governed by an independent professional body that is self-funded. As such, licensing, certification and registration all result in costs of implementation for the government, thus public money. Financially speaking, only when the cost of potential harm is greater than this cost should policy consider implementing any of these regulations.

Limitations of the Research

Although every effort has been made to ensure the data and analyses are robust, there are limitations.

Paper One: Prevalence

The presence of two estimates is the main weakness of the research. It is impossible to accurately compute a single figure that is representative of the presence of regulation in the UK because of the way in which occupations are coded. However, this is the most accurate approach that can be taken. Further, as this is the first initial investigation into all types of regulation, allowances for measurement error are inevitable and unavoidable until questions concerning regulation appear on national surveys. A further limitation to the analysis is the reliance on the enforcement bodies to give honest answers when interviewed, although every effort was taken to minimise false information by cross checking answers with regulatory documents.

Paper Two: Impact

The main limitation of this analysis is the unavoidable situation of two estimates relating to the prevalence of regulation. As explained in the first paper, two estimates occur because of the SOC classification system and because regulations are not always compulsory for every individual in regulated occupations. As there is no other way of determining an individual's regulation status other than applying the regulation database, there is nothing that can be done to remedy the situation.

A further limitation relates to the human capital variables included in the analysis. The variables, whilst extensively cover many aspects which impact upon wage and skill levels, are a finite list. In reality there are many more factors that can impact upon wage and skill levels, however the variables used are reflective of traditional labour economic models. In addition the measurement of skills may not capture every aspect of a skill. The NQF only approximates vocational and academic qualifications; some skills are not so easily quantified. Yet this is the most valid way in which to define skill levels in such a large sample.

Paper Three: Quality

Despite every effort to produce reliable and valid results, every analysis has limitations. Through using Ofsted reports spanning 10 years as the basis for the dataset, one would presume that every nursery must be present in the data. However, it is possible that some are missing. This may have occurred because the nurseries were not in existence long enough to require an Ofsted inspection or it may be because they started after 2008 and are not due their first inspection before 2011. As the population cannot be assumed to be included, one of the limitations of such an analysis is faced by any analysis using a sample; the results may not represent every nursery in the population.

An additional limitation is the process by which the control variables were defined. Whilst interviewing professionals with experience of providing childcare may be useful, the sample size is small at 15 and the respondents are likely to be very subjective because they are based on personal experience. However, as the majority of interviewees mentioned the same variables, the results would be suggestive of reliability.

The Ofsted inspection reports may also pose a problem. Although Ofsted accredits the compulsory training courses for nursery workers, and the reports focus on the EYFS, there may be issues with the reliability of the reports. First, the reports assess quality on a restrictive framework containing a 5-point scale. Therefore, the reports may not capture the full picture of the quality of a nursery school. Second, although a scale is used, the inspectors' perception of the nursery school will remain fairly subjective and heavily influenced by the quality of other nursery schools inspected. Third, the limited amount of questions within an Ofsted report may mean that not everyone's definition of quality in childcare is covered. However, as this investigation intends to assess the implications of licensing on a national level, there still is no other data on the quality of childcare over the period of 2000-2011. As a consequence despite potential issues with its reliability, Ofsted is the only valid option.

Future Research

Whilst this first investigation has been very beneficial in providing an important overview into occupational regulation the investigation has several limitations as noted above. As a result of these limitations, areas for future research have been highlighted.

First, the need for more accuracy when mapping regulation is required. As a consequence of the occupational coding system used, only bound estimates can be generated. One clear way of improving these estimates is to include specific questions relating to regulation in the national surveys such as the Labour Force Survey (LFS). Only by including these questions can the regulation status of all individuals be certain. Once the mapping is more accurate, the estimates relating to wage and skill differentials can be concluded with greater accuracy.

Second, the results alluded to the potential impact regulation has on the employment of women and ethnic minorities. Given the cross sectional data used and the rough estimates employed, the direction of the relationship and its significance cannot yet be determined. Through using longitudinal, data further investigation can be conducted to determine whether regulation is impacting upon the mobility of minority groups within the labour market.

Third, the results show that there is a positive association between licensing and quality of childcare. However, in order to make a universal conclusion as to the association between regulation and quality, more occupations must be assessed. Of all the occupations regulated, those who became regulated recently provide opportunities to conduct a pre and post regulation comparison of quality. Examples of such occupations include security guards, legal secretaries and brokers.

Bibliography

Abbott, A. (2002) 'Status and status strain in the professions', *American Journal of Sociology*, pp. 819-835. Akerlof, G. A. (1970) 'The market for' lemons': Quality uncertainty and the market mechanism,' *The Quarterly Journal of Economics*, pp. 488-500.

Alpin, C., Shackleton J. R. and Walsh, S. (1998) 'Over- and undereducation in the UK graduate labour market', *Studies in Higher Education*, 23(1) pp. 17-34.

Angrist, J. D. and Guryan, J. (2008) 'Does teacher testing raise teacher quality? Evidence from state certification requirements', *Economics of Education Review*, 27(5), pp. 483-503.

Auerbach, J. S. (1976) *Unequal justice: lawyers and social change in modern America*. New York: Oxford University Press.

Baarn, J. (2013) Regulated and non-regulated professions in the Netherlands. Presented at the European Union Commission, July.

Ballou, D. and Podgursky, M. (1998) 'Teacher Recruitment and Retention in Public and Private Schools', *Journal of Policy Analysis and Management*, 17(3), pp. 393-417.

Beesley, M. E. (1973) 'Regulation of taxis', *The Economic Journal*, 83 (329), pp. 150-172.

Benham, L. and Benham, A. 'Regulating through the professions: A perspective on information control.' *Journal of Law and Economics* 18(2), pp. 421-447.

Benham, L. (1972) 'Effect of Advertising on the Price of Eyeglasses', *The Journal of Labour and Economics*, 15, pp. 337-358.

Berger, M. C. and Toma, E. F. (1994) 'Variation in state education policies and effects on student performance', *Journal of Policy Analysis and Management*, 13(3), pp. 477-491.

Blackaby, D., Booth, A.L. and Jeff, F. 'Outside Offers and the Gender Pay Gap: Empirical Evidence From the UK Academic Labour Market, *The Economic Journal*, 115 (501), pp. 81-107.

Blanchflower, D. G. (1994) The wage curve - What makes an entrepreneur? Evidence on inheritance and capital constraints. Working Paper No. w3252. National Bureau of Economic Research: MIT press.

Blanchflower, D. and Bryson, A (2010) 'The wage impact of trade unions in the UK public and private sector', *Economica*, 77, pp. 92-109.

Bosworth, D. (1999) Empirical evidence of management skills in the UK. Sheffield: Department for Education and Employment (DfEE).

Bowman, W. R. and Mehay, S. L. (1998) 'Graduate education and employee performance: evidence from military personnel', *Economics of Education Review*, 18(4), pp. 453-463.

Brinegar, P. and Schmitt, K. (1992) 'State occupational and professional licensure', in American Legislators' Association. (ed.) *The Book of the States, 1992-1993*, Lexington: Council of State Governments, pp. 567-580.

Brown, W. H. (1905) 'The Popular Initiative as a Method of Legislation and Political Control', *American Journal of Sociology*, 10(6), pp. 713-749.

Brown, W. and Wadhwani, S. (1990) 'The economic effects of industrial relations legislation since 1979', *National Institute Economic Review*, 131(1), pp. 57-70.

Bryson, A. (1999) Are unions good for industrial relations? in R. Jowell, J. Curtice, A. Park and K. Thomson (eds.) *British Social Attitudes: the 16th Report*, Aldershot: Dartmouth.

Bryson, A. and Kleiner, M. M. (2010) 'The regulation of occupations', *British journal of industrial relations*, 48(4), pp. 670-675.

Buchner-Jeziorska, A. and Evertts, J. (1997) 'Regulating Professionals The Polish Example', *International Sociology*, 12(1), pp. 61-72.

Calder P. (1990) 'The training of nursery workers: the need for a new approach', *Children and Society*, 4, pp. 251-263.

Cameron, C. and Boddy, J (2006) 'Knowledge and Education for Care Workers: What

Do They Need to Know?', in Boddy, J. (ed.) *Care Work*. Oxford: Routledge, pp. 50–70.

Cameron, C., Mooney, A. and Moss, P. (2002) 'The child care workforce: current conditions and future directions', *Critical and Social Policy*, 22, p. 572.

Carlin, J. (1962) *Lawyers on Their Own: A Study of Individual Practitioners in Chicago*. New Brunswick, New Jersey: Rutgers University Press.

Carroll, S. L. and Gaston, R. J. (1983) 'Occupational licensing and the quality of service.' *Law and Human Behavior*, 7(2-3), pp. 139-146.

Carroll, S. L. and Gaston, R. J. (1981) 'Occupational restrictions and the quality of service received: some evidence', *Southern Economic Journal*, pp. 959-976.

Clark, J. (1936) Preface to *Social Economics* 99. University of Michigan: A. M. Kelley.

Cooke, P., Cockrill, A., Scott, P., Fitz, J. and Davies, B. (2000) 'Working and learning in Britain and Germany: findings of a regional study', in Coffield, F. (ed.) *Differing Visions of a Learning Society: Research Findings Volume 1*. Bristol: The Policy Press, pp. 199- 230.

Corsaro, W. A. (1988) 'Peer culture in the preschool.' *Theory into Practice*, 27(1), pp. 19-24.

Corsaro, W. A. (1985) *Friendship and peer culture in the early years*. New York: Ablex Publishing.

Currie, J. and Hotz, V. J. (2004) 'Accidents will happen?: Unintentional childhood injuries and the effects of child care regulations', *Journal of Health Economics*, 23(1), pp. 25-59.

Demireva, N. and Kesler, C. (2011) 'The curse of inopportune transitions: The labour market behaviour of immigrants and natives in the UK', *International Journal of Comparative Sociology*, 52(4), pp. 306-326.

Dorsey, S. (1980) 'The occupational licensing queue', *The Journal of Human Resources*, 15(3), pp. 424-434.

Great Britain. Home Office (2003) The local labour market effects of immigration in the UK. Report 06/03 [Online]. Available at: <http://eprints.ucl.ac.uk/14331/1/14331.pdf> (Accessed: 09/09/2012).

Ekeland, I., Heckman, J. J, and Nesheim, L. (2002) 'Identifying hedonic models.' *The American Economic Review*, 92(2), pp. 304-309.

Eraut, M. (2009) 'Transfer of knowledge between education and workplace settings', in Rainbird, H., Fuller, A. & Munro, H. (eds), *Workplace learning in context*, London: Routledge, pp. 201-221.

'2.1 Transfer of knowledge between education and workplace settings', *Knowledge, Values and Educational Policy: A Critical Perspective*, 65.

Fernie, S. (2011) 'Occupational Licensing in the UK: The case of the private security industry', in Marsden, D. (ed.) *Employment in the Lean Years: Policy and prospects for the next decade*, Oxford University Press: Oxford, pp. 101-121.

Figgis, J., Alderson, A., Blackwell, A., Butorac, A., Mitchell, K. and Zubrick, A. (2001) *What convinces enterprises to value training and learning and what does not*. Adelaide: NCVER.

Hamermesh, D. (1994) *Economics of Work and Pay*. New York: Harper Collins.

Harminder, B., Seaman, P., and Zenou, Y. (2011) 'Job contact networks and the ethnic minorities.' *Labour Economics* 18(1), pp. 48-56.

Findlay, P., Findlay, J. and Stewart, R. (2009) 'The consequences of caring: skills, regulation and reward among early years workers', *Work, Employment and Society*, 23(3), pp. 422-441.

UK Commission for Employment and Skills (2011) *A review of occupational regulation and its impact*. Wath-Upon-Dearne: UKCES.

Fossum, J. (1999) *Labor Relations: Development, Structure, Process*. Boston: McGraw-Hill.

Frank, R. (1988) 'Bureaucratic Turfbuilding in a Rational World' *European Journal of Political Economy*, 4, pp. 65-75.

Friedman, M. (1962) *Capitalism and Freedom*. Chicago: University of Chicago Press.

Shilling, J. D. and Sirmam, C. F. (1988) 'The effects of occupational licensing on complaints against real estate agents', *Journal of Real Estate Research*, 3(2), pp. 1-9.

Gallick, E. C. and Sisk, D. E. (1987) 'Reconsideration of Taxi Regulation', *Journal of Economics and Organisations*, 3(1), pp. 117-128.

Gaumer, G. L. (1984) 'Regulating health professionals: a review of the empirical literature', *The Milbank Memorial Fund Quarterly. Health and Society*, pp. 380-416.

Gellhorn, W. (1976) 'The abuse of occupational licensing', *The University of Chicago Law Review*, pp. 6-27.

Gerhart, B. A. and Milkovich, G. T. (1989) 'Salaries, salary growth, and promotions of men and women in a large, private firm', *Pay equity: Empirical inquiries*, 23, pp. 23-43.

Gerhart, B. A., and Milkovich, G. T. (1989) 'Salaries, salary growth, and promotions of men and women in a large, private firm', In Michael, R.T., Hartmann, H.I. & O'Farrell, B (eds.), *Pay equity: Empirical inquiries*. Washington: National Academy Press, pp. 23-43.

Goldhaber, D. D. and Brewer, D. J. (2000) 'Does teacher certification matter? High school teacher certification status and student achievement', *Educational evaluation and policy analysis*, 22(2), pp. 129-145.

Gospel, H. and Lewis, P. (2010) Who cares about skills? The impact and limits of statutory regulation on qualifications and skills in social care, Oxford: SKOPE Research Paper, 89.

Gospel, H. F. and Thompson, M. (2003) The role and impact of the statutory framework for training in the social care sector, London: Department for Education and Skills.

Gray, A. (2006) *Upskilling through foundation skills: A literature review*. London: Department of Labour.

Green, F. and Ashton, D. (1992) 'Skill shortage and skill deficiency: a critique', *Work, Employment and Society*, 6(2), pp. 287-301.

Greener, I. (2008) *Healthcare in the UK: Continuity and Change*. Bristol: Policy Press.

Greener, I. (2009) 'Entrepreneurship and institution-building in the case of childminding', *Work Employment and Society*, 23, p. 305.

Greg, P. and Yates, A. (1991) 'Changes in Wage Setting Arrangements and Trade Union Presence in the 1980s', *British Journal of Industrial Relations*, 29, pp. 361-76.

Griffin, R. (1891) 'The Gresham Law', *The Economic Journal*, 1(2), pp. 304-306.

Grimshaw, D. and Rubery, J. (2007) *Undervaluing women's work*, Manchester: Equal Opportunities Commission.

Grugulis, I., Warhurst, C. and Keep, E. (2004) *What's happening to 'skill'?* New York: Palgrave Macmillan.

Harkness, S. and Machin, S. (1999) *Graduate earnings in Britain, 1974-95*, London: Department for Education and Employment.

Haskel, J. and Martin, C. (2001) 'Technology, wages, and skill shortages: evidence from UK micro data', *Oxford Economic Papers*, 53(4), pp. 642-658.

Hochschild, A. R. (1979) 'Emotion work, feeling rules, and social structure', *American journal of Sociology*, pp. 551-575.

Hogan, D. B. (1983) 'The effectiveness of licensing', *Law and Human Behavior*, 7(2), pp. 117-138.

Holen, A. (1965) 'Effects of professional licensing arrangements on interstate labor mobility and resource allocation', *The Journal of Political Economy*, 73(5), pp. 492-498.

Holen, A. (1977) 'The Economics of Dental Licensing', *Public Research Institute of the Center for Naval Analysis*, Virginia.

Howitt, H. (1984) *The History of the Institute of Chartered Accountants in England and Wales, 1870-1965*. New York: Garland Publishing.

Humphris, A., Kleiner, M. and Koumenta, M. (2011) 'Analysing Policies Regulating Occupations in Britain and the US', in Marsden, D., (ed.) *Employment in the Lean*

Years: Policy and prospects for the next decade, Oxford University Press: Oxford, pp. 87-101.

Hutton, W. (1996) The State We're In. London: Vintage.

Hyland, T. (1994) Competence, education and NVQs: Dissenting perspectives. London: Cassell.

Irwin, R. S. and Richardson, N. D. (2006) 'Patient-Focused Care Using the Right Tools', CHEST Journal, 130 (1_suppl), pp. 73S-82S.

Kane, T. J., Rockoff, J. E. and Staiger, D. O. (2008) 'What does certification tell us about teacher effectiveness? Evidence from New York City', Economics of Education Review, 27(6), pp. 615-631.

Kleiner, M. M. (2000) 'Occupational licensing', The Journal of Economic Perspectives, 14(4), pp. 189-202.

Kleiner, M. M. (2006) Licensing occupations: Ensuring quality or restricting competition? Kalamazoo: Upjohn Institute for Employment Research.

Kleiner, M. M. (2006) Licensing occupations. Kalamazoo: Upjohn Institute for Employment Research.

Kleiner, M. M. and Krueger, A. B. (2009) Analyzing the extent and influence of occupational licensing on the labor market (No. w14979), Cambridge: National Bureau of Economic Research.

Kleiner, M. M. and Krueger, A. B. (2010) 'The prevalence and effects of occupational licensing', British Journal of Industrial Relations, 48(4), pp. 676-687.

Kleiner, M. M. and Kudrle, R. T. (1992) Do tougher licensing provisions limit occupational entry? The case of dentistry (No. w3984), Cambridge: National Bureau of Economic Research.

Kleiner, M. M. and Kudrle, R. T. (1997) Does regulation affect economic outcomes?: The case of dentistry (No. w5869), Cambridge: National Bureau of Economic Research.

Kleiner, M. M. and Petree, D. L. (1988) 'Unionism and licensing of public school teachers: Impact on wages and educational output', In Freeman, R. (ed.) When public sector workers unionize, Chicago: University of Chicago Press, pp. 305-322.

Kleiner, M. and Kudrle, R (2000) 'Does Regulation Affect Economic Outcomes? The case of dentistry', *The Journal of Law and Economics*, 43(2), pp. 547-582

Kleiner, M. M. and Todd, R. M. (2007) Mortgage Broker Regulations That Matter: Analyzing Earnings, Employment, and Outcomes for Consumers (No. w13684), Cambridge: National Bureau of Economic Research.

Kotch, J. B., Lewis, T., Hussey, J. M., English, D., Thompson, R., Litrownik, A. J. and Dubowitz, H. (2008) 'Importance of early neglect for childhood aggression', *Pediatrics*, 121(4), pp. 725-731.

Lacroix, G. (2013) 'Regulation of professions in France'. Presented at the EU commission July 2013.

Larson, M.S. (1977) The Rise of Professionalism: A Sociological Analysis, University of California Press: Berkeley, CA.

Lee, T.A. (1995) 'Shaping the US academic accounting research profession: the American Accounting Association and the social construction of a professional élite', *Critical Perspectives on Accounting*, 6(3), pp. 241-66.

Leland, H. (1979) 'Quacks, Lemons, and Licensing, A Theory of Minimum Quality Standards', *Journal of Political Economy*, 87(6), pp. 1328- 1346.

Lister, S., Hadfield, P., Hobbs, D. and Winlow, S. (2001) 'Occupational Licensing', *Criminology and Criminal Justice*, 1(4), pp. 363-384.

Littler, C. (1982) The Development of the Labour Process in Capitalist Societies. London: Heinemann.

Lloyd, C. (2008) 'Recruiting for fitness: qualifications and the challenges of an employer-led system', *Journal of Education and Work*, 21(3), pp. 175-195.

Machin, S. (1996) 'Wage Inequality in the UK', *Oxford Review of Economic Policy*, 12(2), pp. 47-62.

Mackenzie, S., Kilpatrick, A. R. and Akintoye, A. (2000) 'UK construction skills shortage response strategies and an analysis of industry perceptions', *Construction Management and Economics*, 18(7), pp. 853-862.

Martin, S. (1983) 'An examination of the economic side effects of the state licensing of pharmacists', (Unpublished doctoral dissertation), United States: University of Tennessee, Knoxville.

Pagliero, M. (2007) 'The impact of potential labor supply on licensing exam difficulty in the US market for lawyers', *Carlo Alberto Notebook*, p. 53.

Marshall, J. M. (1976) 'Moral hazard', *The American Economic Review*, 66(5), pp. 880-890.

Marshall, C. (1952) *The Black Market*. New York: Rinehart and Co.

Maurizi, A. (1980) 'The Impact of Regulation on Quality: The Case of California Contractors. In Occupational Licensure and Regulation', American Enterprise Institute for Public Policy Research, pp. 26-35.

Maurizi, A. (1974) 'Occupational licensing and the public interest', *The Journal of Political Economy*, 82(2), pp. 399-413.

McCarthy, W. E. J. (1964) *The Closed Shop in Britain*, Oxford: Blackwall.

Meager, N. (1986) 'Temporary work in Britain', *Employment Gazette*, 94(1), pp. 7-15.

Metcalf, D. (1991) 'British unions: dissolution or resurgence?', *Oxford Review of Economic Policy*, 7(1), pp. 18-32.

Metcalf, D. (2001) 'British unions: dissolution or resurgence revisited', Centre for Economic Performance, London: London School of Economics and Political Science.

Metcalf, D. (2002) 'The National Minimum Wage: Coverage, Impact and Future', *Oxford Bulletin of Economics and Statistics*, 64(supplement), pp. 567-582.

Mitchell, W. (1937) *The Backward Art of Spending Money and Other Essays*, New York: A. M. Kelley.

Mooney, A. and Munton, A. G. (1997) 'Research and Policy in Early Childhood Services: Time for a New Agenda', London: Institute of Education.

Moore, T. (1961) 'The purpose of licensing', *Journal of Law and Economics*, 4, pp. 93-117

Moore, W. J., Pearce, D. K. and Wilson, R. M. (1981) 'The regulation of occupations and the earnings of women', *Journal of Human Resources*, pp. 366-383.

Moss, P. and Pence, A. (1994) 'Valuing Quality in Early Childhood Services: New Approaches to Defining Quality', New York: Teachers College Press.

Moss, E., Smolla, N., Cyr, C., Dubois-Comtois, K., Mazzarello, T. and Berthiaume, C. (2006) 'Attachment and behavior problems in middle childhood as reported by adult and child informants', *Development and Psychopathology*, 18(2), p. 425.

Mustard, J.F. (2006) Early child development and experience-based brain development: the scientific underpinnings of the importance of early child development. Washington: The Brookings Institution.

Muzondo, T. and Pazderka, B. (1980) 'Occupational Licensing and Professional Incomes in Canada', *The Canadian Journal of Economics/Revue Canadienne d'Economique*, 13(4), pp. 659-667.

Ogilvie, S. C. (2011) Institutions and European trade: merchant guilds, 1000-1800. Cambridge: Cambridge University Press.

Osgood, J. (2009) 'Childcare workforce reform in England and 'the early years professional': A critical discourse analysis', *Journal of Education Policy*, 24(6), pp. 733-751.

Parker, R.H. (1986) The development of the accountancy profession in Britain in the early twentieth century. San Antonio: The Academy of Accounting Historians.

Peltzman, S. (1976) 'Toward a More General Theory of Regulation', *Journal of Law and Economics*, 19, pp. 211-240.

Perloff, J. (1980) 'The Impact of Licensing Laws on Wage Changes in the Construction Industry', *Journal of Law and Economics*, 23(2), pp. 409-28.

Occupational Safety and Health Series (1958) Centenary of the General Medical Council, 1858-1958: the history and present work of the Council. London: General Medical Council.

Pugh, G. (1987) 'Early education and day care: in search of a policy', *Journal of Education Policy*, 2(4), pp. 301-316.

Rainbird, H., Munro, A. and Holly, L. (2004) 'The employment relationship and workplace learning', *Workplace learning in context*, pp. 38-53.

Rivett, G. (1998) *From cradle to grave: fifty years of the NHS*. London: King's Fund.

Rodemacher, T. (1997) Don't try this at home! *The Ann Arbor News*, 9th February, p. 11.

Roe, P., Wiseman, J. and Costello, M. (2006) *Perceptions and use of NVQs: a survey of employers in England*. Nottingham: Department for Education and Skills.

Rojek, M. (2013) Deregulation access to professions in Poland. Presented at the European Union Commission, July 2013.

Rolfe, H. (2005) 'Building a stable workforce: Recruitment and retention in the child care and early years sector', *Children and Society*, 19, pp. 54-65.

Rottenberg, S. (1980) 'Introduction' in Rottenberg, S. (ed.) *Occupational Licensure and Regulation*. Washington, American Enterprise Institute, pp. 1-10.

Sargeant, A. V. (2000) 'An exploratory study of the effects of progression towards National Vocational Qualifications on the occupational knowledge and care practice of social care workers', *Social Work Education*, 19(6), pp. 639-661.

Shapiro, C. (1986) 'Investment, Moral Hazard and Occupational Licensing', *Review of Economic Studies*, 53, pp. 843-862

Shaw, G. B. (1946) *The doctor's dilemma* (Vol. 564). UK: Penguin.

Shepard, L. (1978) 'Licensing Restrictions and the cost of dental care', *Journal of Law and Economics*, 21(1), pp. 187-201.

Shils, E. (1965) 'Charisma, order, and status', *American Sociological Review*, pp. 199-213.

Smithers, A. (1993) All Our Futures: Britain's Education Revolution. London: Dispatches Report on Education, Channel 4 Books.

Spence, M. (1973) 'Job market signaling', *The Quarterly Journal of Economics*, 87(3), pp. 355-374.

Stacey, M. (1992) Regulating British Medicine: The General Medical Council. Chichester: Wiley.

Steedman, H. and Vaitilingam, R. (2011) Apprenticeship policy in England: Increasing skills verses boosting young people's job prospects. London: LSE, Centre of Economic Performance.

Stevens, S. S. (1966) 'A Metric for the Social Consensus', *Science*, 151, pp. 530-41.

Stewart, J. C. (1986) Pioneers of a profession: chartered accountants to 1879. New York: Garland Publishing.

Stigler, G. J. (1971) 'The theory of economic regulation', *The Bell Journal of Economics and Management Science*, pp. 3-21.

Stigler, G. J. (1974) 'The optimum enforcement of laws', *Essays in the Economics of Crime and Punishment*, pp. 55-67.

Sroufe, L. A. (1997) Emotional development: The organization of emotional life in the early years. Cambridge: Cambridge University Press.

Tamkin, P., Muller, L., Williams, J. and Casey, P. (2013) Understanding occupational regulation. Wath-Upon-Dearne: UKCES.

Tanner, E., Welsh, E. and Lewis, J. (2006) 'The quality-defining process in early years services: A case study', *Children and society*, 20(1), pp. 4-16.

Thornton, R. and Weintraub, A. (1979) 'Licensing the Barbering Profession' *Industrial and Labour Relations Review*, 32(2): pp. 242-249.

Toner, J. P. (1992) Regulation in the Taxi Industry. LOCATION: PUBLISHER.

Turner, B. (1987) Medical Power and Social Knowledge. London: Sage.

Unwin, L. (1999) Jungle trekking: vocational courses and qualifications for young people. Sheffield. Department for Education and Employment (DfEE).

Ward, J. P. (1997) Metropolitan communities: trade guilds, identity, and change in early modern London. California: Stanford University Press.

Waterhouse, P. and Virgona, C. (2004) Two-Dimensional Work: Workplace Literacy in the Aged Care and Call Centre Industries. Australia: National Centre for Vocational Education Research Ltd.

Weiss, A. (1995) 'Human capital vs. signalling explanations of wages', *The Journal of Economic Perspectives*, 9(4), pp. 133-154.

West, J. (2004) Dreams and Nightmares: The NVQ Experience, CLMS Working Paper No. 45, Leicester: Centre for Labour Market Studies.

West, J. (2006) 'Patrolling the borders: accreditation in further and higher education in England', *Journal of Further and Higher Education*, 30(1), pp. 11-26.

West, J. and Steedman, H. (2003) Finding our way: vocational education in England. London: LSE, Centre for Economic Performance.

Wheelan, C. (1998) Politics or Public Interest? An Empirical Examination of Occupational Licensure [Unpublished manuscript]. Chicago: University of Chicago.

Wheelock, J. and Jones, K. (2002) 'Grandparents Are the Next Best Thing: Informal Childcare for Working Parents in Urban Britain', *Journal of Social Policy*, 31(3): pp. 441-63.

White, W. D. (1978) 'The impact of occupational licensure of clinical laboratory personnel', *Journal of Human Resources*, pp. 91-102.

Williams, P. E. (2003) 'Roles and competencies for distance education programs in higher education institutions', *The American Journal of Distance Education*, 17(1), pp. 45-57.

Wolf, A. (1995) Competence-Based Assessment. Buckingham: Open University Press.

Woo, J. H. (1986) 'Graduate degrees and job success: managers in one US corporation', *Economics of Education on Review*, 5(3), pp. 227-237.

Appendices

Appendix 1: Mapping database

SOC(2000) Unit Group	SOC title	Regulation Status	Coverage	Any Protection of Title	Enforcement Body	Characteristics of Enforcement Body	Funding of Enforcement Body	Statutory Instrument	Date of Commencement	Rationale for Regulation	Entry Requirement (qualifications)	Entry requirement (years of work experience)	Other Entry Requirement
1111	Senior Officials in National Government	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1112	Directors and Chief Executives of Major Organisations	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1113	Senior Officials in Local Government	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1114	Senior Officials of Social Interest Organisations	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1121	Production, Works and Maintenance Managers	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1122	Managers in Construction	Accreditation	All job titles	No	UK Contractors Group	Non-Chartered Professional Body	Self-funded	N/A	1995	Demonstrate competence	NVQ Level 4 and 5, H&S course and test	0	No
1123	Managers in Mining and Energy	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1131	Financial Managers and Chartered Secretaries	Registration	Some job titles	N/A	Financial Services Authority	Government Agency	Government funded	Financial Services and Markets	2000	Protection of public	None	0	No

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1141	Quality Assurance Managers	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1142	Customer Care Managers	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1151	Financial Institution Managers	Registration	All job titles	N/A	Financial Services Authority	Government Agency	Government funded	Financial Services and Markets Act 2000	2000	protection of public	None	0	No
1152	Office Managers	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1161	Transport and Distribution Managers	Accreditation	All job titles	Yes	Chartered Institute of Logistics and Transport	Chartered Professional Body	Self-funded	N/A	1926	Adherence to codes of conduct, demonstrate competence	University degree (accredited) BSc/MSc	0	No
1162	Storage and Warehouse Managers	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1163	Retail and Wholesale Managers	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1171	Officers in Armed Forces	Licensing	All job titles	N/A	The Armed Forces (government)	Government Agency	Government funded	Don't know	Don't know	Demonstrate competence	GCSE Maths & English (A-C), Army training (cadet forces or university units) A minimum of 180 UKAS points for Sandhurst	0	Pass individual and group tests, in-depth interview

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1182	Pharmacy Managers	Licensing	Some job titles	N/A	General Pharmaceutical Council	Regulatory Body	Government funded	1852 Pharmacy Act/ Pharmacy Order 2010	1855	Protection of public, adherence to codes of conduct	Masters in Pharmacy	0	52 week training programme and pass the registration examination, good health
1183	Healthcare Practice Managers	Accreditation	All job titles	Yes	Institute of Healthcare Management and Association of Medical Secretaries	Non-Chartered Professional Body	Self-funded	N/A	1926	Gain professional recognition	Diploma in Primary Care Management or Management of Health and Social Care (NVQ Level 4)	2	No
1184	Social Services Managers	Licensing	All job titles	N/A	General Social Care Council	Regulatory Body	Government funded	Care Standards Act 2000	2005	protection of public	Honours degree or/and postgraduate degree in social work approved by GSCC. Then register with GSCC	0	None, but individual has to demonstrate continuous development during the first 3 years of registration, known as post-

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1219	Managers in Animal Husbandry, Forestry and Fishing NEC	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1221	Hotel and Accommodation Managers	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1222	Conference and Exhibition Managers	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1223	Restaurant and Catering Managers	Licensing	All job titles	N/A	Local Authorities/ Chartered Institute of Environmental Health	Chartered Professional Body	Government funded	Food Safety Act 1990	1990	protection of public	Food Hygiene Certificate	0	No
1224	Publicans and Managers of Licensed Premises	Licensing	All job titles	N/A	British Institute of Innkeeping & Local Authorities	Non-Chartered Professional Body	Self-funded	Licensing Act 2003	1869	protection of public	National Certificate for Personal License Holders (Level 2)	0	CRB check by local authorities
1225	Leisure and Sports Managers	Registration	Some job titles	N/A	Gambling Commission	Regulatory Body	Government funded	Gambling Act 2005	2007	protection of public	None	0	CRB check, Financial Circumstances check

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1226	Travel Agency Managers	Accreditation	All job titles	No	Association of British Travel Agents	Non-Chartered Professional Body	Self-funded	N/A	2006	Establish/maintain industry standards	Various levels of membership but: NVQ Level 2/Apprenticeship plus 2-7 years experience depending on membership type	0	No
1231	Property, Housing and Land Managers	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1232	Garage Managers and Proprietors	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1233	Hairdressing and Beauty Salon Managers and Proprietors	Certification	All job titles	Yes	The Hairdressing Council	Non-Chartered Professional Body	Self-funded	Hairdressers Registration Act 1964	1964	Establish/maintain industry standards	NVQ level 2	0	No
1234	Shopkeepers and Wholesale/Retail Dealers	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1235	Recycling and Refuse Disposal Managers	Accreditation	Some job titles	Yes	Chartered Institute of Wastes Management	Chartered Professional Body	Self-funded	N/A	2002	Health and safety, protection of public	Degree or Postgraduate Qualification, min 4 years experience, Interview by CIWM	0	Optional: Structured Learning & Development Programme, to help with interview

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1239	Managers and Proprietors in Other Services NEC	Registration	Some job titles	N/A	Gambling Commission	Regulatory Body	Government funded	Gambling Act 2005	2007	protection of public	None	0	CRB check, Financial Circumstances check
2111	Chemist	Accreditation	All job titles	Yes	Royal Society of Chemists	Chartered Professional Body	Self-funded	N/A	1980	Health and safety, protection of public	Bachelor's degree,	10	No
2112	Biological Scientists and Biochemists	Accreditation	Some job titles	Yes	Society of Biology	Chartered Professional Body	Self-funded	N/A	2009	Health and safety, protection of public	Bachelor's degree,	10	No
2113	Physicists, Geologists and Meteorologists	Accreditation	All job titles	Yes	Royal Meteorological Society/ The Geological Society	Chartered Professional Body	Self-funded	N/A	1883/1825	Health and safety, protection of public	relevant Bachelor's degree,	5	No
2121	Civil Engineers	Certification	All job titles	Yes	Engineering Council	Regulatory Body	Government funded	Royal Charter 1981	1985	Health and safety, protection of public	Masters for Chartered status	0	No
2122	Medical Engineers	Certification	All job titles	Yes	Engineering Council	Regulatory Body	Government funded	Royal Charter 1981	1985	Health and safety, protection of public	Masters for Chartered status	0	No

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2123	Electrical Engineer	Certification	All job titles	Yes	Engineering Council	Regulatory Body	Government funded	Royal Charter 1981	1985	Health and safety, protection of public	Masters for Chartered status	0	CRB check if working for nuclear and defence-related industries
2124	Electronic Engineers	Certification	All job titles	Yes	Engineering Council	Regulatory Body	Government funded	Royal Charter 1981	1985	Health and safety, protection of public	Masters for Chartered status	Varies	varies depending on institution (see comments)
2125	Chemical Engineers	Certification	All job titles	Yes	Engineering Council	Regulatory Body	Government funded	Royal Charter 1981	1985	Health and safety, protection of public	Masters for Chartered status	Varies	varies depending on institution (see comments)
2126	Design and Development Engineers	Certification	All job titles	Yes	Engineering Council	Regulatory Body	Government funded	Royal Charter 1981	1985	Health and safety, protection of public	Masters for Chartered status	Varies	varies depending on institution (see comments)
2127	Production and Process Engineers	Certification	All job titles	Yes	Engineering Council	Regulatory Body	Government funded	Royal Charter 1981	1985	Health and safety, protection of public	Masters for Chartered status	Varies	varies depending on institution (see comments)

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	2128 Planning and Quality Control Engineers	Certification	All job titles	Yes	Engineering Council	Regulatory Body	Government funded	Royal Charter 1981	1985	Health and safety, protection of public	Masters for Chartered status	Varies	varies depending on institution (see comments)
	2129 Engineering Professionals NEC	Certification	All job titles	Yes	Engineering Council	Regulatory Body	Government funded	Royal Charter 1981	1985	Health and safety, protection of public	Masters for Chartered status	Varies	varies depending on institution (see comments)
	2131 IT Strategy and Planning Professionals	Accreditation	Some job titles	Yes	Chartered Institute for IT	Chartered Professional Body	Self-funded	N/A	Don't know	Demonstrate competence	Academic qualifications welcome, but 8-10 years of experience essential	0	Professional reference, Assessment Interview, Test
	2132 Software Professionals	Accreditation	Some job titles	Yes	Chartered Institute for IT	Chartered Professional Body	Self-funded	N/A	Don't know	Demonstrate competence	Academic qualifications welcome, but 8-10 years of experience essential	0	Professional reference, Assessment Interview, Test
	2211 Medical Practitioners	Licensing	All job titles	N/A	General Medical Council	Regulatory Body	Government funded	Medical Act 1983	Don't know	Health and safety, protection of public	BSc/MSc degree from a medical School recognised by the British Medical Council	0	Assessment of Fitness to practice questionnaire

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	2212 Psychologists	Licensing	All job titles	N/A	Health Professions Council	Regulatory Body	Government funded	Health Care and Associated Professions Order	2009	Health and safety, protection of public	A BSc or MSc degree recognised by the Health Professions council	0	CRB check
362	2213 Pharmacists/Pharmacologists	Licensing	All job titles	N/A	General Pharmaceutical Council	Regulatory Body	Government funded	1852 Pharmacy Act/ Pharmacy Order 2010	1855	Protection of public, adherence to codes of conduct	Masters Qualifications in Pharmacy	0	52 week training programme and pass the registration examination, good health
	2214 Ophthalmic Opticians	Licensing	All job titles	N/A	General Optical Council	Regulatory Body	Government funded	Opticians Act 1958	1958	Health and safety, protection of public	UG Bachelor's degree in optometry	0	Membership of an approved professional association, demonstrate that possess a set of competencies set by GOC

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	2215 Dental Practitioners	Licensing	All job titles	N/A	General Dental Council	Regulatory Body	Government funded	Dentists Act 1921	1921	Health and safety, protection of public	UG degree in Dentistry from a university recognised by the GDC	0	No
	2216 Veterinarians	Licensing	All job titles	N/A	Royal College of Veterinary Surgeons	Regulatory Body	Self-funded	Veterinary Surgeons Act 1966	1966	Health and safety, protection of public	UG degree in Veterinary Science from a university recognised by the RCVS	0	No
	2311 Higher Education Teaching Professionals	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2312 Further Education Teaching Professions	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2313 Education Officers, School Inspectors	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2314 Secondary Education Teaching Professionals	Licensing	All job titles	N/A	Training and Development Agency/ Department for Education	Government Agency	Government funded	Higher Education Act 1998	1998	protection of public	First degree in a relevant subject or non-relevant degree plus vocational qualification (e.g. Postgraduate Certificate)	0	CRB check; initial teacher training (done in a school or HE institution)

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2411	Solicitors and Lawyers, Judges and Coroners	Licensing	All job titles	N/A	Solicitors Regulation Authority/ Bar Council	Regulatory Body	Self-funded	Solicitors Act 1974/ Courts and Legal Services Act 1990	1894	protection of public	Degree in Law or Graduate Diploma in Law, Legal Practice Course. For Barristers also a Bar professional training Course	2	No
2419	Legal Professionals NEC	Licensing	All job titles	N/A	Solicitors Regulation Authority/ Bar Council	Regulatory Body	Self-funded	Solicitors Act 1974/ Courts and Legal Services Act 1990	1894	protection of public	Qualifying law degree or Graduate Diploma in Law	4	No
2421	Chartered and Certified Accountants	Accreditation	All job titles	Yes	Institute of Chartered Accountants	Chartered Professional Body	Self-funded	N/A	1880	protection of public	BSc Degree, ACA qualification	0	training contract with an employer
2422	Management Accountants	Accreditation	All job titles	Yes	Chartered Institute of Management Accountants	Chartered Professional Body	Self-funded	N/A	1995	Protection of public, demonstrate competence	One must study for the CIMA qualification equivalent to MSc	0	submit a portfolio of work based practical experience

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2423	Management Consultants, Actuaries, Economists and Statisticians	Accreditation	All job titles	Yes	Institute and Faculty of Actuaries/ Royal Statistical Society	Chartered Professional Body	Self-funded	N/A	1990/1993	Protection of public, demonstrate competence	Equivalent to MSc courses & exams (exemptions if bachelor's degree from accredited universities)/ UG or Master's degree for statisticians	Varies	submit a portfolio of work based practical experience / 5 years work experience for statisticians
2431	Architects	Certification	All job titles	Yes	Architects Registration Board	Regulatory Body	Government funded	1997 Architects Act	1997	Demonstrate competence	UG degree in architecture, Diploma in Architecture and then take a prescribed professional exam	2	No
2432	Town Planners	Accreditation	All job titles	Yes	Royal Town Planning Institute	Chartered Professional Body	Self-funded	N/A	1959	Demonstrate competence	Accredited MSc qualification	2	No

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2442	Social Workers	Licensing	All job titles	N/A	General Social Care Council	Regulatory Body	Government funded	Care Standards Act 2000	2005	protection of public	Honours degree or/and postgraduate degree in social work approved by GSCC. Then register with GSCC.	0	None, but individual has to demonstrate continuous development during the first 3 years of registration, known as post-registration training.
2443	Probation Officers	Licensing	All job titles	N/A	National Probation Service	Government Agency	Government funded	don't know	Don't know	protection of public	Diploma in probation studies	0	No
2444	Clergy	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2451	Librarians	Accreditation	All job titles	Yes	Chartered Institute of Library and Information Professionals	Chartered Professional Body	Self-funded	N/A	1898	Demonstrate competence	CILIP accredited degree or post-graduate qualification	0	No
2452	Archivists and Curators	Accreditation	All job titles	Yes	Society of Archivists	Non-Chartered Professional Body	Self-funded	N/A	1996	Demonstrate competence	Level 4 qualifications (accredited course or Society's Diploma	0	demonstrate CPD

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3123	Building Inspectors	Accreditation	All job titles	No	Construction Industry Council	Non-Chartered Professional Body	Self-funded	N/A	1984	Demonstrate competence, protection of public	Exam (testing knowledge) and Interview	0	No
3131	IT Operations Technicians	Accreditation	Some job titles	Yes	Chartered Institute for IT	Chartered Professional Body	Self-funded	N/A	Don't know	Demonstrate competence	Academic qualifications welcome, but 8-10 years of experience essential	8	Professional reference, assessment Interview, test
3132	IT User Support Technician	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3211	Nurses	Licensing	All job titles	N/A	Nursing and Midwifery Council	Non-Chartered Professional Body	Self-funded	Nurses Registration Act 1919	1919	protection of public	UG degree or Diploma	0	CRB check, Declaration of good character from HE Institution where training was undertaken
3212	Midwives	Licensing	All job titles	N/A	Nursing and Midwifery Council	Non-Chartered Professional Body	Self-funded	Midwives Registration Act 1902	1902	protection of public	UG degree or Diploma	0	CRB check, Declaration of good character from HE Institution where training was undertaken

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3213	Paramedics	Licensing	All job titles	N/A	Health Professions Council	Regulatory Body	Government funded	For those employed by the NHS: Professionals Supplementary to Medicine Act 1960; For all practitioners: Health Professions Act 2001	1960/Feb 2002	protection of public	Diploma in Higher Education in Paramedics	0	CRB check, 1 year's clean/full driving license, fitness test, occupational health screening, medical assessment
3214	Medical Radiographers	Licensing	All job titles	N/A	Health Professions Council	Regulatory Body	Government funded	For those employed by the NHS: Professionals Supplementary to Medicine Act 1960; For all practitioners: Health Professions Act 2001	1960/Feb 2002	protection of public	Approved BSc courses or Postgraduate diplomas	0	Character reference, CRB Check

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3215	Chiropodists	Licensing	All job titles	N/A	Health Professions Council	Regulatory Body	Government funded	For those employed by the NHS: Professionals Supplementary to Medicine Act 1960; For all practitioners: Health Professions Act 2001	1960/Feb 2002	protection of public	Approved BSc or MSc courses	0	Character reference, CRB Check
3216	Dispensing Opticians	Licensing	All job titles	N/A	General Optical Council	Regulatory Body	Government funded	Opticians Act 1958	1958	Health and safety, protection of public	Approved BSc/Msc courses	0	Professional qualifying examination
3217	Pharmaceutical Dispensers	Licensing	All job titles	N/A	General Pharmaceutical Council	Regulatory Body	Government funded	1852 Pharmacy Act/ Pharmacy Order 2010	1855	Protection of public, adherence to codes of conduct	NVQ Level 2/ 3 for pharmacy technicians. BTEC	2	Good health
3218	Medical and Dental Technicians	Licensing	All job titles	N/A	General Dental Council	Regulatory Body	Government funded	Dental Act 1984	1984	Health and safety, protection of public	UG degree or Diploma (related) approved by the General Dental council	0	No

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3221	Physiotherapists	Licensing	All job titles	N/A	Health Professions Council	Regulatory Body	Government funded	For those employed by the NHS: Professionals Supplementary to Medicine Act 1960; For all practitioners: Health Professions Act 2001	1960/Feb 2002	protection of public	Approved BSc courses or MSc courses	0	Character reference, CRB Check
3222	Occupational Therapist	Licensing	All job titles	N/A	Health Professions Council	Regulatory Body	Government funded	For those employed by the NHS: Professionals Supplementary to Medicine Act 1960; For all practitioners: Health Professions Act 2001	1960/Feb 2002	protection of public	Approved BSc or MSc courses	0	Character reference, CRB Check

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3223	Speech and Language Therapists	Licensing	All job titles	N/A	Health Professions Council	Regulatory Body	Government funded	For those employed by the NHS: Professionals Supplementary to Medicine Act 1960; For all practitioners: Health Professions Act 2001	1960/Feb 2002	protection of public	Approved Bsc or MSc courses	0	Character reference, CRB Check
3229	Therapists NEC	Licensing	Some job titles	N/A	Health Professions Council	Regulatory Body	Government funded	For those employed by the NHS: Professionals Supplementary to Medicine Act 1960; For all practitioners: Health Professions Act 2001	1960/Feb 2002	protection of public	Approved Bsc or MSc courses	0	Character reference, CRB Check

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3231	Youth and Community Workers	Licensing	All job titles	N/A	National Youth Agency	Other	Self-funded	Don't know	2010	protection of public	Approved BSc course (minimum)	0	Character reference, CRB Check
3232	Housing and Welfare Officers	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3311	NCOs and Other Ranks	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3312	Police Officers (Sergeant and Below)	Licensing	All job titles	N/A	The Home Office (police) plus Local Forces	Government Agency	Government funded	Metropolitan Police Act 1829	1829	Demonstrate competence, protection of public	Initial Police Learning and Development Programme (local training schemes vary), pass Police Action Checklist (set by the Home Office)	0	UK resident, medical assessment, assessment tests/interview, fitness tests, CRB checks (all before training commences).
3313	Fire Service Officers (Leading Fire Officers and Below)	Licensing	All job titles	N/A	Government oversees (Fire Rescue Service), but devolution of power to	Government Agency	Government funded	Fire Services Act 1947	1948	protection of public	Basic numeracy and literacy	0	Test of attitude and motivation, problem-solving and physical ability. Medical exam

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3442	Sports Coaches, Instructors and Officials	Licensing	All job titles	N/A	National Governing Body of Chosen Sport	Varies	Self-funded	Industry initiative	Various	Demonstrate competence	Basic Referee Training course for all sports, but details very depending on the sport. For coaching, appropriate coaching qualification as set by the National Governing Body of chosen sport	0	CRB check for community coaching
3443	Fitness Instructors	Certification	All job titles	No	Register of Exercise Professionals	Regulatory Body	Self-funded	Established by SkillsActive	2002	Demonstrate competence	Level 2,3 &4 qualifications available	0	Civil liability insurance cover
3449	Sports and Fitness Occupations NEC	Certification	All job titles	No	Register of Exercise Professionals	Regulatory Body	Self-funded	Established by SkillsActive	2002	Demonstrate competence	NVQs Level 2&3	0	Civil liability insurance cover
3511	Air Traffic Controllers	Licensing	All job titles	N/A	Civil Aviation Authority	Government Agency	Government funded	Civil Aviation Act 1971 and Directive 2006/23/EC	1971	protection of public, demonstrate competence	ATC licence (Air-Traffic and Aviation Management Foundation Degree)	0	Medical Certificate including Hearing, Vision requirements, 21 years old, good command

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3520	Legal Associate Professionals	Licensing	Some job titles	N/A	Council for Licensed Conveyancers	Regulatory Body	Self-funded	Administration of Justice Act 1985	1987	protection of public	CLC Training Course: Level 3 Certificate/Diploma in Law & Practice and then a Level 4 Bsc degree	0	No
3531	Estimators, Valuers and Assessors	Accreditation	All job titles	Yes	Royal Institute of Chartered Surveyors	Chartered Professional Body	Self-funded	N/A	2010	protection of public, demonstrate competence	Associate member of RICS and RICS associate qualification and 4 yrs experience OR 4 years' experience and a relevant NVQ level 3 qualification	0	Professional indemnity insurance and complaints & claims notifications
3532	Brokers	Registration	All job titles	N/A	Financial Services Authority	Government Agency	Government funded	Financial Services and Markets Act 2000	2000	protection of public	Other	0	No
3533	Insurance Underwriters	Accreditation	All job titles	Yes	Chartered Insurance Institute	Chartered Professional Body	Self-funded	N/A	1912	Demonstrate competence	CII qualifications (equivalent to BSc degrees and higher national diplomas)	0	No

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3534	Finance and Investment Analysis/Advisor	Registration	All job titles	N/A	Financial Services Authority	Government Agency	Government funded	Financial Services and Markets Act 2000	2000	protection of public	None	0	No
3535	Taxation Experts	Licensing	All job titles	N/A	Office for Fair Trading	Government Agency	Government funded	Don't know	Don't know	protection of public	UG degree	0	No
3536	Importers/Exporters	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3537	Financial and Accounting Technicians	Accreditation	Some job titles	No	Association of Chartered Certified Accountants	Chartered Professional Body	Self-funded	N/A	1974	Demonstrate competence	NVQ level 4 courses provided by the Association	0	No
3539	Business and Related Associate Professionals NEC	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3541	Buyers and Purchasing Officers	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3542	Sales Representatives	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3543	Marketing Associate Professionals	Accreditation	Some job titles	Yes	Chartered Institute of Marketing	Chartered Professional Body	Self-funded	N/A	1989	Adherence to codes of conduct, demonstrate competence	Diploma in Marketing (CIM) or a university degree in marketing plus experience	3	No

SOC(2000) Unit Group	SOC title	Regulation Status	Coverage	Any Protection of Title	Enforcement Body	Characteristics of Enforcement Body	Funding of Enforcement Body	Statutory Instrument	Date of Commencement	Rationale for Regulation	Entry Requirement (qualification(s))	Entry requirement (years of work experience)	Other Entry Requirement
	3544 Estate Agents and Auctioneers	Registration	Some job titles	N/A	Ombudsman for Estate Agents or Surveyors Ombudsman Service	Non-Chartered Professional Body	Self-funded	Consumers, Estate Agents and Redress Act 2007	2008	Adherence to codes of conduct, protection of public	None	0	No
	3551 Conservation and Environmental Protection Officers	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3552 Countryside and Park Rangers	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3561 Public Service Associate Professionals	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3562 Personnel and Industrial Relations Officer	Accreditation	All job titles	Yes	Chartered Institute for Personnel and Development	Chartered Professional Body	Self-funded	N/A	1955	Adherence to codes of conduct, demonstrate competence	University course that provides the practitioner Level professional Standards of the CIPD	3	No
	3563 Vocational and Industrial Trainers and Instructors	Accreditation	All job titles	Yes	Chartered Institute for Personnel and Development	Chartered Professional Body	Self-funded	N/A	1955	Adherence to codes of conduct, demonstrate competence	University course that provides the practitioner Level professional Standards of the CIPD	3	No

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		ted											
5111	Farmers	Licensing	Some job titles	N/A	Organic Control Bodies (Soil Association, Organic Farmers and Growers, Organic Food Federation, Quality Food Federation, Quality Welsh Food Certification, Biodynamic Agricultural Association and the Scottish Organic Producers Association	Non-Chartered Professional Body	Self-funded	Council Regulation (EEC) No 2092/91	1991	Adherence to codes of conduct, demonstrate competence	Study of farm, soil, planning etc.	0	Declaration of compliance .

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5244	TV, Video and Audio Engineers	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5245	Computer Engineers, Installation and Maintenance	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5249	Electrical/Electronics Engineers NEC	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5311	Steel Erectors	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5312	Bricklayers, Masons	Accreditation	Some job titles	Yes	Chartered Institute of Builders	Chartered Professional Body	Self-funded	N/A	1980	Upskilling of Profession	Can have relevant NVQs	2	No
5313	Roofers, Roof Tillers and Slaters	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5314	Plumbers, Heating ventilating Engineers	Licensing	Some job titles	N/A	Gas Safety Register	Regulatory Body	Government funded	Gas Safety (Installation and Use) Regulations 1990	1991	protection of public	Can have relevant NVQs	0	Technical Test from the Institute/Work experience
5315	Carpenters	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5316	Glaziers, Window Fabricators and Fitters	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5319	Construction Trades NEC	Accreditation	Some job titles	No	Construction Skills Certification Scheme	Non-Chartered Professional Body	Self-funded	N/A	1995	Upskilling of Profession	Relevant NVQs	0	Health and Safety Test

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5321	Plasterers	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5322	Floorers and Wall Tillers	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5323	Painters and Decorators	Accreditation	Some job titles	No	Painting and Decorating Association	Non-Chartered Professional Body	Self-funded	N/A	2002	Upskilling of Profession	City and Guilds Craft Certificate and pass a CITB Skills Test	1	No
5411	Weavers and Knitters	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5412	Upholsterers	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5413	Leather and Related Trades	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5414	Tailors and Dressmakers	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5419	Textiles, Garments and Related Trades NEC	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5421	Originators, Compositors and Print Repairers	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5422	Printers	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5423	Book Binders and Print Finishers	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5424	Screen Printers	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5431	Butchers, Meat Cutters	Licensing	Some job titles	N/A	Chartered Institute of	Chartered Professional Body	Self-funded	Food Safety Act 1990	1990	protection of public	Food Hygiene Certificate	0	No

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5495	Goldsmiths, Silversmiths, Precious Stone Workers	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5496	Floral Arrangers, Florists	Accreditation	All job titles	No	British Florist Association	Non-Chartered Professional Body	Self-funded	N/A	1960s	Upskilling of Profession	Diploma in Floristry (NPTC Level 4) and Master Diploma in Floristry (level 5)	0	No
5499	Hand Craft Occupations NEC	Accreditation	Some job titles	No	British Toymakers Guild (BTG), The Institute of Trichologists	Non-Chartered Professional Body	Self-funded	N/A	1956/1902	Gain professional recognition	Examination from Regulatory/Professional Body	0	No
6111	Nursing Auxiliaries	Licensing	Some job titles	N/A	Nursing and Midwifery Council	Government Agency	Government funded	Midwives Registration Act 1902, Nurses Registration Act 1919, Medical Act 1983	1902/1919	protection of public	Nursing Qualifications	0	No
6112	Ambulance Staff	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6113	Dental Nurses	Licensing	Some job titles	N/A	General Dental Council	Regulatory Body	Government funded	Dentists Act 1984	1956	protection of public	Professional Qualifications	0	No

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6211	Sports and Leisure Assistants	Registration	Some job titles	N/A	Gambling Commission	Regulatory Body	Government funded	Gambling Act 2005	2007	protection of public	None	0	CRB check, Financial Circumstances check
6212	Travel Agents	Accreditation	All job titles	No	Association of British Travel Agents	Non-Chartered Professional Body	Self-funded	N/A	2006	Establish/maintain industry standards	Various levels of membership but: NVQ Level 2/Apprenticeship plus 2-7 years experience depending on membership type	0	No
6213	Travel and Tour Guides	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6214	Air Travel Assistants	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6215	Rail Travel Assistants	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6219	Leisure and Travel Service Occupations NEC	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6221	Hairdressers, Barbers	Accreditation	Some job titles	No	Hairdressing Council	Non-Chartered Professional Body	Self-funded	N/A	1964	Gain professional recognition	Professional Qualifications	0	No
6222	Beauticians and Related Occupations	Registration	Some job titles	N/A	Local Authority	Government Agency	Government funded	Local Government (Miscellaneous)	1983	Protection of public	None	0	Inspection of Workplace

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7124	Market and Street Traders and Assistants	Registration	Some job titles	N/A	Local Authority	Local Authority	Government funded	Various	Various	protection of public	None	0	No
7125	Merchandisers and Window Dressers	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7129	Sales Related Occupations NEC	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7211	Call Centre Agents/Operators	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7212	Customer Care Occupations	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8111	Food, Drink and Tobacco Process Operatives	Licensing	Some job titles	N/A	Chartered Institute of Environmental Health	Chartered Professional Body	Self-funded	Food Safety Act 1990	1990	protection of public	Food Hygience Certificate	0	No
8112	Glass and Ceramics Process Operatives	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8113	Textile Process Operatives	Accreditation	Some job titles	Yes	Chartered Institute of Textile Technologists	Chartered Professional Body	Self-funded	N/A	1925	Gain professional recognition	Can have relevant degrees/qualification	1	No

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8141	Scaffolders, Stagers, Riggers	Accreditation	Some job titles	No	Construction Industry Scaffolders Record Scheme (CISRS)	Non-Chartered Professional Body	Self-funded	N/A	1979	Upskilling of Profession	Basic Scaffolding course, Part 1 and 2. NVQ level 2/ Health and Safety Certificate	0	No
8142	Road Construction Operatives	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8143	Rail construction and Maintenance Operatives	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8149	Construction Operatives NEC	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8211	Heavy Goods Vehicle Drivers	Licensing	All job titles	N/A	Driving Standards Agency/ Department for Transport	Government Agency	Government funded	1903 Motor Car Act	1903	protection of public	C1 or C license	0	No
8212	Van Drivers	Licensing	All job titles	N/A	Driving Standards Agency/ Department for Transport	Government Agency	Government funded	1903 Motor Car Act	1903	protection of public	C1 or C license	0	No
8213	Bus and Coach Drivers	Licensing	All job titles	N/A	Driving Standards Agency/ Department for Transport	Government Agency	Government funded	1903 Motor Car Act	1903	protection of public	D1 or D1E license	0	No

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8214	Taxi, Cab Drivers and Chauffeurs	Licensing	All job titles	N/A	Local Authority	Local Authority	Government funded	1903 Motor Car Act	1903	protection of public	Examination from local authority/ Full Driving License (B)	0	Health Check, Criminal Record Check
8215	Driving Instructors	Licensing	All job titles	N/A	Driving Standards Agency/ Department for Transport	Government Agency	Government funded	1903 Motor Car Act	1903	protection of public	Driving Instructor License (three tests)	0	No
8216	Rail Transport Operatives	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8217	Seafarers (Merchant Navy); Barge, Lighter and Boat Operatives	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8218	Air Transport Operatives	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8219	Transport Operatives NEC	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8221	Crane Drivers	Licensing	All job titles	N/A	Driving Standards Agency/ Department for Transport	Government Agency	Government funded	1903 Motor Car Act	1903	protection of public	Health and Safety Certificate	0	F License
8222	Fork-Lift Truck Drivers	Licensing	All job titles	N/A	Driving Standards Agency/ Department for Transport	Government Agency	Government funded	1903 Motor Car Act	1903	protection of public	Health and Safety Certificate	0	F License

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9134	Packers, Bottlers, Canners, Fillers	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9139	Labourers in Process and Plant Operations NEC	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9141	Stevedores, Dockers and Slingers	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9149	Other Goods Handling and Storage Occupations NEC	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9211	Postal Workers, Mail Sorters, Messengers, Couriers	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9219	Elementary Office Occupations NEC	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9221	Hospital Porters	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9222	Hotel Porters	Unregulated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9223	Kitchen and Catering Assistants	Licensing	Some job titles	N/A	Local Authorities/ Chartered Institute of Environmental Health	Chartered Professional Body	Government funded	Food Safety Act 1990	1990	protection of public	Food Hygiene Certificate	0	No

Appendix 2: Nursery school data

Key

Variable	Coding
Quality of Provision	1=Inadequate, 2=Satisfactory, 3=Good, 4=Outstanding
Behaviour	1=Inadequate, 2=Satisfactory, 3=Good, 4=Outstanding
Quality of Leadership/Management	1=Inadequate, 2=Satisfactory, 3=Good, 4=Outstanding
Quality of Caring	1=Inadequate, 2=Satisfactory, 3=Good, 4=Outstanding
Learning Standards	1=Inadequate, 2=Satisfactory, 3=Good, 4=Outstanding
Change in Leadership Since Last Inspection	1=Yes, 0=No
Affluence	1=Low, 2=Lower than average, 3=Average, 4=Higher than average, 5=Amongst highest in the UK
Gender of Cohort	1=Single Sex, 0=Mixed
Age of Cohort	Number of different ages covered by the provision
Number on Role	Number of children registered
Number of Inspection	How many inspections has the provision previously had (since 2000)
Year	0=2000, 1=2001, 2=2002, 3=2003, 4=2004, 5=2005, 6=2006, 7=2007, 8=2008, 9=2009, 10=2010, 11=2011

YEAR	INSPECTION NUMBER	Postcode	CHANGE IN PROVISION LEADER	AGE RANGE	SINGLE SEX	Number on Role	LEARNING STANDARDS	BEHAVIOUR	CARING	QUALITY OF PROVISION	LEADERSHIP AND MANAGEMENT	Affluence
0	1	B33 8QB		0	2	0	67	2.25	3	4	3.25	3.5
0	1	B19 3XJ		0	2	0	104	3	3	4	4	2.75
0	1	B35 6DU		0	2	0	95	2.25	3	4	3.75	3.5
0	1	MK42 9LS		0	3	0	127	1.5	4	3	3.75	3.25
0	1	OX3 8LH		0	3	0	79	2.75	4	3	3.5	3
0	1	B29 5LB		0	2	0	65	3	4	4	3.75	3.25
0	1	B11 1ED		0	2	0	39	3.25	4	4	4	4
0	1	B14 4BH		0	2	0	51	2.25	3	3	3	3
0	1	B12 9NX		0	2	0	77	2.25	3	4	3.25	3
0	1	B8 2SY		0	2	0	160	2.25	3	3	3.5	3.5
0	1	BB2 1QU		0	2	0	70	3	4	3	3	3
0	1	BB3 2DN		0	2	0	103	3	4	4	3.75	3.5
0	1	BL3 4AH		0	3	0	120	2.75	4	4	3.5	3.333333333
0	1	BD8 9AH		0	3	0	55	3	4	4	3.75	4
0	1	NW10 9SD		0	3	0	124	2.25	3	3	2.75	1.5
0	1	BS5 7SY		0	2	0	81	3.5	4	4	3.5	3.5
0	1	HP6 6NW		0	3	0	90	2.25	4	3	3.5	3.75

YEAR	INSPECTION NUMBER	Postcode	CHANGE IN PROVISION LEADER	AGE RANGE	SINGLE SEX	Number on Role	LEARNING STANDARDS	BEHAVIOUR	CARING	QUALITY OF PROVISION	LEADERSHIP AND MANAGEMENT	Affluence	
0	1	BL9 6HR		0	4	0	90	2	4	4	3	3.5	3
0	1	CB4 2LD		0	2	0	80	3.25	4	3	3.75	4	3
0	1	TR14 7DT		0	3	0	56	2	4	3	4	4	2
0	1	LA14 5TS		0	2	0	86	2.25	4	3	3.5	3.75	2
0	1	LA9 4PH0		0	2	0	66	2.5	4	4	3	3.25	5
0	1	LA18 4JE		0	2	0	80	2.5	4	4	3.5	4	3
0	1	DE1 1GJ		0	2	0	62	2	4	4	3.5	3.75	2
0	1	DE1 2PU		0	2	0	52	3	3	3	3.25	3	3
0	1	DE55 7JA		0	2	0	99	4	4	4	3	4	2
0	1	SK17 9QT		0	2	0	43	3	3	4	3.75	3.75	4
0	1	DE5 3HE		0	3	0	146	2.25	4	4	3.75	4	4
0	1	DL14 7RF		0	2	0	78	3	4	3	3	4	4
0	1	SR8 4TB		0	2	0	103	3	4	4	3.5	3.5	2
0	1	DH9 7LR		0	2	0	132	3	4	4	3	3.5	2
0	1	SR7 7NN		0	2	0	78	2.5	4	4	3.5	4	2
0	1	DL16 6EX		0	2	0	56	3	4	4	3.75	3	2
0	1	SE7 8AF		0	2	0	88	3	4	4	3.75	4	3
0	1	WA8 8DF		0	2	0	90	3	4	4	3.5	4	2

YEAR	INSPECTION NUMBER	Postcode	CHANGE IN PROVISION LEADER	AGE RANGE	SINGLE SEX	Number on Role	LEARNING STANDARDS	BEHAVIOUR	CARING	QUALITY OF PROVISION	LEADERSHIP AND MANAGEMENT	Affluence	
0	1	WA8 OAR		0	2	0	69	3	4	4	3.75	4	2
0	1	UB3 2PD		0	3	0	123	2.25	4	3	3.25	4	4
0	1	HD8 8RX		0	2	0	74	3	3	4	3	4	2
0	1	SW2 1PL		0	3	0	146	1.75	2	3	2.5	3	2
0	1	SW2 2RW		0	3	0	124	2.5	4	4	4	4	5
0	1	SW4 8LW		0	3	0	89	3	4	3	3.5	4	1
0	1	SE4 2QQ		0	2	0	125	3.5	4	4	4	3.5	1
0	1	OL13 8EF		0	2	0	80	2.5	4	4	3.75	4	2
0	1	PR7 3DU		0	3	0	79	4	4	4	4	4	2
0	1	BB12 6DY		0	2	0	65	2.25	4	4	4	4	2
0	1	BB7 1EL		0	2	0	100	3	3	4	4	3.5	2
0	1	BB4 7UE		0	2	0	110	3	3	3	3	3	2
0	1	L14 1PW		0	2	0	61	3.5	4	4	4	4	2
0	1	NE15 8PY		0	3	0	78	3	4	4	4	4	3
0	1	NR5 8DB		0	2	0	134	2	4	4	4	4	2
0	1	BD23 2ES		0	2	0	54	2.25	4	4	4	4	3
0	1	NN3 6DW		0	2	0	68	3	4	3	2.5	3.25	4
0	1	OL10 4QJ		0	2	0	75	3	4	4	4	3.75	2

YEAR	INSPECTION NUMBER	Postcode	CHANGE IN PROVISION LEADER	AGE RANGE	SINGLE SEX	Number on Role	LEARNING STANDARDS	BEHAVIOUR	CARING	QUALITY OF PROVISION	LEADERSHIP AND MANAGEMENT	Affluence
0	1	M24 4AD		0	2	0	43	3.25	4	3	3.25	3 2
0	1	S65 2LY		0	3	0	130	1.75	4	3	3	3 2
0	1	L20 6PJ		0	3	0	56	2	3	2	3	3 2
0	1	S10 2DN		0	3	0	113	4	4	4	4	4 3
0	1	S2 5SB		0	2	0	61	1.5	4	4	4	4 1
0	1	SL2 5JW		0	3	0	120	3	4	4	4	4 3
0	1	NE35 9DG		0	2	0	78	3.25	4	4	4	4 2
0	1	WS12 5AR		0	2	0	71	3.25	4	4	3.5	4 2
0	1	SK5 6JW		0	2	0	56	1.25	3	3	3	3 2
0	1	SK4 3NB		0	2	0	77	4	3	3	3	3 4
0	1	SK3 0BJ		0	2	0	107	2.75	3	3	2.75	3 3
0	1	SK3 9PH		0	2	0	47	3	4	4	4	3.5 2
0	1	DH5 8AE		0	2	0	69	3.25	4	4	4	4 4
0	1	SR4 6JR		0	3	0	53	2.25	4	4	3.75	4 2
0	1	NE38 0LA		0	2	0	78	3	4	4	3.75	4 2
0	1	SR4 9AX		0	2	0	93	1	4	4	3.75	4 2
0	1	E1 4PZ		0	3	0	104	2.25	4	3	3.25	3 2
0	1	WV12 4JQ		0	3	0	104	2.5	4	4	3.25	3 4
0	1	WS3 1HT		0	3	0	97	1.5	3	3	3	3 4

YEAR	INSPECTION NUMBER	Postcode	CHANGE IN PROVISION LEADER	AGE RANGE	SINGLE SEX	Number on Role	LEARNING STANDARDS	BEHAVIOUR	CARING	QUALITY OF PROVISION	LEADERSHIP AND MANAGEMENT	Affluence
0	1	E17 9SB		0	2	0	77	3.75	4	4	4	4
0	1	SW15 5PW		0	2	0	49	3.25	3	3	3	2
0	1	SW11 3ND		0	3	0	76	3.5	4	4	4	3
0	1	CV9 1LF		0	2	0	75	3	4	4	4	4
0	1	RH13 5UT		0	3	0	67	2	4	3	3	3.5
0	1	SW1V 3RT		0	3	0	58	3.25	4	4	4	1
0	1	SL4 3RU		0	3	0	115	3.75	3	3	3	5
0	1	CH46 2QF		0	3	0	84	3	3	3	3	4
0	1	WV11 2LH		0	2	0	78	2.25	4	3	3.5	3
1.00	1.00	OX1 4QH		0	3	0	72	4	4	4	3.75	4
1.00	1.00	OX5 2LG		0	3	0	42	2.5	4	4	3.5	3
1.00	1.00	N14 5DJ		0	3	0	82	3.75	4	4	3.25	3.5
1.00	1.00	N3 1NR		0	3	0	76	4	4	3	3.5	3
1.00	1.00	MK42 9DR		0	3	0	113	3.75	4	4	3.25	3.5
1.00	1.00	MK42 9HE		0	3	0	72	3.5	4	4	3.25	3.75
1.00	1.00	B8 1HN		0	4	0	126	3.5	3	3	3	2
1.00	1.00	B14 6RP		0	2	0	52	4	3	3	3.5	2
1.00	1.00	B7 5BX		0	2	0	70	3.5	3	4	4	3.75
1.00	1.00	B39 6AU		0	2	0	66	3.5	4	3	3.25	3.75

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1.00	1.00	B26 2JL		0	2	0	72	3.75	4	4	4	4
1.00	1.00	B8 3QU		0	2	0	118	3.75	3	3	2.75	1.75
1.00	1.00	B38 8SY		0	2	0	61	2	3	3	3	3
1.00	1.00	B23 6UB		0	2	0	60	2	3	3	3.25	2.75
1.00	1.00	B29 6BP		0	2	0	52	3.75	3	3	2.5	2.333333333
1.00	1.00	B29 5QD		0	2	0	52	3.5	4	3	3	3.25
1.00	1.00	BB1 1HN		0	2	0	80	3.75	3	3	3.25	3
1.00	1.00	BB2 3NF		0	2	0	80	3.5	3	3	3.25	3.25
1.00	1.00	BD9 5AD		0	2	0	63	4	4	4	3.75	4
1.00	1.00	BD8 7DJ		0	2	0	72	3	4	4	4	4
1.00	1.00	NW6 5RA		0	2	0	76	3	3	3	3	3.75
1.00	1.00	BS7 0DL		0	2	0	123	3.75	4	4	4	4
1.00	1.00	CB1 2LZ		0	3	0	79	3.25	4	4	3.75	4
1.00	1.00	CB24 9LL		0	2	0	80	4	4	4	4	4
1.00	1.00	CB1 7ST		0	2	0	119	4	4	3	4	4
1.00	1.00	PE29 1AD		0	2	0	119	3.25	4	4	3.75	4
1.00	1.00	CR5 3BT		0	2	0	53	3.5	4	4	4	5
1.00	1.00	CR8 2NE		0	2	0	91	3.75	4	3	3	3
1.00	1.00	CR7		0	3	0	91	3	3	3	3	2

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		8RS										
1.00	1.00	CRO 6TY	0	3	0	104	3.5	4	4	4	4	3
1.00	1.00	DE1 3RL	0	3	0	63	3.25	4	4	3.25	3.25	2
1.00	1.00	SK22 AQ	0	3	0	60	3.5	4	4	4	4	4
1.00	1.00	NG16 6NA	0	3	0	57	3	4	4	3.5	4	2
1.00	1.00	DE55 2JB	0	2	0	84	3.25	3	4	3	2.5	2
1.00	1.00	EX2 6DJ	0	3	0	67	2.25	2	2	2.25	2	2
1.00	1.00	DH8 6AY	0	2	0	78	3.25	4	4	4	4	2
1.00	1.00	YO16 7BS	0	2	0	111	2.5	4	4	4	4	2
1.00	1.00	HU17 7BT	0	3	0	140	3	4	4	4	4	2
1.00	1.00	SE8 3EH	0	2	0	95	3.25	4	4	4	2.75	2
1.00	1.00	W14 9BH	0	3	0	77	3	4	4	4	3.75	3
1.00	1.00	TS25 2AW	0	2	0	61	3	4	4	4	4	2
1.00	1.00	AL5 5BQ	0	2	0	100	3	4	4	4	4	4
1.00	1.00	AL10 0PD	0	3	0	109	3	4	3	3.25	4	4
1.00	1.00	WD25 0DX	0	2.5	0	56	3	4	4	4	3	3
1.00	1.00	EN11 0LN	0	2	0	120	3	4	4	4	4	4
1.00	1.00	SG7 6HD	0	2	0	105	3	3	3	3	3	2

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1.00	1.00	SW3 5JE		0	3	0	59	3	4	4	3.75	4
1.00	1.00	W10 6TT		0	3	0	75	3	4	4	4	1
1.00	1.00	KT5 8RS		0	3	0	80	3	4	4	3.75	4
1.00	1.00	BB9 7QH		0	2	0	140	3	4	4	4	2
1.00	1.00	BB5 0LD		0	2	0	80	3	3	4	4	2
1.00	1.00	BB4 5NH		0	2	0	86	3	4	4	4	2
1.00	1.00	L39 4RY		0	2	0	80	3	3	3	3	3
1.00	1.00	BB12 6AJ		0	2	0	63	3	3	3	3	2
1.00	1.00	BB9 8BP		0	2	0	76	3	4	3	3	3
1.00	1.00	LN6 0FB		0	2	0	85	3	3	3	3	3
1.00	1.00	LN3 4LQ		0	2	0	141	3	4	4	4	4
1.00	1.00	L8 7QA		0	2	0	51	3	4	4	4	3
1.00	1.00	L7 3HD		0	3	0	28	3	3	4	4	2
1.00	1.00	L11 2RY		0	2	0	49	3	4	4	4	2
1.00	1.00	LU1 5EA		0	3	0	94	3	4	3	3.25	3.5
1.00	1.00	LU4 9JL		0	4	0	96	3	4	4	4	1
1.00	1.00	MK6 4LW		0	2	0	33	3	3	3	2.25	3
1.00	1.00	NE4 6JR		0	3	0	85	2	3	3	3	4
1.00	1.00	E16 3PB		0	2	0	101	3	3	3	3	2

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1.00	1.00	E6 6BU		0	2	0	156	3	4	4	4	2
1.00	1.00	BD23 1ET		0	2	0	62	3	4	4	4	3
1.00	1.00	PE4 6EX		0	2	0	116	3	4	4	4	4
1.00	1.00	NN2 8DF		0	2	0	80	3	4	4	4	4
1.00	1.00	PL6 8UN		0	3	0	64	3	4	2	2.5	2
1.00	1.00	RG30 4UA		0	3	0	68	3	4	4	4	2.75
1.00	1.00	OL16 2EP		0	2	0	108	3	4	3	3	2
1.00	1.00	L20 9LQ		0	2	0	92	3	2	3	3	2.75
1.00	1.00	SL1 5NL		0	3	0	129	3	4	4	3.25	4
1.00	1.00	ST5 0EX		0	2	0	48	2	3	3	2.5	3
1.00	1.00	ST16 3NN		0	2	0	62	4	4	4	4	3.25
1.00	1.00	SK2 5LB		0	2	0	73	3	4	4	4	2
1.00	1.00	SK5 7EU		0	6	0	98	3	3	3	3	4
1.00	1.00	ST6 6PB		0	2	0	54	3	4	3	3.5	2.75
1.00	1.00	ST3 1QZ		0	3	0	40	3	3	4	2.5	2
1.00	1.00	IP1 6DW		0	2	0	100	3	4	4	4	4
1.00	1.00	WF1 5NU		0	2	0	76	3	4	4	4	2
1.00	1.00	WS5 4NN		0	2	0	80	3	4	4	4	2

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1.00	1.00	WS8 6AU		0	3	0	46	3	4	4	4	4
1.00	1.00	WS3 2HR		0	2	0	120	3	4	4	4	2
1.00	1.00	WA1 3DX		0	2	0	42	3	4	4	4	5
1.00	1.00	CV12 0DP		0	2	0	78	3	4	4	4	4
1.00	1.00	CV34 4LJ		0	2	0	79	3	3	4	3.5	3.25
1.00	1.00	CV31 2PW		0	2	0	79	3	4	3	3	2
1.00	1.00	RG5 4JJ		0	3	0	145	3	3	3	3	5
1.00	1.00	WV14 0LT		0	3	0	46	1.5	4	4	2.5	4
1.00	1.00	WV4 6EL		0	2	0	72	2	4	4	4	2
1.00	1.00	YO24 4BD		0	2	0	109	3	4	4	4	4
2.00	1.00	OX11 7HX		0	3	0	60	3.25	4	4	3.75	3.25
2.00	1.00	OX5 1EA		0	2	0	52	3.5	4	4	3.5	2.75
2.00	1.00	OX9 3HU		0	3	0	52	3.5	4	4	4	4
2.00	1.00	OX2 9JZ		0	3	0	74	3	4	4	3	2.75
2.00	1.00	OX3 8QQ		0	3	0	63	3.75	4	4	3.75	3.25
2.00	1.00	EN4 8SD		0	3	0	83	3.5	4	4	3.5	3.5
2.00	1.00	EN4 9NT		0	3	0	102	3.75	4	4	3.5	3
2.00	1.00	B42 2PX		0	2	0	58	3.25	3	4	2.75	2.75

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2.00	1.00	BL4 8AR		0	3	0	82	3.5	3	4	3.25	4	2
2.00	2.00	NW10 9SD		1	3	0	124	3.25	4	3	3	3.5	2
2.00	1.00	BN2 0GR		0	3	0	113	3.25	4	4	3.75	4	2
2.00	1.00	BS16 2LL		0	3	0	76	3.75	4	4	3.5	4	3
2.00	1.00	BS2 0DT		0	2	0	65	3	3	2	2.5	2	1
2.00	1.00	HP13 6HR		0	2	0	85	3.25	4	4	3.75	4	1
2.00	1.00	WC1N 2NY		0	6	0	108	3.5	3	4	3.5	4	1
2.00	1.00	LU6 1DL		0	2	0	84	3	4	3	2.75	2.75	2
2.00	1.00	LU5 4QU		0	3	0	64	4	4	3	3	2.25	4
2.00	1.00	SE25 5PL		0	3	0	31	3	2	3	2.75	2.5	2
2.00	1.00	CA25 5LW		0	2	0	43	3	4	4	4	4	2
2.00	1.00	DL3 7PY		0	2	0	150	4	4	4	4	4	4
2.00	1.00	SK13 0LU		0	6	0	68	4	4	4	4	4	2
2.00	1.00	W3 7LL		0	2	0	62	4	4	4	4	4	3
2.00	1.00	HU12 8JB		0	3	0	129	4	3	4	3.5	4	4
2.00	1.00	SE2 0SX		0	3	0	120	3.75	4	4	4	4	1
2.00	1.00	E9 5BY		0	2	0	85	3.5	4	4	4	4	2
2.00	1.00	W6 8PF		0	3	0	46	3	3	3	4	3	2
2.00	1.00	W12 7PH		0	5	0	144	4	4	4	4	4	1

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2.00	1.00	W12 9JA		0	3	0	45	3.5	2	3	3	2.5
2.00	1.00	GU34 2DR		0	3	0	56	4	4	4	3.75	2
2.00	1.00	EN8 9DW		0	3	0	72	3.5	3	4	2.75	3.25
2.00	1.00	EN8 8DH		0	2	0	63	3.5	4	4	4	4
2.00	1.00	HP1 1TT		0	2	0	61	3.75	4	3	3.5	3
2.00	1.00	WD19 4RL		0	2	0	80	2.75	3	3	2.75	3
2.00	1.00	SG2 9EA		0	2	0	85	3	4	3	4	3
2.00	1.00	SG5 1XA		0	2	0	110	4	4	4	4	4
2.00	1.00	HU2 9AP		0	2	0	39	2.75	4	4	4	4
2.00	1.00	HU6 8HT		0	2	0	140	3.5	4	4	4	4
2.00	1.00	BB10 3ES		0	2	0	80	3.25	3	3	3	3
2.00	1.00	BB11 4BU		0	2	0	64	4	4	4	4	2
2.00	1.00	BB12 8TG		0	2	0	76	3.75	4	4	4	4
2.00	1.00	BB9 5BE		0	2	0	79	4	4	4	4	2
2.00	1.00	PE21 0LJ		0	2	0	75	3.75	4	4	4	4
2.00	1.00	DN21 2RR		0	2	0	89	3.5	4	4	4	2
2.00	1.00	NG31 9BB		0	2	0	107	3.5	4	4	4	4
2.00	1.00	MK2 2HB		0	2	0	86	4	4	4	4	3

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2.00	1.00	E6 1AS		0	3	0	137	4	4	4	4	3
2.00	1.00	DN33 2EW		0	2	0	93	4	4	4	4	3
2.00	1.00	NN8 2AX		0	2	0	59	3	3	3	3	2
2.00	1.00	NN5 7DF		0	3	0	109	4	4	4	4	4
2.00	1.00	RG4 5AU		0	2	0	123	4	4	4	4	3
2.00	1.00	TW9 2HP		0	3	0	84	3	3	3	3	4
2.00	1.00	S016 3EP		0	2	0	122	3	3	3	3	2
2.00	1.00	SE21 8QS		0	2	0	120	3.5	4	4	4	1
2.00	1.00	SE15 6DY		0	2	0	82	3	3	3	3	2
2.00	1.00	L35 4NW		0	2	0	70	3.5	4	4	4	4
2.00	1.00	B77 2AH		0	5	0	90	4	3	3	3.5	4
2.00	1.00	ST2 0HW		0	2	0	60	4	3	4	3.75	2
2.00	1.00	ST3 7AN		0	3	0	60	3.5	4	3	3.5	2
2.00	1.00	ST1 4LR		0	3	0	45	2.25	3	3	3	2
2.00	1.00	DH5 0AH		0	2	0	76	4	4	4	4	4
2.00	1.00	NE37 3BL		0	2	1	126	4	4	4	4	4
2.00	1.00	RH 4 1BY		0	3	0	71	4	4	4	4	2
2.00	1.00	TF7 5ET		0	2	0	82	4	4	4	4	2

YEAR	INSPECTION NUMBER	Postcode	CHANGE IN PROVISION LEADER	AGE RANGE	SINGLE SEX	Number on Role	LEARNING STANDARDS	BEHAVIOUR	CARING	QUALITY OF PROVISION	LEADERSHIP AND MANAGEMENT	Affluence
2.00	1.00	TF2 6AL		0	3	0	68	3	3	3	3	3
2.00	1.00	SW12 8JL		0	3	0	69	3.75	4	4	4	2
2.00	1.00	CV8 1JP		0	2	0	80	4	4	4	4	4
2.00	1.00	RG17 0HY		0	3	0	62	3.75	3	3	3	3.5
2.00	1.00	BN15 9QX		0	3	0	141	3.5	3	3	4	4
2.00	1.00	W9 3DF		0	3	0	60	4	4	4	4	2
2.00	1.00	WN2 3HJ		0	2	0	44	4	4	4	4	2
2.00	1.00	WV1 2HH		0	2	0	60	3.25	3	3	3	3.5
2.00	1.00	WR11 1DG		0	2	0	42	4	4	4	4	2
3.00	1.00	BS2 0SU		0	2	0	119	3.714285714	4	4	3.2	3.75
3.00	1.00	DY2 9QF		0	2	0	45	3	4	4	3.6	3
3.00	1.00	DH7 8LL		0	3	0	78	3	3	3	3	2
3.00	1.00	UB2 5PF		0	5	0	120	3.571428571	4	3	3	3
3.00	1.00	UB1 2JL		0	3	0	80	3.428571429	4	4	3.6	4
3.00	1.00	NI 5RF		0	3	0	57	3.714285714	4	3	4	3.25
3.00	1.00	PO13 0UY		0	6	0	140	3.428571429	4	4	3.6	3.25
3.00	1.00	PR6 0SL		0	2	0	67	4	4	4	4	3
3.00	1.00	BB12 0BU		0	2	0	80	3	4	3	3	2

YEAR	INSPECTION NUMBER	Postcode	CHANGE IN PROVISION LEADER	AGE RANGE	SINGLE SEX	Number on Role	LEARNING STANDARDS	BEHAVIOUR	CARING	QUALITY OF PROVISION	LEADERSHIP AND MANAGEMENT	Affluence
3.00	1.00	PE30 5PT		0	3	0	71	3	3	3	3	3
3.00	1.00	NN8 4AB		0	2	0	120	4	4	4	4	4
3.00	1.00	OL12 0PP		0	2	0	43	3	3	3	3	2
3.00	1.00	S26 3XH		0	6	0	80	3	3	3	3	4
3.00	1.00	PR9 8ND		0	2	0	79	3	3	3	3	2
3.00	1.00	S12 3AB		0	3	0	156	3	3	3	3	2
3.00	1.00	WS11 5BU		0	3	0	31	3	3	3	3	3
3.00	1.00	WF8 2ER		0	2	0	52	3	3	3	3	2
3.00	1.00	WS2 9UP		0	2	0	130	3	3	3	3	2
3.00	1.00	PO21 2TB		0	3	0	103	3	3	3	3	2
3.00	1.00	CH44 4BB		0	3	0	51	3	3	3	3	3
4.00	1.00	OX25 2SN		0	2	0	52	2.857142857	4	3	3	2.8
4.00	1.00	OX33 1NN		0	3	0	28	3.142857143	3	3	3	3.2
4.00	1.00	B23 7HG		0	2	0	80	3.142857143	3	4	3.5	3.6
4.00	1.00	B15 2AF		0	6	0	72	3.142857143	3	4	3.5	3.4
4.00	1.00	BD8 8HT		0	3	0	56	3.571428571	3	3	3	2.8
4.00	1.00	BD21 4LW		0	3	0	129	3	4	4	3.5	2.6
4.00	1.00	BS4 1BX		0	5	0	170	3.857142857	4	4	3.5	3.4

YEAR	INSPECTION NUMBER	Postcode	CHANGE IN PROVISION LEADER	AGE RANGE	SINGLE SEX	Number on Role	LEARNING STANDARDS	BEHAVIOUR	CARING	QUALITY OF PROVISION	LEADERSHIP AND MANAGEMENT	Affluence
4.00	1.00	BS4 1NN		0	3	0	84	3	3	3	2.5	2.6
4.00	1.00	BS1 6RR		0	5	0	80	3.142857143	4	4	3.5	3.8
4.00	1.00	SG15 6SL		0	3	0	73	3.571428571	4	4	3	4
4.00	1.00	SG18 0PT		0	3	0	115	3.142857143	4	3	3.5	3.8
4.00	1.00	DL1 1SG		0	3	0	111	3.571428571	3	3	3	3
4.00	1.00	DE24 9AX		0	2	0	102	3.857142857	4	4	4	3.4
4.00	1.00	SK13 2DW		0	2	0	89	3.857142857	4	4	4	4
4.00	1.00	DL14 6PX		0	2	0	73	3	3	3	3	3
4.00	1.00	SE10 0EA		0	5	0	218	4	4	3	3.5	3.4
4.00	1.00	WA8 7TH		0	2	0	101	3	4	4	4	4
4.00	1.00	AL3 5JB		0	3	0	181	3	3	3	3	3
4.00	1.00	W10 5YU		0	2	0	44	3	3	3	3	3
4.00	1.00	W10 6NQ		0	3	0	51	3	3	3	3	3
4.00	1.00	DA11 9JS		0	3	0	65	3	3	3	3	3
4.00	1.00	HU5 2SG		0	3	0	58	4	4	4	4	2
4.00	1.00	HD1 3SP		0	3	0	97	3	3	3	3	3
4.00	1.00	SE11 6UP		0	3	0	55	3.285714286	4	4	4	4
4.00	1.00	SE8 5NH		0	6	0	126	3	3	3	3	3

YEAR	INSPECTION NUMBER	Postcode	CHANGE IN PROVISION LEADER	AGE RANGE	SINGLE SEX	Number on Role	LEARNING STANDARDS	BEHAVIOUR	CARING	QUALITY OF PROVISION	LEADERSHIP AND MANAGEMENT	Affluence
4.00	1.00	BB5 2LH		0	2	0	110	4	4	4	3.8	4
4.00	1.00	BB9 9AG		0	2	0	108	3	3	3	3.6	2
4.00	1.00	LU3 2BT		0	2	0	152	3	3	3	3.2	4
4.00	1.00	LU4 OPE		0	3	0	135	3	3	3	3.2	2
4.00	1.00	LU1 1RB		0	3	0	50	3	3	3	3	3
4.00	1.00	NE4 8XT		0	2	0	104	3	3	3	3	2
4.00	1.00	DN37 9NN		0	2	0	114	3	3	3	3	4
4.00	1.00	NN4 8PH		0	2	0	79	4	4	4	4	2
4.00	1.00	PO4 0DT		0	2	0	44	3	3	3	3	3
4.00	1.00	RG4 8BH		0	3	0	67	3	3	3	3	4
4.00	1.00	S62 6AD		0	3	0	137	3	3	3	3	2
4.00	1.00	NE31 1QY		0	2	0	70	3	3	3	3	2
4.00	1.00	NE32 5UP		0	2	0	36	4	3	3	3.4	2
4.00	1.00	SE1 3BW		0	2	0	152	3	3	3	3	3
4.00	1.00	ST2 8JY		0	3	0	33	3	3	3	3	2
4.00	1.00	SR5 5QL		0	2	0	56	3	3	3	3	2
4.00	1.00	E3 3HL		0	3	0	95	3	3	3	3	2
4.00	1.00	E2 7PG		0	2	0	92	4	4	4	4	2
4.00	1.00	E2 0PS		0	2	0	93	3	3	3	3	2

YEAR	INSPECTION NUMBER	Postcode	CHANGE IN PROVISION LEADER	AGE RANGE	SINGLE SEX	Number on Role	LEARNING STANDARDS	BEHAVIOUR	CARING	QUALITY OF PROVISION	LEADERSHIP AND MANAGEMENT	Affluence
4.00	1.00	WS3 3LU		0	2	0	53	3	3	3	3	3
4.00	1.00	WS10 7RU		0	3	0	38	3	3	4	3	2
4.00	1.00	CV10 8HL		0	2	0	74	4	4	4	4	2
4.00	1.00	NW8 8DE		0	4	0	260	4	4	4	4	1
4.00	1.00	WN1 3SU		0	2	0	104	3	3	3	3	2
4.00	1.00	SL6 9BT		0	3	0	69	3	3	3	3	4
4.00	1.00	SL6 7PG		0	3	0	71	3	3	3	3	4
4.00	1.00	WV10 8JP		0	3	0	69	3	3	3	3	2
4.00	1.00	WV10 9JN		0	3	0	39	3	3	3	3	2
4.00	1.00	WV2 3JS		0	2	0	37	3	3	3	3	3
5.00	2.00	BB2 1QU		0	2	0	70	2.5	3	3	3	2
5.00	1.00	B31 3HB		0	2	0	72	3	3	3	3	3
5.00	2.00	BL3 4AH		0	3	0	120	2.5	4	4	3.5	2
5.00	1.00	BL5 2SE		0	3	0	50	2	2	2	2.5	4
5.00	1.00	BL1 2XN		0	4	0	87	2.5	3	3	2	2
5.00	1.00	BD18 4NJ		0	3	0	92	2	2	2	2.333333333	2
5.00	2.00	BD8 9AH		1	3	0	55	2.5	4	4	3	2
5.00	1.00	NW10 3PH		0	5	0	56	2.5	3	2	2.833333333	5

YEAR	INSPECTION NUMBER	Postcode	CHANGE IN PROVISION LEADER	AGE RANGE	SINGLE SEX	Number on Role	LEARNING STANDARDS	BEHAVIOUR	CARING	QUALITY OF PROVISION	LEADERSHIP AND MANAGEMENT	Affluence
5.00	1.00	BN2 0BT		0	2	0	40	3	3	3		3
5.00	2.00	BL9 6HR		1	3	0	90	1.5	3	3	2	3
5.00	1.00	CB5 8ND		0	2	0	89	3	3	2	2.5	2.666666667
5.00	1.00	CW2 7LJ		0	3	0	53	3	3	3	3	2.833333333
5.00	1.00	CH1 2DW		0	2	0	104	3	3	3		3
5.00	1.00	TR1 3RJ		0	3	0	30	2.5	2	2	2.5	2.5
5.00	1.00	SE25 5BD		0	2	0	89	3	3	3		3
5.00	2.00	LA9 4PH		1	2	0	66	3	3	3		3
5.00	1.00	DE23 8PE		0	3	0	83	2	3	2	1.5	1.666666667
5.00	1.00	DE23 6TJ		0	2	0	75	2	2	2		2
5.00	1.00	DE23 8QJ		0	2	0	80	3.5	3	3		3
5.00	1.00	DE1 3PJ		0	4	0	92	3	4	4	3	3.166666667
5.00	1.00	DL15 8QG		0	2	0	69	3.5	4	4	4	3.666666667
5.00	2.00	SR8 4TB		0	2	0	103	3.5	4	4		4
5.00	1.00	DL16 6RU		0	2	0	78	3	3	3		3
5.00	2.00	DH9 7LR		0	2	0	132	2.5	4	4	2.5	3
5.00	1.00	TS28 5BD		0	3	0	74	4	3	3		3.5
5.00	1.00	HU18 1PB		0	2	0	118	1.5	2	2		1

YEAR	INSPECTION NUMBER	Postcode	CHANGE IN PROVISION LEADER	AGE RANGE	SINGLE SEX	Number on Role	LEARNING STANDARDS	BEHAVIOUR	CARING	QUALITY OF PROVISION	LEADERSHIP AND MANAGEMENT	Affluence
5.00	1.00	NE8 2XD		0	3	0	51	3	3	3		3
5.00	2.00	WA8 0AR		0	3	0	69	4	4	4	3.666666667	2
5.00	1.00	AL7 3RP		0	3	0	149	2.5	3	3	3.166666667	2
5.00	1.00	AL6 9JF		0	3	0	81	2	2	2.5	2	5
5.00	2.00	HD8 8RX		1	3	0	74	3	3	3	2.833333333	2
5.00	1.00	WF13 2SU		0	3	0	117	2	2	2	2	2
5.00	1.00	BB9 0HW		0	3	0	83	2.5	3	2	2	2
5.00	1.00	PR1 3XU		0	4	0	98	3	3	3		1
5.00	2.00	L14 1PW		0	3	0	61	4	4	4	3.666666667	2
5.00	1.00	NE30 4AG		0	3	0	113	3	3	3		3
5.00	2.00	BD23 2ES		1	3	0	54	3	4	4		3
5.00	1.00	YO11 1UB		0	2	0	101	3	3	3		5
5.00	2.00	BD23 1ET		0	3	0	62	4	4	4		3
5.00	1.00	NN16 9PH		0	2	0	60	3	3	3		3
5.00	2.00	M24 2AH		0	3	0	43	4	4	4		2
5.00	1.00	SL1 3EA		0	3	0	129	3	3	3		3
5.00	1.00	NE36 0DL		0	3	0	77	3	3	2	2.666666667	4
5.00	1.00	DH5 9DG		0	2	0	59	2	3	3		2

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5.00	1.00	SR3 2LE		0	3	0	79	3	3	3		3 2
5.00	1.00	E1 4NQ		0	3	0	75	2.5	3	3		3 3
5.00	1.00	RG14 1EH		0	3	0	112	3	3	3		3 3
6.00	1.00	OX4 3AJ		0	3	0	80	2	3	2	2.5	2 3
6.00	1.00	OX7 5DZ		0	3	0	71	4	4	3	4	4 5
6.00	1.00	OX3 8LH		0	3	0	79	3	4	3	3	3.333333333 4
6.00	2.00	MK42 9LS		1	3	0	127	2	3	3	3	2.833333333 2
6.00	2.00	Mk42 9HE		0	3	0	72	4	4	4	4	3.833333333 3
6.00	2.00	B33 8QB		0	2	0	52	1.5	2	2	2	2 5
6.00	1.00	B19 2XJ		0	2	0	104	3	4	4	4	3.666666667 4
6.00	2.00	B35 6DU		0	3	0	95	2.5	3	3	3	2.833333333 2
6.00	2.00	B29 5LB		1	2	0	65	3	3	3	3	2.833333333 2
6.00	1.00	B44 8RL		0	2	0	69	3.5	4	4	4	3.833333333 2
6.00	2.00	B11 1ED		1	2	0	39	2.5	3	3	3	2.666666667 2
6.00	2.00	B14 4BH		1	2	0	51	2	3	3	2.5	2 2
6.00	2.00	B12 9NX		0	2	0	77	2	3	3	2.5	2 2
6.00	2.00	B38 8SY		1	2	0	61	3	3	4	3	3.166666667 4
6.00	1.00	B5 7LX		0	2	0	73	3	3	4	4	4 2
6.00	1.00	B45		0	2	0	80	2	3	2	2	1.833333333 3

YEAR	INSPECTION NUMBER	Postcode	CHANGE IN PROVISION LEADER	AGE RANGE	SINGLE SEX	Number on Role	LEARNING STANDARDS	BEHAVIOUR	CARING	QUALITY OF PROVISION	LEADERSHIP AND MANAGEMENT	Affluence
		9PB										
6.00	1.00	B31 1BS	0	2	0	61	2.5	3	4	3	3	2
6.00	1.00	B8 2SY	0	2	0	160	2.5	3	4	3	3	2
6.00	2.00	BB3 2DN	0	2	0	102	2.5	4	4	3	3.333333333	2
6.00	2.00	BL4 8AR	0	3	0	82	2.5	4	4	3	3	2
6.00	2.00	BD9 5AD	1	3	0	63	3	4	4	4	3.833333333	2
6.00	1.00	NW10 8DX	0	3	0	42	1.5	3	2	2	2	1
6.00	1.00	BS13 0JW	0	3	0	102	2.5	4	4	3.5	3.833333333	2
6.00	2.00	BS5 7SY	1	2	0	81	2.5	3	4	3	3	1
6.00	1.00	BS2 9JE	0	2	0	59	2.5	3	4	3	3.166666667	3
6.00	2.00	HP6 6NW	0	2	0	90	2.5	4	4	3.5	2.833333333	5
6.00	2.00	CB4 2LD	0	2	0	80	3.5	4	4	4	3.833333333	3
6.00	2.00	TR14 7DT	1	3	0	56	2.5	3	3	3	3.166666667	2
6.00	1.00	LA14 2RX	0	5	0	54	2.5	3	3	3	2.833333333	2
6.00	1.00	CA26 3PF	0	2	0	38	2	3	3	2.5	2	2
6.00	2.00	LA14 5TS	0	2	0	86	2.5	3	3	3	3	2
6.00	2.00	LA18 4JE	0	2	0	80	3	4	4	4	3.833333333	3
6.00	2.00	DL3 7PY	1	3	0	150	4	4	4	4	3.833333333	4
6.00	2.00	DE1 2PU	1	2	0	36	3	3	3	3	3	3

YEAR	INSPECTION NUMBER	Postcode	CHANGE IN PROVISION LEADER	AGE RANGE	SINGLE SEX	Number on Role	LEARNING STANDARDS	BEHAVIOUR	CARING	QUALITY OF PROVISION	LEADERSHIP AND MANAGEMENT	Affluence
6.00	2.00	DE55 7JA		0	2	0	99	3.5	3	4	4	3.833333333
6.00	2.00	SK17 9QT		1	2	0	43	2.5	3	4	3	3.333333333
6.00	2.00	DE5 3HE		0	2	0	146	3.5	4	4	4	4
6.00	2.00	EX2 6DJ		1	3	0	67	3.5	3	4	4	4
6.00	1.00	EX4 1HL		0	2	0	73	2	2	3	2.5	2
6.00	2.00	DL14 7RF		0	2	0	78	2.5	3	3	2	2
6.00	1.00	SR7 7NN		0	2	0	78	3	4	4	4	3.833333333
6.00	2.00	DL16 6EX		0	2	0	56	3.5	4	4	4	4
6.00	2.00	HU12 8JB		1	2	0	129	3.5	4	4	4	3.833333333
6.00	2.00	HU17 7BT		0	3	0	140	4	4	4	4	4
6.00	1.00	WA8 8DF		0	3	0	90	3	4	3	3.5	2.833333333
6.00	2.00	PO13 0UY		1	3	0	130	3.5	4	4	3.5	3.5
6.00	1.00	N15 3SD		0	2	0	76	2.5	3	4	3	3
6.00	1.00	AL2 1JG		0	3	0	59	2	3	3	3	3
6.00	2.00	UB3 2PD		1	3	0	123	3	4	4	4	3.833333333
6.00	2.00	HU6 8HT		1	3	0	140	2.5	4	4	3	2.833333333
6.00	1.00	LA1 5QB		0	2	0	48	3.5	4	4	3	3.333333333
6.00	2.00	OL13 8EF		1	2	0	80	2.5	3	3	3	2.666666667

YEAR	INSPECTION NUMBER	Postcode	CHANGE IN PROVISION LEADER	AGE RANGE	SINGLE SEX	Number on Role	LEARNING STANDARDS	BEHAVIOUR	CARING	QUALITY OF PROVISION	LEADERSHIP AND MANAGEMENT	Affluence	
6.00	2.00	PR7 3DU		1	2	0	79	4	4	3.5	3.833333333	2	
6.00	2.00	BB12 6DY		0	2	0	65	3	4	3	3	2	
6.00	2.00	BB7 1EL		1	2	0	100	3	3	3	2.833333333	2	
6.00	1.00	BB11 3PU		0	2	0	96	2.5	4	4	3	3.166666667	2
6.00	2.00	BB12 6AJ		1	3	0	63	3	4	4	3	3	2
6.00	2.00	BB4 7UE		0	2	0	110	3	4	4	3.5	3.5	2
6.00	2.00	BB11 5AE		0	2	0	64	2.5	4	3	3	3	2
6.00	2.00	BB9 8BP		0	2	0	76	3	4	4	4	4	3
6.00	2.00	LN3 4LQ		0	2	0	141	4	4	4	4	4	4
6.00	2.00	L11 2RY		0	3	0	29	2.5	3	3	3	3	2
6.00	1.00	LU2 0JS		0	3	0	117	3.5	4	4	4	4	2
6.00	1.00	M40 7QD		0	3	0	71	3	4	4	4	3.666666667	1
6.00	1.00	NE4 7NL		0	2	0	58	2	3	4	3.5	3.5	1
6.00	2.00	NE15 8PY		0	2	0	78	3.5	3	4	4	4	3
6.00	2.00	NR5 8DB		0	3	0	134	2.5	4	3	3.5	3.166666667	2
6.00	1.00	PE14 8AY		0	3	0	80	2.5	4	4	4	4	4
6.00	2.00	DN33 2EW		1	2	0	93	4	4	4	4	4	3
6.00	2.00	NN8 2AX		0	2	0	59	2.5	3	3	3	3	2

YEAR	INSPECTION NUMBER	Postcode	CHANGE IN PROVISION LEADER	AGE RANGE	SINGLE SEX	Number on Role	LEARNING STANDARDS	BEHAVIOUR	CARING	QUALITY OF PROVISION	LEADERSHIP AND MANAGEMENT	Affluence	
6.00	2.00	NN3 6DW		0	2	0	68	3	4	4	3.5	3.166666667	4
6.00	1.00	PL2 2NJ		0	3	0	85	3	4	3	3	2.833333333	2
6.00	2.00	PL6 8UN		0	2	0	64	3	3	3	3	2.833333333	2
6.00	1.00	RG2 7NT		0	3	0	81	1.5	3	3	2	1.833333333	3
6.00	2.00	OL10 4QJ		0	3	0	75	2.5	3	4	3	3	2
6.00	2.00	S26 3XH		0	2	0	80	4	4	4	4	3.833333333	4
6.00	2.00	S65 2LY		0	3	0	130	3	4	4	4	4	2
6.00	2.00	L20 6PJ		0	3	0	74	2.5	3	3	3	3.333333333	2
6.00	1.00	L21 4NB		0	3	0	42	3	4	3	3.5	3	1
6.00	2.00	S10 2DN		1	3	0	113	3	4	4	2.5	3.5	3
6.00	2.00	S2 5SB		0	3	0	61	2.5	4	4	3.5	3.666666667	1
6.00	1.00	SL1 3HS		0	2	0	101	2.5	3	3	3	3	2
6.00	2.00	SL2 5JW		1	3	0	120	2.5	4	4	3	3	3
6.00	2.00	NE35 9DG		1	2	0	79	1.5	3	3	2	2	2
6.00	2.00	WS12 5AR		0	2	0	71	4	4	4	4	3.833333333	2
6.00	2.00	SK5 6JW		0	3	0	56	2.5	3	3	3	2.833333333	2
6.00	2.00	SK4 3NB		0	3	0	77	4	4	4	4	4	4
6.00	2.00	SK3 0BJ		0	3	0	107	4	4	4	4	3.666666667	3
6.00	2.00	SK3 9PH		1	3	0	47	2.5	4	3	3	3.166666667	2

YEAR	INSPECTION NUMBER	Postcode	CHANGE IN PROVISION LEADER	AGE RANGE	SINGLE SEX	Number on Role	LEARNING STANDARDS	BEHAVIOUR	CARING	QUALITY OF PROVISION	LEADERSHIP AND MANAGEMENT	Affluence
6.00	1.00	DH5 8AB		0	2	0	69	3	3	4	3	2.666666667
6.00	2.00	SR4 6JR		0	2	0	70	2.5	4	4	3	2.833333333
6.00	1.00	NE38 0LA		0	2	0	79	3	3	4	3	3
6.00	2.00	SR4 9AX		0	2	0	93	3	4	4	4	3.833333333
6.00	1.00	GU1 1NR		0	3	0	151	3	3	3	3.5	2.666666667
6.00	2.00	E1 4NQ		1	3	0	59	2.5	4	3	3	3
6.00	2.00	WF1 5NU		0	3	0	76	3	3	4	4	3.666666667
6.00	2.00	WV12 4JQ		1	2	0	104	2.5	4	4	3	3
6.00	2.00	WS3 1HT		0	2	0	79	2.5	3	3	3	3
6.00	1.00	E11 3HF		0	2	0	103	2.5	3	3	3	3
6.00	2.00	E17 9SB		0	2	0	77	4	4	4	4	3.833333333
6.00	1.00	E4 7LQ		0	2	0	79	3	3	4	3.5	3.166666667
6.00	1.00	E17 8BE		0	3	0	60	3.5	4	4	4	3.666666667
6.00	2.00	SW15 5PW		1	3	0	49	3	3	3	3	3
6.00	2.00	SW11 3ND		0	2	0	76	3.5	4	4	4	3
6.00	2.00	CV9 1LF		1	2	0	75	3.5	4	4	4	3.833333333
6.00	2.00	CV12 0DP		0	2	0	78	3	3	3	3	3
6.00	2.00	CV34 4LJ		0	2	0	69	2	3	3	2	2
6.00	1.00	PO19 7AB		0	2	0	119	3.5	4	4	4	3.833333333

YEAR	INSPECTION NUMBER	Postcode	CHANGE IN PROVISION LEADER	AGE RANGE	SINGLE SEX	Number on Role	LEARNING STANDARDS	BEHAVIOUR	CARING	QUALITY OF PROVISION	LEADERSHIP AND MANAGEMENT	Affluence
6.00	2.00	RH13 5UT		1	2	0	67	2.5	3	4	3	3.166666667
6.00	2.00	SL4 3RU		1	3	0	120	3	3	4	3.5	4
6.00	2.00	CH46 2QF		0	3	0	84	2.5	3	3	3	3
6.00	2.00	WV11 2LH		1	2	0	77	2.5	4	4	3	2
6.00	1.00	WR11 1DG		0	2	0	52	4	4	4	4	2
7.00	2.00	OX1 4QH		0	3	0	72	4	4	4	4	3.833333333
7.00	2.00	OX11 7HX		0	3	0	95	4	4	4	4	3
7.00	2.00	OX5 2LG		0	3	0	42	4	4	4	3.5	3.5
7.00	2.00	OX5 1EA		0	2	0	49	4	3	4	3	3.333333333
7.00	2.00	OX9 3HU		0	3	0	22	3	3	2	2	4
7.00	2.00	OX3 8QQ		0	3	0	72	4	4	4	3.5	2.833333333
7.00	2.00	OX2 9JZ		0	3	0	42	3	3	3	3	4
7.00	2.00	EN4 8SD		1	3	0	83	4	4	3	3.5	3.166666667
7.00	2.00	N14 5DJ		1	3	0	82	4	4	4	4	3.833333333
7.00	2.00	N3 1NR		1	3	0	130	4	4	4	3.5	3
7.00	2.00	EN4 9NT		0	3	0	102	4	4	4	3.5	3.666666667
7.00	2.00	MK42 9DR		0	3	0	113	4	4	4	3.5	3
7.00	2.00	B8 1HN		0	5	0	126	3	3	3	3	2.833333333
7.00	2.00	B14		1	3	0	52	4	4	4	3.5	3.833333333

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		6RP										
7.00	2.00	B7 5BX		1	3	0	70	4	4	4	4	1
7.00	2.00	B23 6AU		1	3	0	66	3	3	3	2	1
7.00	2.00	B26 2JL		1	2	0	78	3.5	4	3	3	4
7.00	2.00	B8 3QU		1	2	0	118	4	3	4	3.5	2
7.00	1.00	B19 2NS		0	3	0	60	4	4	4	3.833333333	2
7.00	2.00	B23 6UB		1	2	0	60	4	4	4	3	2
7.00	2.00	B42 2PX		0	2	0	58	4	4	4	3	2
7.00	2.00	B29 6BP		1	2	0	52	4	4	4	3.833333333	2
7.00	2.00	BB1 1HN		1	2	0	80	3	3	3	3	2
7.00	2.00	BB2 3NF		0	2	0	80	4	3	3	3.5	2
7.00	1.00	BD5 9HL		0	3	0	104	4	4	4	4	2
7.00	2.00	BD8 7DJ		0	3	0	72	4	4	4	4	2
7.00	3.00	NW10 9SD		0	5	0	102	3	3	2	2	2
7.00	2.00	BN2 0GR		0	5	0	113	4	4	4	4	2
7.00	2.00	BS7 0DL		1	3	0	123	4	4	4	3	2
7.00	2.00	BS16 2LL		0	3	0	79	4	4	3	3.333333333	3
7.00	2.00	BS2 0DT		1	4	0	40	3	3	2	2.833333333	1
7.00	2.00	BS2 0SU		1	3	0	102	4	4	4	3	2

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7.00	2.00	HP13 6HR		0	3	0	85	4	4	4	3.833333333	1
7.00	2.00	CB1 2LZ		1	2	0	79	4	3	4	3.5	3
7.00	2.00	CB4 4LL		0	2	0	80	4	4	4	4	4
7.00	2.00	CB1 7ST		0	2	0	119	4	4	4	4	4
7.00	2.00	PE29 1AD		0	3	0	119	4	4	4	3.666666667	2
7.00	2.00	LU5 4QU		1	3	0	64	4	4	4	3.833333333	4
7.00	1.00	CV1 5GR		0	3	0	167	3	3	3	2.833333333	3
7.00	2.00	CR5 3BT		1	3	0	53	3.5	3	3	3	5
7.00	2.00	CR8 2NE		1	3	0	91	4	4	4	3.5	3
7.00	2.00	SE25 SPL		1	4	0	31	2.5	3	3	3	2
7.00	2.00	CR7 8RF		1	3	0	91	3	3	3	2.666666667	2
7.00	2.00	CRO TY		0	2	0	104	4	3	3	3.5	3
7.00	2.00	CA25 5LW		1	2	0	77	4	4	4	3.833333333	2
7.00	2.00	DE1 1GJ		0	2	0	62	4	3	3	2.833333333	2
7.00	2.00	DE1 3LR		0	3	0	63	4	4	3	3	2
7.00	2.00	DE24 9AX		0	2	0	93	4	4	4	3.5	2
7.00	2.00	SK13 0LU		0	3	0	68	4	4	4	4	2
7.00	2.00	SK13 2DW		0	2	0	99	4	3	4	3.833333333	2

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7.00	2.00	SK22 4AQ		1	2	0	60	4	4	3		3 4
7.00	2.00	NG16 6NA		0	3	0	57	3.5	4	4		4 2
7.00	2.00	DE55 2JB		0	3	0	84	4	4	4		4 2
7.00	2.00	3DY2 9QF		0	2	0	103	4	4	3		3 2
7.00	2.00	DH8 6AY		0	2	0	78	4	4	4		4 2
7.00	2.00	DH7 8LL		0	2	0	78	3.5	4	4	3.5	3 2
7.00	2.00	UB2 5PF		1	6	0	61	4	3	4		4 3
7.00	2.00	W3 7LL		1	4	0	62	3.5	4	3	3.5	3.166666667 3
7.00	2.00	YO16 7BS		1	2	0	111	3	4	3		2.833333333 2
7.00	2.00	SE2 0SX		0	3	0	110	3	3	3		3 1
7.00	2.00	SE8 3EH		1	3	0	95	4	4	3		2.833333333 2
7.00	2.00	E9 5BY		0	2	0	85	4	4	4		4 2
7.00	2.00	W6 8PF		0	3	0	46	4	4	4		3.833333333 2
7.00	2.00	W14 9BH		0	3	0	77	4	4	4	3.5	
7.00	2.00	W12 7PH		1	5	0	144	3	3	3		2.833333333 1
7.00	2.00	W12 9JA		1	2	0	45	4	4	4		4 2
7.00	2.00	GU34 2DR		1	3	0	56	3.5	4	4		3.5 2
7.00	1.00	SO22 6AJ		0	3	0	96	3.5	4	4	3.5	3.666666667 2
7.00	1.00	N17 9XE		0	2	0	84	4	4	4		3 1

YEAR	INSPECTION NUMBER	Postcode	CHANGE IN PROVISION LEADER	AGE RANGE	SINGLE SEX	Number on Role	LEARNING STANDARDS	BEHAVIOUR	CARING	QUALITY OF PROVISION	LEADERSHIP AND MANAGEMENT	Affluence
7.00	1.00	N17 7LT		0	5	0	75	4	4	4	3.333333333	2
7.00	2.00	TS25 2AW		1	3	0	61	4	4	3	3	2
7.00	2.00	EN8 9DW		1	3	0	72	4	4	4	4	4
7.00	2.00	AL5 5BQ		0	2	0	100	4	4	4	3.833333333	4
7.00	2.00	AL10 0PD		0	2	0	109	4	4	4	4	4
7.00	2.00	EN8 8DH		1	3	0	75	3	3	3	3	4
7.00	2.00	HP1 1TT		0	2	0	61	4	4	3	4	4
7.00	2.00	WD25 0DX		0	2	0	56	3	3	3	3	3
7.00	2.00	WD19 4RL		1	3	0	80	4	4	4	3.166666667	2
7.00	2.00	EN11 0LN		0	2	0	120	4	4	4	4	4
7.00	2.00	SG7 6HD		0	2	0	105	4	4	4	3.833333333	2
7.00	2.00	SG5 1XA		0	2	0	110	4	4	4	4	4
7.00	2.00	SW3 5JE		0	3	0	59	4	4	4	4	4
7.00	2.00	W10 6TT		1	3	0	75	4	4	4	4	1
7.00	2.00	KT5 8RS		0	2	0	105	4	4	4	4	4
7.00	2.00	BB10 3ES		0	2	0	80	4	4	3	3.166666667	2
7.00	2.00	BB9 7QH		0	2	0	140	4	4	4	4	2
7.00	2.00	BB5 0LD		0	2	0	80	3.5	4	4	4	2

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7.00	2.00	PR6 0SL		1	2	0	67	3	3	3	2.833333333	3
7.00	2.00	BB4 5NH		0	2	0	86	4	4	3	3.333333333	2
7.00	2.00	L39 4RY		0	2	0	80	4	4	4	4	3
7.00	2.00	BB12 0BU		0	2	0	80	4	4	3	3	2
7.00	2.00	BB12 8TG		0	2	0	76	4	4	4	4	2
7.00	2.00	BB9 5BE		1	2	0	79	3	3	2	2.333333333	2
7.00	2.00	PE21 0JL		0	2	0	75	4	4	4	3.666666667	3
7.00	2.00	DN21 2RR		0	3	0	89	3	3	4	3.5	3
7.00	2.00	NG31 9BB		0	2	0	107	4	4	4	3	3
7.00	2.00	L8 7QA		0	3	0	51	4	2	3	3.166666667	3
7.00	2.00	L7 3HD		1	3	0	28	3	4	3	2.833333333	2
7.00	2.00	LU1 5EA		1	3	0	94	4	3	4	3	4
7.00	2.00	LU4 9JL		1	3	0	100	4	4	4	3.833333333	1
7.00	2.00	MK2 2HB		0	2	0	86	3.5	4	3	3.5	3
7.00	2.00	MK6 4LW		0	3	0	33	4	4	3	3.166666667	2
7.00	2.00	NE4 6JR		1	2	0	85	4	4	4	4	2
7.00	2.00	E16 3PB		0	3	0	101	3	4	3	3	2
7.00	2.00	E6 6BU		0	2	0	156	4	4	4	4	2
7.00	1.00	E15 3JT		0	3	0	84	3	4	3	2.833333333	1

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7.00	2.00	E6 1AS		1	3	0	137	4	3	3	3	3
7.00	2.00	PE4 6EX		0	4	0	116	4	4	4	4	4
7.00	1.00	NN17 1BJ		0	2	0	103	4	4	4	3	3.833333333
7.00	2.00	NN16 9PH		0	2	0	60	4	4	3	3	3
7.00	2.00	NN5 7DE		1	5	0	109	4	4	4	4	2
7.00	2.00	NN2 8DF		1	2	0	80	3.5	4	3	3.5	2.666666667
7.00	2.00	RG30 4UA		1	3	0	68	4	4	4	3	3.666666667
7.00	2.00	RG4 5AU		1	3	0	123	4	4	3	3.5	3
7.00	2.00	TW9 2HP		0	3	0	84	4	4	4	4	4
7.00	2.00	OL16 2EP		1	3	0	145	4	4	4	3.833333333	2
7.00	2.00	L20 9LQ		0	6	0	92	3	3	3	3.5	3.666666667
7.00	2.00	SL1 5NL		0	3	0	129	4	4	4	3.833333333	4
7.00	2.00	SO16 3EP		0	4	0	122	3	3	4	3.5	3
7.00	2.00	SE21 8QS		1	3	0	120	3.5	4	3	3	1
7.00	2.00	SE15 6DT		0	3	0	82	3	3	3	3	1
7.00	2.00	L35 4NW		1	3	0	70	4	4	3	3	4
7.00	2.00	ST5 0EX		1	2	0	48	3	3	3	2.833333333	4
7.00	2.00	B77 2AH		1	3	0	90	3	3	3	3	4

YEAR	INSPECTION NUMBER	Postcode	CHANGE IN PROVISION LEADER	AGE RANGE	SINGLE SEX	Number on Role	LEARNING STANDARDS	BEHAVIOUR	CARING	QUALITY OF PROVISION	LEADERSHIP AND MANAGEMENT	Affluence
7.00	2.00	SK2 5LB		0	3	0	71	4	4	4	3.666666667	2
7.00	2.00	SK5 7EU		1	3	0	98	4	4	3	3	4
7.00	2.00	ST6 6PB		1	3	0	54	4	4	4	4	3
7.00	1.00	ST4 2DQ		0	3	0	45	4	4	4	3.833333333	3
7.00	2.00	ST3 1QZ		0	3	0	40	4	4	4	3.833333333	2
7.00	2.00	IP1 6DW		1	2	0	100	4	4	4	3.833333333	4
7.00	2.00	DH5 0AH		0	2	0	80	4	4	4	3.666666667	4
7.00	2.00	NE37 3BL		0	2	1	126	3	3	3	3	4
7.00	2.00	RH4 1BY		0	3	0	71	4	4	4	4	2
7.00	2.00	TF7 5ET		0	2	0	82	4	4	4	4	2
7.00	2.00	TF2 6EP		0	2	0	70	4	4	2	3.166666667	2
7.00	2.00	WS5 4NN		0	2	0	80	4	4	3	3	2
7.00	2.00	WS8 6AU		0	2	0	46	3	3	3	2.833333333	2
7.00	2.00	WS10 7RU		1	2	0	33	3.5	4	4	4	2
7.00	2.00	WS3 2HR		1	2	0	120	4	4	4	4	2
7.00	2.00	SW12 8JL		0	3	0	69	4	4	4	3.833333333	2
7.00	1.00	WA2 9HY		0	3	0	90	3.5	4	4	3.333333333	2
7.00	2.00	CV8 1JP		0	3	0	80	4	4	4	4	4

YEAR	INSPECTION NUMBER	Postcode	CHANGE IN PROVISION LEADER	AGE RANGE	SINGLE SEX	Number on Role	LEARNING STANDARDS	BEHAVIOUR	CARING	QUALITY OF PROVISION	LEADERSHIP AND MANAGEMENT	Affluence
7.00	2.00	CV31 2PW		0	2	0	79	4	4	4	3.833333333	2
7.00	2.00	RG17 0HY		0	3	0	68	4	4	4	4	3
7.00	2.00	BN15 9QY		1	5	0	141	4	4	4	4	4
7.00	2.00	BN15 9QX		0	3	0	137	4	4	3	2.833333333	4
7.00	1.00	W9 3JY		0	3	0	80	4	4	4	3.166666667	2
7.00	2.00	W9 3DS		1	3	0	60	4	4	4	3.833333333	2
7.00	1.00	WN2 4LG		0	3	0	120	3	3	3	2.166666667	2
7.00	2.00	SL6 9BT		0	3	0	68	4	4	4	4	4
7.00	1.00	CH49 8HB		0	3	0	103	4	4	4	4	2
7.00	2.00	RG5 4JJ		0	3	0	145	4	4	4	4	5
7.00	2.00	WV14 0LT		1	5	0	46	4	4	4	4	2
7.00	2.00	WV10 8JP		0	2	0	86	4	4	4	4	2
7.00	2.00	WV1 2HH		0	3	0	60	4	4	4	4	2
7.00	2.00	WV10 9JN		1	2	0	71	3	3	3	3	2
7.00	2.00	WV2 3JS		0	3	0	40	4	3	3	3.333333333	3
7.00	2.00	WV4 6EL		1	2	0	72	4	4	4	3.833333333	2
7.00	2.00	YO24 4BD		1	2	0	109	4	4	4	3.833333333	4
8.00	2.00	OX25 2SN		0	2	0	38	3	3	3	2.857142857	4
8.00	2.00	OX33		0	3	0	38	3	3	3	2.714285714	4

YEAR	INSPECTION NUMBER	Postcode	CHANGE IN PROVISION LEADER	AGE RANGE	SINGLE SEX	Number on Role	LEARNING STANDARDS	BEHAVIOUR	CARING	QUALITY OF PROVISION	LEADERSHIP AND MANAGEMENT	Affluence
		1NN										
8.00	2.00	B23 7HG	0	2	0	93	3	3	4	3.5	3.142857143	2
8.00	2.00	B12 2AF	0	3	0	80	3	3	4	3.5	3.571428571	1
8.00	2.00	B29 5QD	1	2	0	52	3	3	4	3.5	3.142857143	2
8.00	2.00	B31 3HB	0	2	0	72	2.5	3	3	3	2.857142857	3
8.00	3.00	BB2 1QU	1	2	0	70	2.5	4	3	3.5	2.857142857	2
8.00	3.00	BL3 4AH	0	6	0	120	2.5	3	3	3	2.714285714	2
8.00	2.00	BL4 7BQ	1	3	0	98	3	4	4	4	2.857142857	4
8.00	2.00	BL1 2XN	0	3	0	57	3	4	4	4	4	2
8.00	2.00	BD8 8HT	1	3	0	121	2.5	3	4	3.5	3	2
8.00	2.00	BD18 4NJ	0	3	0	95	3	4	4	4	3.285714286	2
8.00	2.00	BD8 9QW	0	6	0	91	3.5	4	4	4	4	2
8.00	2.00	BD21 4LW	1	3	0	135	2.5	3	4	3.5	3.285714286	4
8.00	2.00	NW10 3PH	0	2	0	37	3.5	4	4	4	4	5
8.00	2.00	NW6 5RA	0	3	0	40	2.5	3	3	3	2.714285714	1
8.00	2.00	BN2 OBT	1	2	0	63	3.5	3	4	3.5	3.714285714	4
8.00	2.00	B54 1BX	0	5	0	173	3.5	3	4	3.5	4	2
8.00	2.00	BS4 1NN	1	2	0	90	3.5	4	4	4	4	2

YEAR	INSPECTION NUMBER	Postcode	CHANGE IN PROVISION LEADER	AGE RANGE	SINGLE SEX	Number on Role	LEARNING STANDARDS	BEHAVIOUR	CARING	QUALITY OF PROVISION	LEADERSHIP AND MANAGEMENT	Affluence
8.00	2.00	BS1 6RR		1	2	0	70	4	4	4		4
8.00	2.00	CB5 8ND		0	2	0	103	3	3	4	3.5	4
8.00	2.00	WC1N 2NY		1	6	0	108	3.5	4	4	4	1
8.00	2.00	5G15 6SL		1	3	0	65	3	4	4	4	2
8.00	2.00	SG10 0PT		0	2	0	78	2.5	3	3	3	3
8.00	2.00	LU6 1DL		0	3	0	84	3	4	3	3.5	2.857142857
8.00	2.00	CH1 2DW		0	3	0	82	4	4	4	4	3
8.00	2.00	TR1 3RJ		0	2	0	59	3.5	4	4	4	4
8.00	2.00	SE25 0ED		0	3	0	95	2.5	2	3	2.5	3
8.00	3.00	LA9 4PH		0	2	0	90	3	3	3	3	5
8.00	2.00	DL1 1SG		0	0	0	90	2.5	3	4	3.5	3
8.00	2.00	DE23 8PE		0	2	0	79	2.5	4	4	4	3.428571429
8.00	2.00	DE23 6TJ		0	2	0	65	2.5	4	3	3.5	2.857142857
8.00	2.00	DE23 8QJ		0	2	0	82	3	4	4	4	3.857142857
8.00	2.00	DE1 3PJ		0	2	0	80	3	4	3	3.5	3
8.00	2.00	DL14 6PX		0	2	0	78	3.5	4	4	4	3.857142857
8.00	2.00	DL15 8QG		0	2	0	78	3.5	4	4	4	4
8.00	3.00	DL14 7RF		1	2	0	72	2	4	3	3.5	2.285714286

YEAR	INSPECTION NUMBER	Postcode	CHANGE IN PROVISION LEADER	AGE RANGE	SINGLE SEX	Number on Role	LEARNING STANDARDS	BEHAVIOUR	CARING	QUALITY OF PROVISION	LEADERSHIP AND MANAGEMENT	Affluence
8.00	3.00	SR8 4TB		0	2	0	70	3.5	4	4	4	3.857142857
8.00	2.00	DL16 6RU		0	2	0	78	4	4	4	4	2
8.00	3.00	DH9 7LR		0	2	0	182	3.5	4	4	4	2
8.00	1.00	SR8 3BQ		0	3	0	115	3.5	4	4	4	4
8.00	2.00	T528 5BD		0	2	0	77	4	4	4	4	2
8.00	2.00	UB1 2JG		1	3	0	100	3.5	4	4	4	3
8.00	2.00	H18 1PB		1	2	0	113	2.5	3	3	3	2.857142857
8.00	2.00	NE8 2XD		0	3	0	67	4	4	4	4	2
8.00	2.00	SE10 0EA		1	2	0	90	3	3	3	3	3
8.00	2.00	WA8 7TH		0	3	0	120	4	4	4	4	4
8.00	2.00	AL7 3RP		1	2	0	144	3	3	4	3.5	2
8.00	2.00	AL3 5JB		0	6	0	68	3.5	3	4	3.5	2
8.00	2.00	AL6 9JF		1	3	0	60	3	4	4	3.285714286	5
8.00	1.00	W10 5TN		0	6	0	48	3.5	3	4	3.5	2
8.00	2.00	W10 6NQ		1	3	0	51	2	3	3	3	2.142857143
8.00	2.00	DA11 9JS		1	3	0	90	3.5	4	3	3.5	2
8.00	2.00	HU2 9AP		1	4	0	39	3	4	4	4	2
8.00	2.00	HU5 2SG		1	3	0	58	4	3	4	3.5	2
8.00	2.00	WF13		0	3	0	117	3.5	4	4	3.857142857	2

YEAR	INSPECTION NUMBER	Postcode	CHANGE IN PROVISION LEADER	AGE RANGE	SINGLE SEX	Number on Role	LEARNING STANDARDS	BEHAVIOUR	CARING	QUALITY OF PROVISION	LEADERSHIP AND MANAGEMENT	Affluence
		2SU										
8.00	2.00	HD1 3SP	1	3	0	120	2	3	3	3	2	2
8.00	2.00	SE11 6UP	1	3	0	67	3.5	4	4	4	4	1
8.00	2.00	SW2 2RW	0	3	0	124	4	4	4	4	4	5
8.00	1.00	LE8 5PB	0	3	0	42	2	2	2	2	2	4
8.00	2.00	SE8 5NH	1	3	0	108	2.5	3	3	3	3	3
8.00	2.00	BB5 2H	1	2	0	110	3.5	4	4	4	3.857142857	4
8.00	2.00	BB9 9AG	0	2	0	110	3.5	4	4	4	4	2
8.00	2.00	BB8 0JF	0	2	0	96	3	4	3	3.5	3	2
8.00	2.00	PR1 3XU	0	2	0	87	3	4	4	4	4	1
8.00	2.00	LN6 0FB	0	2	0	85	3	4	3	3.5	3	3
8.00	3.00	L14 1PW	1	3	0	84	4	4	4	4	4	2
8.00	1.00	L6 2WF	0	3	0	134	3	3	4	3.5	4	2
8.00	2.00	LU3 2BT	0	2	0	148	3	3	3	3	3	4
8.00	2.00	LU4 0PE	1	3	0	97	2.5	3	3	3	3	2
8.00	2.00	LU1 1RB	0	3	0	120	2.5	3	3	3	3	3
8.00	1.00	M15 6PA	0	3	0	46	3.5	4	4	4	3.857142857	1
8.00	2.00	NE4 8XT	0	2	0	104	2.5	3	3	3	3	2
8.00	1.00	NE6 2LJ	0	2	0	104	3	4	4	4	4	2

YEAR	INSPECTION NUMBER	Postcode	CHANGE IN PROVISION LEADER	AGE RANGE	SINGLE SEX	Number on Role	LEARNING STANDARDS	BEHAVIOUR	CARING	QUALITY OF PROVISION	LEADERSHIP AND MANAGEMENT	Affluence	
8.00	3.00	NE15 8PY		0	2	0	78	3.5	4	4	4	3.857142857	3
8.00	1.00	NE6 4XW		0	2	0	104	4	4	4	4	4	4
8.00	1.00	E7 0PH		0	3	0	118	2.5	2	3	2.5	3.142857143	1
8.00	1.00	E15 1JP		0	3	0	110	2.5	3	3	3	3	2
8.00	1.00	E12 5QP		0	2	0	120	3	4	4	4	4	2
8.00	2.00	PE30 5PT		0	3	0	78	2.5	4	3	3.5	3	3
8.00	2.00	DN37 9NN		0	2	0	104	3	4	4	4	2.857142857	4
8.00	2.00	NE30 4EG		1	2	0	116	4	4	4	4	4	3
8.00	2.00	BD23 2ES		0	3	0	49	2.5	3	3	3	2.571428571	3
8.00	2.00	YO11 1UB		1	3	0	84	3	4	3	3.5	3	5
8.00	1.00	NG17 2HT		0	3	0	82	2.5	4	4	4	3	2
8.00	2.00	NN4 8PH		1	2	0	93	3	4	3	3.5	3.142857143	2
8.00	2.00	NN8 4AB		1	2	0	120	2.5	4	4	4	3	4
8.00	2.00	PO4 0DT		0	3	0	88	2.5	4	3	3.5	2.857142857	3
8.00	2.00	RG4 8BH		1	3	0	58	2.5	3	3	3	2.857142857	4
8.00	1.00	RG30 6UB		0	6	0	226	3.5	4	4	4	4	2
8.00	2.00	OL12 0PP		0	3	0	52	4	4	4	4	3.857142857	2
8.00	3.00	M24 2AH		0	3	0	49	3.5	4	4	4	3.857142857	2
8.00	2.00	S62		0	3	0	101	3	4	4	4	4	2

YEAR	INSPECTION NUMBER	Postcode	CHANGE IN PROVISION LEADER	AGE RANGE	SINGLE SEX	Number on Role	LEARNING STANDARDS	BEHAVIOUR	CARING	QUALITY OF PROVISION	LEADERSHIP AND MANAGEMENT	Affluence
		6AD										
8.00	2.00	PR9 8ND	0	3	0	70	4	4	4	4	3.857142857	4
8.00	2.00	S12 3AB	0	3	0	134	3.5	4	4	4	4	2
8.00	3.00	S10 2DN	0	3	0	132	3	3	4	3.5	3	3
8.00	2.00	SL1 3EA	0	3	0	135	2.5	4	4	4	2.857142857	3
8.00	2.00	NE31 1QY	0	2	0	68	3.5	4	4	4	3.857142857	2
8.00	2.00	NE32 5UP	1	2	0	56	3.5	4	4	4	4	2
8.00	2.00	NE36 0DL	0	2	0	78	2	3	2	2.5	2.142857143	4
8.00	2.00	SE1 3BW	1	6	0	151	2.5	3	3	3	3	3
8.00	2.00	WS11 5BU	0	2	0	38	3.5	4	4	4	3.857142857	3
8.00	2.00	ST3 7AN	1	3	0	60	3	4	4	4	4	2
8.00	1.00	ST2 9AS	0	2	0	52	3	4	4	4	4	2
8.00	2.00	DH5 9DG	1	2	0	30	2.5	4	3	3.5	3	2
8.00	2.00	DH5 8AE	0	2	0	50	4	4	4	4	3.714285714	4
8.00	2.00	SR5 5QY	0	2	0	73	2.5	4	3	3.5	2.857142857	2
8.00	2.00	SR3 2LE	1	3	0	81	2.5	4	3	3.5	2.857142857	2
8.00	2.00	E3 3EU	1	3	0	96	2.5	4	4	4	3.857142857	2
8.00	2.00	E2 7PG	1	3	0	96	2.5	3	3	3	3.285714286	2
8.00	1.00	E1 0RJ	0	2	0	120	3.5	3	3	3	3	2

YEAR	INSPECTION NUMBER	Postcode	CHANGE IN PROVISION LEADER	AGE RANGE	SINGLE SEX	Number on Role	LEARNING STANDARDS	BEHAVIOUR	CARING	QUALITY OF PROVISION	LEADERSHIP AND MANAGEMENT	Affluence
8.00	2.00	E2 0PS		1	2	0	99	3.5	4	4	4	4
8.00	2.00	WF8 2ER		1	3	0	56	2.5	3	3	3	2.857142857
8.00	2.00	WS2 9UP		0	3	0	120	3	4	4	4	3.857142857
8.00	2.00	WS3 3LU		0	2	0	96	4	4	4	4	4
8.00	2.00	CV10 8HW		1	3	0	76	3	4	4	4	3
8.00	2.00	RG14 1EH		0	3	0	138	3	4	3	3.5	2.857142857
8.00	2.00	PO21 2TB		0	5	0	133	3.5	4	4	4	4
8.00	2.00	NW8 8DE		0	6	0	68	2.5	3	3	3	3
8.00	2.00	WN1 3SU		1	3	0	97	3	4	3	3.5	2.428571429
8.00	2.00	SL6 7PG		1	3	0	60	3	2	4	3	3.285714286
8.00	2.00	CH44 4BB		1	3	0	54	2.5	4	3	3.5	3
9.00	2.00	OX4 3AJ		0	3	0.00	80	2.5	4	3	3.5	3.25
9.00	3.00	OX5 2LG		1	3	0.00	44	3	4	3	3	4.00
9.00	3.00	OX9 3HU		0	2	0.00	35	3	4	3	3	2.875
9.00	2.00	OX3 8LH		1	3	0.00	78	3	4	3	3.5	3.125
9.00	2.00	OX7 5DZ		1	3	0.00	72	4	4	4	4	5.00
9.00	3.00	N3 11NR		0	2	0.00	71	4	3	4	4	3.75
9.00	3.00	MK42 9LS		0	6	0.00	113	2.5	3	3	3.5	3.125

YEAR	INSPECTION NUMBER	Postcode	CHANGE IN PROVISION LEADER	AGE RANGE	SINGLE SEX	Number on Role	LEARNING STANDARDS	BEHAVIOUR	CARING	QUALITY OF PROVISION	LEADERSHIP AND MANAGEMENT	Affluence
9.00	3.00	MK42 9DR	0	6	0.00	139	3	3	3	3	2.875	3.00
9.00	3.00	MK42 9HE	1	3	0.00	89	2.5	3	3	3	3	3.00
9.00	3.00	B8 1HN	1	6	0.00	125	3	4	3	3	3.25	2.00
9.00	3.00	B14 6RP	0	5	0.00	170	3.5	4	4	4	3.875	2.00
9.00	3.00	B33 8QB	1	2	0.00	67	2.5	3	3	3	3.125	5.00
9.00	2.00	B19 3XJ	0	2	0.00	104	3.5	4	4	4	4	2.00
9.00	3.00	B35 6DU	0	2	0.00	80	3	4	4	4	4	2.00
9.00	3.00	B29 5LB	0	2	0.00	36	3	4	3	3	3	2.00
9.00	3.00	B26 2JL	1	2	0.00	82	3	3	3	3	3	4.00
9.00	2.00	B44 8RL	0	2	0.00	52	4	3	4	4	4	2.00
9.00	3.00	B11 1ED	0	3	0.00	55	2.5	4	3	3.5	2.875	2.00
9.00	3.00	B14 4BH	0	2	0.00	52	2.5	3	3	3	3	2.00
9.00	3.00	B12 9NX	0	2	0.00	81	2.5	2	3	3	2.875	2.00
9.00	3.00	B38 8SY	0	2	0.00	68	4	4	4	4	4	4.00
9.00	2.00	B5 7XL	0	2	0.00	78	3	4	4	4	4	2.00
9.00	2.00	B45 9PB	0	2	0.00	80	2.5	3	3	3	2.875	3.00
9.00	2.00	B31 1BS	1	5	0.00	63	3	3	3	3	2.875	2.00
9.00	2.00	B8 2SY	1	5	0.00	170	3	4	4	4	3.875	2.00
9.00	3.00	BB1 1HN	1	2	0.00	62	2	4	3	2	2.125	2.00

YEAR	INSPECTION NUMBER	Postcode	CHANGE IN PROVISION LEADER	AGE RANGE	SINGLE SEX	Number on Role	LEARNING STANDARDS	BEHAVIOUR	CARING	QUALITY OF PROVISION	LEADERSHIP AND MANAGEMENT	Affluence	
9.00	3.00	BB2 3NF		0	2	0.00	80	3	3	3	4	3	2.00
9.00	3.00	BB3 2DN		0	2	0.00	103	3.5	4	4	4	4	2.00
9.00	3.00	BL4 8AR		0	3	0.00	98	4	4	4	4	4	2.00
9.00	3.00	BD9 5AD		0	3	0.00	75	4	4	4	4	3.875	2.00
9.00	4.00	NW10 9SD		1	2	0.00	103	3	3	3	3	2.875	2.00
9.00	2.00	NW10 8DX		1	3	0.00	45	3	3	3	3	3	1.00
9.00	3.00	BS7 0DL		0	3	0.00	141	4	4	4	4	4	2.00
9.00	2.00	BS13 0JW		0	6	0.00	181	3	4	4	4	4	2.00
9.00	3.00	BS5 7SY		0	2	0.00	74	3	4	4	4	3.875	1.00
9.00	1.00	BS2 9JF		0	5	0.00	54	3	4	4	4	3.875	1.00
9.00	3.00	HP6 6NW		0	2	0.00	84	3	4	3	3.5	3	5.00
9.00	3.00	BL9 6HR		0	3	0.00	42	3	4	3	3.5	3	5.00
9.00	3.00	CB4 2LD		1	3	0.00	80	3.5	4	4	4	4	3.00
9.00	3.00	CB4 9LL		0	3	0.00	80	4	4	4	4	4	4.00
9.00	3.00	LU6 1DL		1	3	0.00	92	3	3	3	3	3	2.00
9.00	2.00	CW2 7LJ		0	2	0.00	60	4	4	4	4	4	2.00
9.00	3.00	TR14 7DT		0	4	0.00	130	3.5	4	4	4	4	2.00
9.00	3.00	CR5 3BT		0	2	0.00	60	3	4	4	3.5	3.375	5.00

YEAR	INSPECTION NUMBER	Postcode	CHANGE IN PROVISION LEADER	AGE RANGE	SINGLE SEX	Number on Role	LEARNING STANDARDS	BEHAVIOUR	CARING	QUALITY OF PROVISION	LEADERSHIP AND MANAGEMENT	Affluence
9.00	3.00	CA25 5LW		0	3	0.00	43	4	4	4	4	2.00
9.00	3.00	LA14 5TS		0	2	0.00	78	2.5	3	3	3.5	3.125
9.00	3.00	LA18 4JE		1	2	0.00	80	2.5	4	3	3.5	3.00
9.00	3.00	DL3 7PY		1	2	0.00	150	4	3	4	4	4.00
9.00	3.00	DE1 2PU		0	3	0.00	37	3	4	2	3	2.875
9.00	2.00	DE1 3LR		1	3	0.00	62	3	3	4	3	3.375
9.00	3.00	DE55 7JA		0	2	0.00	101	4	4	4	4	2.00
9.00	3.00	SK17 9QT		0	3	0.00	39	4	4	4	3.875	4.00
9.00	3.00	SK22 4AQ		0	2	0.00	5	3.5	3	3	3	3.400
9.00	3.00	DE5 3HE		0	2	0.00	147	3.5	4	4	4	3.875
9.00	2.00	EX4 1HL		0	2	0.00	100	3	3	3	3	3.125
9.00	2.00	SR7 7NN		0	2	0.00	76	3	4	4	4	3.875
9.00	3.00	DL16 6EX		1	2	0.00	60	3	4	4	3.5	3.375
9.00	1.00	W3 8RX		0	3	0.00	45	3	3	3	3.5	3.375
9.00	3.00	HU17 7BT		0	2	0.00	140	4	4	4	4	2.00
9.00	2.00	SE7 8AF		1	2	0.00	88	4	4	4	4	3.00
9.00	3.00	SE8 3EH		0	5	0.00	120	4	4	2	4	3.5
9.00	2.00	N1 5RF		0	2	0.00	76	3.5	4	4	4	1.00

YEAR	INSPECTION NUMBER	Postcode	CHANGE IN PROVISION LEADER	AGE RANGE	SINGLE SEX	Number on Role	LEARNING STANDARDS	BEHAVIOUR	CARING	QUALITY OF PROVISION	LEADERSHIP AND MANAGEMENT	Affluence	
9.00	3.00	WA8 8DF		0	3	0.00	93	3	4	3	3	3.125	2.00
9.00	3.00	WA8 0AR		0	3	0.00	102	4	4	4	4	4	2.00
9.00	3.00	W14 9BH		0	3	0.00	74	4	4	4	4	3.875	3.00
9.00	3.00	PO13 0UY		1	3	0.00	140	4	4	4	4	4	3.00
9.00	2.00	N15 3SD		0	6	0.00	55	3.5	3	3	3.5	2.875	2.00
9.00	3.00	TS25 2AW		0	3	0.00	61	4	4	3	4	3.625	2.00
9.00	3.00	EN8 9DW		1	4	0.00	79	3.5	3	3	3	3	4.00
9.00	2.00	AL2 1JG		0	2	0.00	42	2.5	4	3	3	3	3.00
9.00	3.00	WD19 4RL		0	3	0.00	78	3.5	3	4	4	3.875	2.00
9.00	2.00	SG2 9EA		1	2	0.00	85	3.5	4	4	4	3.875	3.00
9.00	3.00	UB3 2PD		0	3	0.00	132	3	4	4	4	3.75	4.00
9.00	3.00	SW3 5JE		0	3	0.00	60	4	4	4	4	4	4.00
9.00	2.00	SW2 1PL		0	4	0.00	146	3.5	4	4	4	4	2.00
9.00	2.00	SW4 8LW		1	3	0.00	89	3	4	4	4	4	1.00
9.00	1.00	SW4 7JQ		0	3	0.00	67	4	4	4	4	4	1.00
9.00	2.00	SE4 2QQ		1	3	0.00	125	3	3	4	4	3.875	1.00
9.00	3.00	OL13 8EF		0	2	0.00	88	3.5	4	4	4	3.875	2.00
9.00	3.00	BB10 3ES		1	2	0.00	80	3	3	3	3	3	2.00

YEAR	INSPECTION NUMBER	Postcode	CHANGE IN PROVISION LEADER	AGE RANGE	SINGLE SEX	Number on Role	LEARNING STANDARDS	BEHAVIOUR	CARING	QUALITY OF PROVISION	LEADERSHIP AND MANAGEMENT	Affluence	
9.00	3.00	PR7 3DU		0	2	0.00	80	4	4	4	3.875	2.00	
9.00	3.00	BB12 6DY		0	2	0.00	66	3	4	3	3.25	2.00	
9.00	1.00	BB10 1JD		0	2	0.00	118	3	3	3	3.25	2.00	
9.00	2.00	BB7 1EL		0	2	0.00	116	3.5	4	4	4	2.00	
9.00	2.00	BB11 3PU		0	2	0.00	94	2.5	4	3	3.5	3	2.00
9.00	3.00	BB12 6AJ		0	2	0.00	70	3	4	4	4	4	2.00
9.00	3.00	BB4 7UE		1	2	0.00	119	3.5	4	4	4	4	2.00
9.00	3.00	BB11 5AE		1	3	0.00	58	3	3	3	3	3	2.00
9.00	3.00	DN21 2RR		0	3	0.00	73	4	4	4	4	4	2.00
9.00	3.00	LU1 5EA		1	6	0.00	151	3	3	3	3	3	4.00
9.00	2.00	LU2 0JS		1	3	0.00	151	3.5	4	4	4	4	2.00
9.00	2.00	M40 7QD		1	3	0.00	91	2.5	4	3	3.5	3	1.00
9.00	2.00	NE4 7NL		1	2	0.00	74	3	4	4	4	4	1.00
9.00	3.00	E16 3PB		0	3	0.00	115	3.5	4	3	4	3.75	2.00
9.00	3.00	NR5 8DB		0	4	0.00	143	2	3	3	3	3	2.00
9.00	2.00	PE14 8AY		0	3	0.00	74	3	4	4	4	3.875	4.00
9.00	3.00	DN33 2EW		0	3	0.00	53	4	4	4	4	4	3.00
9.00	3.00	BD23 1ET		1	3	0.00	84	3	4	3	3	3	3.00

YEAR	INSPECTION NUMBER	Postcode	CHANGE IN PROVISION LEADER	AGE RANGE	SINGLE SEX	Number on Role	LEARNING STANDARDS	BEHAVIOUR	CARING	QUALITY OF PROVISION	LEADERSHIP AND MANAGEMENT	Affluence
9.00	1.00	NG7 3AB		0	4	0.00	112	2.5	3	3	3	2.875
9.00	3.00	NN8 2AX		0	4	0.00	118	3.5	4	4	4	3.875
9.00	3.00	NN3 6DW		0	2	0.00	70	4	4	4	4	4.00
9.00	2.00	NN17 1BJ		0	2	0.00	104	4	4	4	4	2.00
9.00	3.00	NN5 7DE		1	6	0.00	128	4	4	4	4	2.00
9.00	2.00	PL2 2NJ		0	5	0.00	105	3	4	4	4	3.625
9.00	3.00	PL6 8UN		0	2	0.00	64	3.5	3	3	3.5	3
9.00	2.00	RG2 7NT		0	3	0.00	147	2.5	4	3	3.5	3
9.00	3.00	TW9 2HP		1	2	0.00	75	3.5	4	4	4	4.00
9.00	3.00	OL10 4QJ		0	3	0.00	66	3	4	4	3.5	3.25
9.00	3.00	OL16 2EP		1	3	0.00	108	4	4	3	3	3.375
9.00	3.00	S65 2LY		1	6	0.00	158	3	4	4	4	2.00
9.00	3.00	L20 6PJ		0	3	0.00	56	3	4	4	4	3.875
9.00	2.00	L21 4NB		0	2	0.00	21	4	4	4	4	1.00
9.00	3.00	S2 5SB		0	6	0.00	65	3	4	4	4	1.00
9.00	2.00	SL1 3HS		0	2	0.00	118	3	3	3	3.5	3
9.00	3.00	SL1 5NL		0	3	0.00	134	3.5	4	3	3	4.00
9.00	3.00	SL2 5JW		0	3	0.00	120	3.5	4	4	4	3.875
9.00	3.00	NE35 9DG		0	2	0.00	78	2.5	3	3	3.5	3

YEAR	INSPECTION NUMBER	Postcode	CHANGE IN PROVISION LEADER	AGE RANGE	SINGLE SEX	Number on Role	LEARNING STANDARDS	BEHAVIOUR	CARING	QUALITY OF PROVISION	LEADERSHIP AND MANAGEMENT	Affluence	
9.00	1.00	SE15 6BP		0	2	0.00	79	2.5	3	3	3	3	1.00
9.00	1.00	SE1 2TT		0	2	0.00	148	3	4	4	4	4	1.00
9.00	3.00	WS12 5AR		0	3	0.00	16	4	4	4	4	3.625	2.00
9.00	3.00	SK5 6JW		0	2	0.00	51	2.5	4	3	3	3.25	2.00
9.00	3.00	SK4 3NB		1	3	0.00	78	4	4	4	4	3.875	4.00
9.00	3.00	SK3 0BJ		1	3	0.00	104	4	4	3	4	3.25	3.00
9.00	3.00	SK3 9PH		0	3	0.00	44	2.5	4	3	3.5	3.25	2.00
9.00	3.00	SK5 7EU		0	3	0.00	97	3.5	3	3	3	3	4.00
9.00	3.00	ST6 6PB		0	3	0.00	59	4	4	4	4	4	3.00
9.00	3.00	IP1 6DW		0	2	0.00	104	4	4	4	4	4	4.00
9.00	3.00	SR4 6JR		0	2	0.00	71	2.5	4	3	3.5	3	2.00
9.00	3.00	NE38 0LA		0	2	0.00	70	3	4	3	3.5	3	2.00
9.00	2.00	SR4 9AX		0	2	0.00	100	3	4	4	4	3.75	2.00
9.00	2.00	GU1 1NR		0	3	0.00	151	3	3	3	3	3	4.00
9.00	3.00	E1 4NQ		0	2	0.00	75	3.5	4	4	4	4	3.00
9.00	2.00	E1 4PZ		0	3	0.00	104	3.5	3	3	3	3	2.00
9.00	1.00	WF4 3EB		0	6	0.00	137	3.5	4	4	4	3.875	4.00
9.00	3.00	WF1 5NU		0	3	0.00	76	3	4	4	4	4	2.00
9.00	3.00	WS5 4NN		0	3	0.00	80	4	4	4	4	4	2.00

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9.00	3.00	WV12 4JQ		1	2	0.00	108	4	4	4	3.875	4.00
9.00	3.00	WS3 1HT		0	2	0.00	100	3	4	4	4	4.00
9.00	2.00	E11 3HF		0	2	0.00	115	2.5	3	3	3	2.875
9.00	3.00	E17 9SB		0	2	0.00	70	3	4	3	3	4.00
9.00	2.00	E4 6XQ		0	2	0.00	120	2.5	3	3	3.5	2.875
9.00	2.00	E17 8BE		0	3	0.00	76	4	4	4	4	2.00
9.00	3.00	SW11 3ND		1	2	0.00	73	4	4	4	4	3.00
9.00	3.00	CV9 1LF		0	2	0.00	83	3.5	4	4	4	3.5
9.00	3.00	CV12 0DP		1	3	0.00	80	2.5	4	3	3.5	3
9.00	3.00	CV34 4LJ		1	3	0.00	75	2	2	2	2	4.00
9.00	2.00	PO19 7AB		0	2	0.00	141	3.5	4	4	4	3.875
9.00	3.00	RH13 5UT		0	2	0.00	84	4	4	4	4	3.875
9.00	2.00	SW1V 3RT		0	3	0.00	58	4	4	4	3.75	1.00
9.00	3.00	SL4 3RU		0	3	0.00	121	4	4	4	4	5.00
9.00	3.00	CH46 2QF		0	3	0.00	89	2.5	4	3	3.5	3.375
9.00	3.00	WV11 2LH		0	2	0.00	78	3.5	4	4	4	3.875
9.00	3.00	WV10 8JP		1	3	0.00	76	3	3	3	3	2.00
9.00	3.00	WV4 6EL		0	2	0.00	61	4	3	4	4	2.00

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9.00	3.00	WR11 1DG		0	2	0.00	52	3.5	4	4	4	3.75	2.00
10.00	3.00	OX1 4QH		0	3	0	89	4	4	4	4	4	1
10.00	3.00	OX11 7HX		0	3	0	110	4	4	4	4	4	3
10.00	3.00	OX5 1EA		0	2	0	53	3	4	4	3	3.125	4
10.00	3.00	OX3 8QQ		0	3	0	79	3	4	4	3	3.25	3
10.00	3.00	EN4 8SD		0	3	0	82	4	4	4	4	4	3
10.00	3.00	N14 5JD		1	2	0	93	4	4	4	4	3.75	4
10.00	3.00	B7 5BX		1	5	0	101	4	4	3	4	4	1
10.00	3.00	B23 6AU		0	2	0	69	3	3	3	3	2.75	1
10.00	2.00	B19 2NS		0	4	0	88	3	4	4	4	4	2
10.00	3.00	B23 6UB		1	3	0	60	3	3	3	3	2.375	2
10.00	3.00	B42 2PX		0	2	0	53	3	3	4	3	3.125	2
10.00	3.00	B29 6BP		0	2	0	52	4	4	4	4	4	2
10.00	3.00	B15 2AF		0	3	0	80	4	4	4	4	3.875	1
10.00	3.00	B31 3HB		0	2	0	84	3	4	4	3	3.5	3
10.00	4.00	BB1 1HN		1	2	0	54	3	4	3	3	3.375	2
10.00	3.00	BL5 2SE		0	3	0	76	3	3	3	3	3.375	4
10.00	2.00	BDS 9HL		1	3	0	104	3	4	4	3	3.25	2

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10.00	3.00	BD8 7DJ		0	3	0	100	3.5	4	4	4	3.875
10.00	3.00	NW10 3PH		0	3	0	56	4	4	4	4	3.75
10.00	3.00	NW6 5RA		0	3	0	76	3	3	4	3	3.625
10.00	3.00	BN2 0GR		1	6	0	80	4	4	4	4	3.75
10.00	3.00	BS16 2LL		1	2	0	76	3	3	3	3	3
10.00	3.00	BS2 0DT		0	3	0	65	3	3	4	3	3.25
10.00	3.00	BS2 0SU		0	3	0	119	3	3	3	3.5	3.375
10.00	3.00	HP13 6HR		0	3	0	101	4	4	4	4	4
10.00	3.00	CB1 2LZ		1	2	0	80	4	4	4	4	4
10.00	3.00	CB1 7ST		0	2	0	100	4	4	4	4	4
10.00	3.00	PE29 1AD		0	3	0	120	4	4	4	4	4
10.00	3.00	CB5 8ND		0	3	0	98	3	4	4	3	3.375
10.00	2.00	SG18 0PT		1	2	0	122	3	3	4	3	3
10.00	3.00	LU5 4QU		0	3	0	95	4	4	4	4	3.875
10.00	2.00	CV1 5GR		0	5	0	150	4	4	4	4	3.875
10.00	3.00	CR8 2NE		0	3	0	96	3.5	4	4	3	3.25
10.00	3.00	CR7 8RF		0	3	0	108	3	3	3	3	2.625
10.00	2.00	LA14 2RX		1	2	0	82	3.5	4	4	4	3.875

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10.00	2.00	CA26 3PF		1	3	0	52	3	3	3	3.125	2
10.00	3.00	DE1 1GJ		1	2	0	48	2	3	3	2.25	2
10.00	3.00	DE24 9AX		0	2	0	84	3	4	4	3	2
10.00	3.00	SK13 0LU		0	2	0	144	4	4	4	3.875	2
10.00	3.00	NG16 6NA		1	6	0	87	4	4	4	4	2
10.00	3.00	DE55 2JB		1	3	0	89	4	4	4	4	2
10.00	3.00	E2 6DJ		1	3	0	82	1	3	2	1.75	2
10.00	3.00	DY2 9QF		1	3	0	190	3	4	4	3	2.25
10.00	3.00	DH8 6AY		0	3	0	59	4	4	4	4	2
10.00	3.00	DL15 8QG		0	3	0	55	4	4	4	3.875	4
10.00	2.00	SR8 3BQ		0	3	0	78	4	4	4	3.75	4
10.00	3.00	TS28 5BD		0	3	0	67	4	4	4	4	2
10.00	3.00	W3 7LL		1	3	0	80	3	4	3	3.125	3
10.00	3.00	YO16 7BS		1	3	0	107	3.5	4	4	4	2
10.00	3.00	HU12 8JB		0	3	0	117	4	4	4	4	4
10.00	3.00	SE10 0EA		0	2	0	136	4	4	4	4	3
10.00	3.00	E9 5BY		0	3	0	90	4	4	4	4	2
10.00	3.00	W12 7PH		0	3	0	120	4	4	4	4	1
10.00	3.00	GU34 2DR		0	4	0	56	3.5	4	4	4	2

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10.00	2.00	SO22 6AJ		0	4	0	99	4	4	4	4	2
10.00	2.00	N17 7LT		1	6	0	80	3	3	4	3	2
10.00	3.00	N15 3SD		0	2	0	65	3	3	3	3.5	2
10.00	1.00	HA2 0LW		0	3	0	69	3	4	4	3	4
10.00	3.00	AL5 5BQ		0	2	0	119	3.5	4	4	4	4
10.00	3.00	AL10 0PD		0	2	0	119	4	4	4	4	4
10.00	3.00	EN8 8DH		0	2	0	98	3.5	3	3	3	4
10.00	3.00	HP1 1TT		0	2	0	65	3	4	3	3	4
10.00	3.00	AL7 3RP		0	3	0	149	3.5	4	4	4	2
10.00	3.00	EN11 0LN		0	2	0	95	4	3	4	4	4
10.00	3.00	SG7 6HD		0	3	0	105	4	4	4	4	2
10.00	3.00	SG5 1XA		0	2	0	120	4	4	4	3.5	4
10.00	3.00	W10 6TT		0	3	0	75	4	4	4	4	1
10.00	3.00	DA11 9JS		0	3	0	84	4	4	4	4	2
10.00	3.00	HU2 9AP		0	3	0	61	4	4	4	4	2
10.00	3.00	HU5 2SG		1	3	0	75	3	3	3	3	2
10.00	1.00	HU6 8HT		1	3	0	185	3.5	4	4	3.5	2
10.00	3.00	KT5 8RS		0	3	0	118	4	4	4	3.875	4

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10.00	3.00	HD8 8RX		1	4	0	88	3	3	3	2.5	3.25
10.00	2.00	LE8 5PB		1	3	0	16	3	3	3	3	2.875
10.00	2.00	LA1 5QB		0	2	0	75	4	4	4	4	4
10.00	3.00	BB9 7QH		0	2	0	140	3.5	4	4	4	4
10.00	3.00	BB5 0LD		0	3	0	80	4	4	4	4	3.875
10.00	3.00	BB4 5NH		0	3	0	80	3	3	3	3	3
10.00	3.00	BB9 9AG		0	3	0	94	3.5	4	4	4	4
10.00	3.00	L39 4RY		0	3	0	77	4	4	4	4	4
10.00	3.00	BB8 0JF		1	3	0	69	2	3	3	2	2.25
10.00	3.00	BB12 0BU		0	2	0	80	3	3	4	3	3
10.00	3.00	BB9 8BP		0	3	0	79	4	4	4	4	4
10.00	3.00	BB12 8TG		1	3	0	79	4	4	4	4	4
10.00	3.00	BB9 5BE		0	3	0	80	3	3	3	3	3
10.00	3.00	PE21 0LJ		0	3	0	91	4	4	4	4	3.875
10.00	3.00	LN3 4LQ		0	2	0	151	4	4	4	4	4
10.00	3.00	NG31 9BB		1	3	0	106	4	4	4	4	4
10.00	3.00	L8 7QA		1	3	0	58	3	4	3	3	3
10.00	3.00	L7 3HD		1	2	0	28	3	3	4	3	4
10.00	3.00	L11 2RY		1	3	0	49	3	3	3	3	2.875

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10.00	3.00	LU1 1RB		0	3	0	108	2.5	3	3	2	2.625
10.00	3.00	LU4 9JL		1	4	0	120	3.5	4	4	3	3.375
10.00	3.00	MK2 2HB		0	2	0	96	4	4	4	4	3.875
10.00	3.00	NE4 6JR		0	2	0	104	4	4	4	4	4
10.00	2.00	NE6 4XW		0	3	0	104	4	4	4	4	4
10.00	2.00	E7 0PH		0	3	0	120	3	3	4	3	3.25
10.00	3.00	E6 6BU		0	2	0	180	3	3	4	3	3.125
10.00	4.00	DN33 2EW		0	2	0	52	3	3	3	3	3
10.00	2.00	NG17 2HT		0	3	0	98	3	3	3	3	3.25
10.00	3.00	PE4 6EX		1	4	0	141	4	4	4	4	3.75
10.00	3.00	NN16 9PH		0	2	0	90	4	4	4	4	4
10.00	3.00	NN2 8DF		0	2	0	79	3	4	3	3	2.75
10.00	3.00	RG30 4UA		0	3	0	73	3.5	3	3	3	3.25
10.00	3.00	RG4 8BH		1	3	0	53	3	3	3	3	2.75
10.00	3.00	OL12 0PP		0	3	0	48	3.5	4	4	3.5	3.125
10.00	3.00	S26 3XH		0	3	0	74	4	4	4	4	4
10.00	3.00	L20 9LQ		0	3	0	171	2	3	2	2	2
10.00	3.00	PR9 8PA		0	3	0	56	4	4	4	4	2
10.00	3.00	S12 3AB		0	3	0	154	3	3	3	3	3

YEAR	INSPECTION NUMBER	Postcode	CHANGE IN PROVISION LEADER	AGE RANGE	SINGLE SEX	Number on Role	LEARNING STANDARDS	BEHAVIOUR	CARING	QUALITY OF PROVISION	LEADERSHIP AND MANAGEMENT	Affluence
10.00	3.00	SO16 3EP		0	6	0	99	3	3	4	4	3.125
10.00	3.00	SE1 3BW		1	3	0	120	3	3	3	3	3
10.00	2.00	SE15 6DT		0	3	0	92	3	3	3	3	3
10.00	3.00	L35 4NW		0	3	0	78	4	4	4	4	4
10.00	3.00	WS11 5BU		0	2	0	38	4	4	4	4	4
10.00	3.00	ST5 0EX		1	2	0	42	4	4	4	4	3.875
10.00	1.00	ST16 3NQ		0	5	0	165	3	3	4	3	3.125
10.00	3.00	B77 2AH		0	8	0	65	4	4	3	4	4
10.00	3.00	SK2 5LB		1	2	0	73	4	4	4	4	4
10.00	2.00	ST2 0HW		0	2	0	60	3.5	4	4	4	3.75
10.000 0	3.0000	ST3 7AN	0.0000	2.0000	0.0000	60.0000	3.0000	3.0000	4.0000	3.0000	3.2500	2.0000
10.000 0	3.0000	ST3 1QZ	0.0000	3.0000	0.0000	38.0000	4.0000	4.0000	4.0000	4.0000	4.0000	2.0000
10.000 0	3.0000	DH5 0AH	0.0000	3.0000	0.0000	78.0000	4.0000	4.0000	4.0000	4.0000	3.8750	4.0000
10.000 0	3.0000	SR5 5QL	1.0000	2.0000	0.0000	62.0000	2.5000	4.0000	4.0000	3.0000	3.1250	2.0000
10.000 0	3.0000	SR3 2LE	1.0000	2.0000	0.0000	48.0000	2.0000	3.0000	3.0000	2.0000	2.5000	2.0000
10.000 0	3.0000	NE37 3BL	1.0000	3.0000	1.0000	105.0000	3.0000	3.0000	3.0000	3.0000	3.0000	4.0000
10.000 0	3.0000	RH4 1BY	0.0000	4.0000	0.0000	68.0000	4.0000	4.0000	4.0000	3.5000	3.7500	2.0000
10.000 0	3.0000	TF7 5ET	1.0000	2.0000	0.0000	77.0000	4.0000	4.0000	3.0000	4.0000	3.6250	2.0000

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10.000 0	3.0000	WV14 0LT	1.0000	2.0000	0.0000	58.0000	3.5000	4.0000	4.0000	4.0000	3.8750	2.0000
10.000 0	3.0000	WV1 2HH	0.0000	2.0000	0.0000	97.0000	4.0000	4.0000	4.0000	4.0000	4.0000	2.0000
10.000 0	3.0000	WV10 9JN	0.0000	2.0000	0.0000	80.0000	3.0000	3.0000	3.0000	3.0000	3.0000	2.0000
10.000 0	3.0000	WV2 3JS	0.0000	4.0000	0.0000	55.0000	3.0000	3.0000	3.0000	3.0000	3.0000	3.0000
10.000 0	3.0000	YO24 4BD	0.0000	3.0000	0.0000	116.000 0	4.0000	4.0000	4.0000	3.5000	4.0000	4.0000
11.000 0	3.0000	OX25 2SN	1.0000	2.0000	0.0000	52.0000	2.0000	3.0000	3.0000	2.0000	2.1250	4.0000
11.000 0	3.0000	OX2 9JZ	0.0000	3.0000	0.0000	46.0000	4.0000	4.0000	4.0000	4.0000	4.0000	4.0000
11.000 0	3.0000	OX33 1NN	0.0000	3.0000	0.0000	52.0000	2.0000	3.0000	3.0000	2.0000	2.2500	4.0000
11.000 0	3.0000	EN4 9NT	1.0000	3.0000	0.0000	142.000 0	4.0000	4.0000	4.0000	4.0000	4.0000	4.0000
11.000 0	2.0000	B23 7HG	0.0000	3.0000	0.0000	92.0000	3.0000	4.0000	4.0000	3.0000	3.2500	2.0000
11.000 0	3.0000	B29 5QD	0.0000	2.0000	0.0000	104.000 0	4.0000	4.0000	4.0000	4.0000	3.8750	2.0000
11.000 0	2.0000	BD8 8HT	0.0000	6.0000	0.0000	88.0000	3.0000	4.0000	3.0000	3.0000	2.8750	2.0000
11.000 0	3.0000	BD21 4LW	1.0000	3.0000	0.0000	135.000 0	3.0000	4.0000	4.0000	3.0000	3.2500	4.0000
11.000 0	2.0000	BS4 1BX	1.0000	5.0000	0.0000	220.000 0	3.5000	4.0000	4.0000	4.0000	4.0000	2.0000
11.000 0	3.0000	BS1 6RR	0.0000	5.0000	0.0000	86.0000	4.0000	4.0000	4.0000	4.0000	4.0000	1.0000
11.000 0	3.0000	WC1N 2NY	0.0000	3.0000	0.0000	106.000 0	4.0000	4.0000	4.0000	4.0000	3.8750	2.0000
11.000 0	3.0000	SG15 6SL	0.0000	3.0000	0.0000	66.0000	3.0000	3.0000	3.0000	3.0000	3.0000	2.0000
11.000 0	3.0000	TR1 3RJ	1.0000	2.0000	0.0000	70.0000	4.0000	4.0000	4.0000	3.5000	4.0000	4.0000

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11.000 0	3.0000	SE25 5PL	1.0000	3.0000	0.0000	79.0000	3.0000	4.0000	4.0000	3.0000	3.2500	2.0000
11.000 0	3.0000	CRO 6TY	1.0000	2.0000	0.0000	102.000 0	4.0000	4.0000	4.0000	4.0000	4.0000	3.0000
11.000 0	3.0000	DL1 1SG	0.0000	3.0000	0.0000	82.0000	3.0000	3.0000	3.0000	2.0000	2.7500	2.0000
11.000 0	3.0000	DE23 8PE	0.0000	2.0000	0.0000	80.0000	4.0000	3.0000	3.0000	3.0000	2.7500	2.0000
11.000 0	3.0000	DE23 6TJ	0.0000	2.0000	0.0000	79.0000	3.0000	4.0000	3.0000	3.0000	3.1250	2.0000
11.000 0	3.0000	DE23 8QJ	1.0000	2.0000	0.0000	80.0000	3.5000	4.0000	4.0000	4.0000	3.8750	2.0000
11.000 0	3.0000	SK13 2DW	1.0000	2.0000	0.0000	127.000 0	4.0000	4.0000	4.0000	4.0000	3.8750	2.0000
11.000 0	3.0000	DL14 6PX	0.0000	2.0000	0.0000	75.0000	4.0000	4.0000	4.0000	4.0000	3.7500	3.0000
11.000 0	3.0000	DH7 8LL	0.0000	3.0000	0.0000	76.0000	3.0000	4.0000	3.0000	3.0000	3.1250	2.0000
11.000 0	3.0000	DL16 6RU	0.0000	3.0000	0.0000	77.0000	4.0000	4.0000	4.0000	4.0000	4.0000	2.0000
11.000 0	3.0000	UB1 2JG	0.0000	6.0000	0.0000	145.000 0	4.0000	4.0000	4.0000	4.0000	3.5000	3.0000
11.000 0	3.0000	HU18 1PB	1.0000	2.0000	0.0000	99.0000	4.0000	4.0000	4.0000	4.0000	4.0000	5.0000
11.000 0	3.0000	NE8 2XD	1.0000	3.0000	0.0000	69.0000	3.0000	3.0000	3.0000	3.0000	3.2500	2.0000
11.000 0	3.0000	SE2 0SX	0.0000	2.0000	0.0000	120.000 0	4.0000	3.0000	4.0000	4.0000	3.7500	1.0000
11.000 0	3.0000	WA8 7TH	0.0000	2.0000	0.0000	119.000 0	4.0000	4.0000	4.0000	4.0000	4.0000	4.0000
11.000 0	3.0000	W12 9JA	1.0000	2.0000	0.0000	63.0000	4.0000	4.0000	4.0000	4.0000	4.0000	2.0000
11.000 0	1.0000	N17 9EX	0.0000	2.0000	0.0000	106.000 0	3.0000	3.0000	4.0000	3.0000	3.6250	2.0000
11.000 0	3.0000	WD25 0DX	1.0000	3.0000	0.0000	74.0000	2.0000	3.0000	3.0000	2.0000	2.3750	3.0000

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11.000 0	3.0000	AL6 9JF		1.0000	2.0000	0.0000	75.0000	4.0000	4.0000	4.0000	4.0000	5.0000
11.000 0	3.0000	W10 6NQ		0.0000	3.0000	0.0000	53.0000	4.0000	4.0000	4.0000	4.0000	3.0000
11.000 0	3.0000	HD1 3SP		0.0000	3.0000	0.0000	130.000 0	3.0000	3.0000	3.0000	2.8750	2.0000
11.000 0	3.0000	SE8 5NH		1.0000	3.0000	0.0000	97.0000	3.0000	3.0000	3.0000	2.8750	3.0000
11.000 0	3.0000	PR6 0SL		0.0000	3.0000	0.0000	78.0000	3.0000	3.0000	3.0000	3.0000	3.0000
11.000 0	3.0000	BB5 2LH		1.0000	2.0000	0.0000	110.000 0	4.0000	4.0000	4.0000	4.0000	4.0000
11.000 0	3.0000	PR1 3XU		0.0000	2.0000	0.0000	96.0000	3.5000	4.0000	4.0000	3.8750	1.0000
11.000 0	3.0000	LN6 0FB		1.0000	3.0000	0.0000	84.0000	2.0000	3.0000	3.0000	3.0000	3.0000
11.000 0	2.0000	L6 2WF		0.0000	3.0000	0.0000	130.000 0	3.5000	4.0000	4.0000	3.7500	2.0000
11.000 0	3.0000	LU3 2BT		0.0000	2.0000	0.0000	153.000 0	3.0000	3.0000	3.0000	3.0000	4.0000
11.000 0	3.0000	LU4 0PE		0.0000	2.0000	0.0000	144.000 0	3.0000	3.0000	3.5000	3.1250	2.0000
11.000 0	2.0000	M15 6PA		0.0000	3.0000	0.0000	52.0000	4.0000	4.0000	4.0000	4.0000	1.0000
11.000 0	1.0000	MK6 4LP		0.0000	2.0000	0.0000	57.0000	3.0000	3.0000	3.0000	3.0000	2.0000
11.000 0	3.0000	NE4 8XT		1.0000	2.0000	0.0000	103.000 0	3.0000	3.0000	3.0000	3.0000	2.0000
11.000 0	2.0000	NE6 2LJ		0.0000	3.0000	0.0000	104.000 0	3.0000	3.0000	3.5000	3.5000	2.0000
11.000 0	2.0000	E15 3JT		1.0000	2.0000	0.0000	110.000 0	2.0000	3.0000	2.0000	2.0000	1.0000
11.000 0	2.0000	E15 1JP		1.0000	3.0000	0.0000	120.000 0	3.0000	4.0000	4.0000	3.5000	2.0000
11.000 0	2.0000	E12 5PB		0.0000	2.0000	0.0000	179.000 0	3.0000	3.0000	3.0000	2.8750	2.0000

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11.0000	3.0000	E6 1AS		1.0000	3.0000	0.0000	146.0000	4.0000	4.0000	4.0000	4.0000	3.0000
11.0000	3.0000	PE30 5PT		1.0000	2.0000	0.0000	72.0000	2.0000	3.0000	3.0000	2.0000	3.0000
11.0000	3.0000	E30 4AG		0.0000	3.0000	0.0000	140.0000	3.0000	3.0000	3.0000	3.0000	3.0000
11.0000	3.0000	NN4 8PH		0.0000	2.0000	0.0000	99.0000	4.0000	4.0000	4.0000	4.0000	2.0000
11.0000	3.0000	PO4 0DT		0.0000	5.0000	0.0000	92.0000	3.5000	4.0000	3.0000	3.0000	3.0000
11.0000	3.0000	RG4 5AU		0.0000	3.0000	0.0000	120.0000	3.5000	4.0000	4.0000	3.5000	3.3750
11.0000	3.0000	S62 6AD		1.0000	3.0000	0.0000	112.0000	3.0000	3.0000	3.0000	3.0000	2.0000
11.0000	3.0000	SL1 3EA		0.0000	2.0000	0.0000	112.0000	4.0000	4.0000	4.0000	4.0000	3.0000
11.0000	3.0000	NE31 1QY		0.0000	3.0000	0.0000	75.0000	3.5000	4.0000	4.0000	4.0000	2.0000
11.0000	3.0000	NE32 5UP		1.0000	3.0000	0.0000	63.0000	3.0000	3.0000	3.0000	2.8750	2.0000
11.0000	3.0000	NE36 0DL		0.0000	2.0000	0.0000	73.0000	2.0000	2.0000	3.0000	2.1250	4.0000
11.0000	3.0000	SE21 8QS		0.0000	3.0000	0.0000	105.0000	3.0000	4.0000	3.0000	3.0000	1.0000
11.0000	2.0000	ST2 9AS		0.0000	2.0000	0.0000	60.0000	4.0000	4.0000	4.0000	4.0000	2.0000
11.0000	2.0000	ST4 2DQ		0.0000	3.0000	0.0000	45.0000	3.0000	4.0000	4.0000	3.7500	3.0000
11.0000	3.0000	E2 0PS		1.0000	2.0000	0.0000	100.0000	3.5000	4.0000	4.0000	4.0000	2.0000
11.0000	3.0000	WF8 2ER		0.0000	2.0000	0.0000	61.0000	3.0000	3.0000	3.0000	3.0000	2.0000
11.0000	3.0000	WS2 9UP		1.0000	3.0000	0.0000	120.0000	3.5000	4.0000	4.0000	3.5000	2.0000
11.0000	3.0000	WS3 3LU		1.0000	2.0000	0.0000	76.0000	4.0000	4.0000	4.0000	3.8750	4.0000

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11.0000	3.0000	CV10 8HW	0.0000	2.0000	0.0000	100.0000	4.0000	4.0000	4.0000	4.0000	4.0000	2.0000
11.0000	2.0000	W9 3JY	1.0000	3.0000	0.0000	80.0000	4.0000	4.0000	4.0000	4.0000	4.0000	2.0000
11.0000	3.0000	NW8 8DE	0.0000	6.0000	0.0000	62.0000	4.0000	4.0000	4.0000	4.0000	4.0000	1.0000
11.0000	3.0000	SL6 7PG	1.0000	3.0000	0.0000	80.0000	3.5000	4.0000	4.0000	4.0000	4.0000	1.0000
11.0000	3.0000	CH44 4BB	1.0000	3.0000	0.0000	58.0000	3.0000	3.0000	3.0000	3.0000	3.0000	3.0000