

Where is the Warm Glow?

The Labour Market in the Voluntary Sector

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By

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DECLARATION

In accordance with the Regulations for Higher Degrees by Research, I hereby declare that the whole thesis now submitted for the candidature of Doctor of Philosophy is a result of my own research and independent work except where reference is made to published literature. I also hereby certify that the work embodied in this thesis has not already been submitted in any substance for any degree and is not being concurrently submitted in candidature for any degree from any other institute of higher learning. I am responsible for any errors and omission present in the thesis.

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ABSTRACT

Why do people work in the voluntary sector? Is the sector distinct, with characteristics that differentiate it from the private and public sectors? Is it important to consider the existence of the so-called ‘third sector’ when analysing behaviour in the labour market? Is altruism really an important motivation for workers in this sector?

This dissertation is concerned specifically with the labour market in the voluntary sector: that is, workers who are the paid employees of independent nonprofit organisations. Using a large, national dataset, we explore empirically the predictions of the economic theory of voluntary organisations. In particular, is there evidence for a ‘warm glow’, the extra utility that workers receive for working towards a goal that they share with their employer? Does this glow exist, and is it brighter in the voluntary sector?

We examine in turn sector differences in wages, working hours, and find evidence that employment in the voluntary sector is significantly different in some characteristics from both the private and public sectors.

The main economic theories of voluntary sector wage-setting rely on some formulation of ‘warm glow’ utility or intrinsic motivation derived from working for an organisation with a mission shared by motivated employees. This leads to a prediction of lower wages in the voluntary sector. The empirical findings in the existing literature have focussed on US data, and the results have been mixed.

Using pooled cross-sectional and panel datasets based on UK employment data between 1997 and 2007, we show that there is some evidence of warm-glow wage discounts in the sector for male workers, but that these wage differences have been

eroded as the sector has grown. Although there is not a significant sector wage difference found for women, there is evidence that they have also experienced faster wage growth in the voluntary sector than the private.

There are significant sector differences in working hours within the Health & Social Work industries, particularly in overtime working. Workers in the voluntary sector work more hours of unpaid overtime, whilst those in the private sector work more hours of paid overtime. Controlling for overtime hours has a significant effect on sector wage differentials. In particular, accounting for unpaid overtime results in evidence of a warm-glow wage discount for female workers.

We analyse this data at a time when the sector has been growing dramatically, driven by government policy to reform public services. Our findings suggest that this policy has had unintended consequences for the voluntary sector labour market.

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CHAPTER ONE

Where is the Warm Glow? An Introduction

“And now faith, hope, and charity abide, these three; and the greatest of these is charity.”

Corinthians 1:13, King James Bible

Introduction

Why do people work in the voluntary sector? Is the sector distinct, with characteristics that differentiate it from the private and public sectors? Is it important to consider the existence of the so-called ‘third sector’ when analysing behaviour in the labour market?

The voluntary, or nonprofit, sector is bound up with the concept of altruism. Many of the organisations in the sector are registered charities, with approved charitable purposes. We ask whether altruism is really an important motivation for workers in this sector. Although philosophical debates about the nature of altruism have raged for thousands of years, the formal economic study of charities as an organisation-type is a relatively recent development. Over the past forty years economists have tentatively allowed forms of altruism to provide explanations for the behaviour of voluntary organisations and those who support them.

This dissertation is concerned specifically with the labour market in the voluntary sector: that is, workers who are the paid employees of independent nonprofit organisations. Using a large, national dataset we explore empirically the predictions of the economic theory of voluntary organisations. In particular, we examine

whether there is evidence for a ‘warm glow’, the extra utility that workers receive for working towards a goal that they share with their employer. Does this glow exist, and is it brighter in the voluntary sector?

We examine in turn sector differences in wages and working hours. We find evidence that employment in the voluntary sector is significantly different in some characteristics from both the private and public sectors. We suggest that it is important to consider the unique character of the voluntary sector when analysing employment – particularly in the industries where the voluntary sector is most prevalent. We analyse this data at a time when the sector has been growing dramatically, driven by government policy to reform public services. Our findings suggest that this policy has had unintended consequences for the voluntary sector labour market.

Defining the Voluntary Sector

The terms “voluntary sector”, “third sector” and “nonprofit sector” are often used almost interchangeably. While the diversity of organisations covered by these banners makes tight definition complicated and not necessarily desirable, for the purposes of measurement and analysis of the sector an understanding of what is to be measured must be established.

Figure 1 helps us to explore the boundaries of the third sector. Organisations are mapped onto a triangular space, based on their make-up as State, Households or Firms. Across this space are three legal divisions: Public/Private, For-profit/Nonprofit, Formal/Informal.

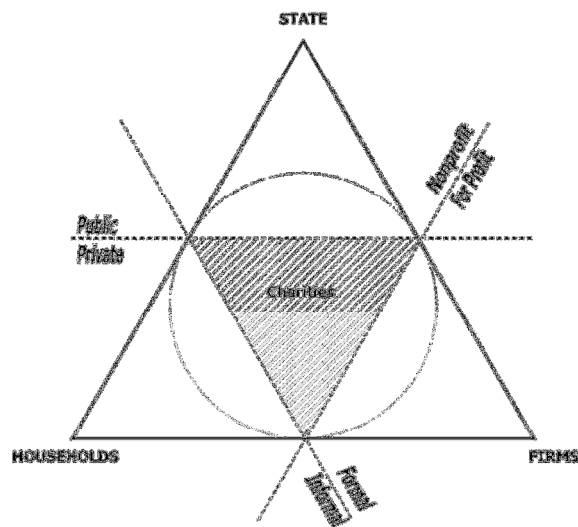


Figure 1: Defining the Third Sector
(Adapted from Baubock (1996))

The Public/Private distinction is whether the organisation is state-owned and/or state-controlled. The For-profit/Nonprofit distinction is a legal definition based on the constitution of the organisation, and whether it is permitted to distribute profit or surplus to owners or shareholders. The Formal/Informal distinction is between organisations that are formally constituted in law, as opposed to being informal groupings with no legal status.

The shaded triangle in Figure 1 enclosed by these three legal boundaries is the organisations generally eligible to register as charities. Although these organisations form the core of the third sector, they by no means define it. The dashed circle encloses three types of organisation which may or may not be considered to be within the third sector.

The first is organisations closest to the State corner. These would include nonprofit organisations that though technically independent are largely funded or controlled by the public sector. Examples of organisations in this category would be universities, or local-authority-funded leisure trusts.

The second is organisations closest to the Firms corner. These include social enterprises, cooperatives, mutuals and community interest companies which though technically for-profit may have primarily social objectives. Social enterprises have been growing in prominence in recent years, but there is no general agreement as to the legal structure, constitution, or social aims which an organisation would need to adopt in order to be considered a social enterprise (Kerlin, 2006). These organisations are often the ones which form the distinction between the ‘voluntary sector’ and the ‘third sector’, with third sector having a broader coverage to include for-profits with strong social purposes.

The third is organisations closest to the Households corner. These include informal associations, clubs, and volunteering which though not formally constituted are still an outlet for the voluntary sector in the community. While these organisations would certainly be considered to be within the third sector, their informal status means that they often fall ‘below the radar’, and so do not appear in registers or datasets (McCabe, Phillimore, & Mayblin, 2010).

The third sector as commonly defined could include charities and all three of these additional organisation-types. However, the boundaries of these additional organisations are not as black and white as the legal boundaries, and so exactly where the line is drawn can be a matter of some debate. In practice, data may be difficult to collect or analyse. This means that practical definitions of the third sector may diverge from the theoretical definitions.

For the purposes of this thesis, we analyse organisations in the voluntary sector, defined as a subset of the third sector. For practical purposes, this sector is identified primarily by nonprofit status, and organisational form. Organisations in the private

sector are defined by for-profit status, and organisations in the public sector by state ownership and control. This means that, in general, organisations that are for-profit social enterprises, or informal groups or associations, do not appear in the voluntary sector classification.¹

The Voluntary Sector in the UK

Nonprofit organisations in the UK who wish to call themselves charities must register with the Charity Commission in England & Wales, or with the Office of the Scottish Charity Regulator (OSCR) in Scotland. The Charities Act (2006) in England & Wales and the Charities and Trustee Investment (Scotland) Act (2005) in Scotland set out the criteria for becoming a charity. These include constitution as a nonprofit organisation, the appointment of directors or trustees who receive no compensation or financial benefit from their association with the charity, and the adoption of stated charitable aims which conform to a list of permissible charitable activities.

Since coming to power in 1997 the Labour government in the UK has actively promoted the involvement of the voluntary sector in the provision of public services. This has resulted in dramatic growth in the sector, fuelled by the rise in the number of public services contracted-out to the sector through the increasing use of commissioning and competitive tendering.

The value of government contracts with the voluntary sector increased from around £2 billion in 1996/97 to £6.88 billion in 2005/06 (Public Administration Select Committee, 2008). This has led to a greater importance for the sector as a key part of

¹ Chapter Three discusses the method of classifying sector used in the data in this analysis. Appendix Two describes the sector variables in the dataset.

public service provision. One could perhaps argue that a sector driven by voluntary donations to pursue the philanthropic objectives of wealthy benefactors was best left alone by government. However a sector responsible for a large proportion of public service provision in industries such as social care, competing for contracts in a market with other providers, needs to be understood if appropriate policies for the establishment and regulation of these providers are to be adopted.

The Economics of the Voluntary Sector

Voluntary organisations are a complicated phenomenon, and economic theory has responded with a diverse set of theories to explain the existence and behaviour of the sector. There are three main theoretical explanations for nonprofit organisations.

- Government failure in the provision of public goods;
- Market failure due to information asymmetries for some services where quality is difficult to contract over, measure, or even observe;
- Harness intrinsic motivation, or the ‘warm glow’, in providing services that individuals are willing to support.

These three explanations are not exclusive: they each explain different facets of the diverse voluntary sector. Government failure can explain the duplication of public services by voluntary organisations, such as nonprofit schools providing children’s education with a different approach. Information asymmetries can account for the fact that most voluntary organisations are clustered in health and social work services, such as care for older people. Warm glow theories can explain why people give to charities when the marginal impact of their gift on the level of service

provision is minor, and why their support is not crowded out by government funding of the same organisation.

Warm glow theories have been extended from monetary donations (Andreoni, 1998) to the giving of time: volunteering (Baines, 2004;Duncan, 1999). As leisure time is substitutable for paid work, this extension to the donation of time rather than money does not seem overly problematic. However, the theory has then been extended further, making predictions about the choices of paid employees working in the voluntary sector. The theory predicts matching between motivated principals and agents, with lower wages paid to motivated agents as they receive ‘compensation’ in the form of intrinsic utility from contributing to the work of the voluntary organisation. We examine the evidence for a warm glow in wages, and whether this is an extension too far.

Researching Employment in the Voluntary Sector

A significant challenge in researching the voluntary sector empirically is the availability of data. Many datasets do not separately identify organisations or workers in the voluntary sector, instead making only a public/private distinction. Even in datasets that do, there is still an issue of sample size, as voluntary sector employees makes up only 3% to 4% of the workforce in the UK. Lastly, there is a recurring issue of sample-selection bias, if workers have sorted into sectors based on unobserved (or even unobservable) characteristics. These three issues combine to make the sector under-represented in empirical analysis within economics.

In this thesis we undertake an empirical investigation into the existence of this ‘warm glow’ effect on workers in the UK voluntary sector. We begin by analysing pooled

cross-sectional data from the UK Labour Force Survey (LFS). This shows evidence of a wage discount for male voluntary sector workers, but no significant discount for female workers. We then analyse the change in the sector wage difference over a period of strong growth in the size of the voluntary sector, showing that while it was significant ten years ago the wage difference has now all but disappeared. We tackle the problem of sector selection and bias from unobserved worker heterogeneity by estimating a panel model, and show that this finding is robust.

Next, we focus on the health and social work industries, where around two thirds of voluntary sector employees are concentrated. We examine sector differences within these industries for a number of reasons. These encompass much of the caring industries (Francois, 2003) where theory predicts we might expect to find mission motivation. Restricting the focus to particular industries also reduces the difficulty of controlling for unobservable job heterogeneity between industries. The empirical literature has suggested that within this industry there are voluntary sector wage premiums above the private sector wage. We analyse working hours, and in particular unpaid overtime, to show that effective wages are lower in the voluntary sector for female workers.

The main contributions of this dissertation are three-fold:

- An exploration of the make-up of the voluntary sector workforce, and in particular the characteristics of workers who switch into and out of employment in the sector'
- An empirical analysis of voluntary sector wage data in the UK, to identify the changes in sector differentials as the sector has grown;

- An examination of the effects of unpaid overtime on sector differentials in a key industry for voluntary sector public service provision;

With this we aim to add to the growing knowledge of the unique nature of the voluntary sector, and identify the implications of the changes which it is currently undergoing.

In this dissertation we do not consider the individuals' choice between different altruistic activities e.g. employment in the voluntary sector, volunteering or making a donation. This is in part due to the lack of good quality data that includes information on individuals' participation in all three activities. Furthermore, there is not a clear understanding of the degree to which these three methods of expressing prosocial motivation are substitutes or complements, or whether they are indeed driven by the same motivation. The roles and responsibilities of volunteers are usually very different from those of staff, driven by the enforceability of contracts, the commitment of individuals, and the regulation of caring industries. Here, we focus on employment in the voluntary sector and on individuals prepared to accept lower wages in the labour market to participate in a prosocial organisation. We leave a comparison of outlets for prosocial motivation for future research.

Outline of the Chapters

In Chapter Two, we review the economic literature on voluntary organisations from the past forty years. In particular, we explore how the development of the concept of altruism has informed economists' understanding of the voluntary sector.

In Chapter Three, we use descriptive statistics to explore the UK voluntary sector workforce. This identifies the characteristics that appear to make the sector distinct

from the private and public sectors. We describe the characteristics of ‘sector switchers’; workers who move into or out of the sector, and test for changes over time.

Chapter Four tests the ‘warm glow’ prediction of lower voluntary sector wages using a pooled cross-sectional dataset from the UK LFS. We analyse the changes in the sector wage differentials over the past ten years of dramatic voluntary sector growth. The problem of unobserved heterogeneity is tackled through analysis of sector switchers in a panel model.

Chapter Five explores working hours in the voluntary sector within the health and social work industries, where most voluntary organisations are concentrated. In particular, we examine data on unpaid overtime.

Chapter Six concludes by considering the policy implications of these research findings.

CHAPTER TWO

Get By With a Little Help From My Friends: A Recent History of Charitable Organisations in Economic Theory

- Joey:** I'm sorry Pheebs, I just ... wanted to do a good deed. Like - like you did with the babies.
- Phoebe:** This isn't a good deed; you just wanted to get on TV! This is totally selfish.
- Joey:** Whoa! Whoa! Whoa! What about you, having those babies for your brother? Talk about selfish!
- Phoebe:** What - what are you talking about?!
- Joey:** Well, yeah, it was a really nice thing and all, but it made you feel really good right?
- Phoebe:** Yeah. So?
- Joey:** It made you feel good, so that makes it selfish. Look, there's no unselfish good deeds, sorry.
- Phoebe:** Yes there are! There are *totally* good deeds that are selfless.
- Joey:** Well, may I ask for one example?
- Phoebe:** Yeah, it's... Y'know, there's ... no you may not!

Friends, Series 5, Episode 4, (Warner Bros, 1998)

Introduction

The search for a “selfless good deed” has occupied both philosophers and the writers of American sit-coms for thousands of years. This challenge, and what it might reveal about the underlying motivations of human behaviour, has relevance for many disciplines across the social sciences and further afield. It is also a critical element in understanding charitable actions and the behaviour of charities and other nonprofit organisations.

Charities are playing an increasing role in the provision of public services in many countries, a development that is generally supported by governments. Historically charities have had an important role in innovating in the health and social care sectors, often able to respond to societies’ changing needs faster than the state. However, the recent move to involve charities in “quasi-markets” (Greenaway,

1991), competing to win contracts to provide public services, has highlighted the need for a better understanding of the economics of charities and how their behaviour in competitive environments might differ from private firms. In many countries new types of charitable organisation are flourishing, less reliant on voluntary donations but responding to the demand from the public sector to contract out many public services. We explore how well economic theory copes with understanding these changing organisational forms.

Ideas about the role of charity in economic theory can be traced back to the origins of modern economics and Adam Smith's discussion of 'sympathy' (Smith, 1759). However, for much of the history of economics the focus of theory on self-interested behaviour has resulted in a separation between the economics of charity and the concept of altruism, where charitable behaviour has been modelled as firmly rooted in self-interest. The more recent flow of ideas into economics from psychology and the findings of experimental economics have brought consideration of alternative motives closer to the mainstream of economic thinking, and economic theories of charity have benefited from a wider approach to the basis of behaviour.

This chapter argues that a debate in the early 1970's over Richard Titmuss's (1970) analysis of the economics of blood donations played a role in highlighting the lack of theoretical and empirical work in this area, sparking a succession of economic theories of charitable behaviour that moved altruistic motivations from the fringes towards the core of the theory. The first attempts to explain apparently altruistic behaviour relied on self-interested agents realising gains from cooperation, particularly in the provision of public goods. In order to explain why free-riding seemed to be much less prevalent in practice than predicted in theory, ideas of "warm

glow” then followed, where utility could be gained from both the act of cooperation as well as the outcome. This explanation did not fully tackle the reasons why individuals might gain utility from the act of cooperation, and some researchers questioned whether all motives for behaviour could indeed be subsumed into self-interest. This allowed for the consideration of alternative motivations for action sitting alongside altruism.

More recently, the literature has split into two separate formulations of ‘warm glow’. In one strand pro-social motivation is seen as being heterogeneous in the population, and the emphasis is on motivated individuals matching and selecting into the nonprofit sector. In the second, the institutional form of the nonprofit, particularly the profit non-distribution constraint, is seen as important in determining the ‘warm glow’ utility available by placing a restriction on the action of employers.

This chapter reviews the progress of economic theories of charitable organisation over the past forty years, from a focus on self-interested cooperation in reaction against Titmuss’s book, to more recent theories of alternative motivations that echo his ideas. We do not set out to critically analyse our understanding of altruism as such, but rather to examine how it has been applied in forming economic theories of nonprofit organisations.

In Chapters 3, 4 and 5 we will examine data on workers in the voluntary sector. We use individual level data, and our focus is therefore on individuals. However, as we will see in the literature discussed in this chapter, pro-social motivation in employment is entwined with organisational form. Here we discuss both literatures: theories of individual altruism, and theories of nonprofit organisations. As economists’ theoretical understanding of altruism has developed, this has had an

impact on the modelling of altruism in both individual and organisational theory. For this reason, this chapter is organised by the developments in economists' concepts of altruism.

Of course, the theories of charity are intertwined with concepts of altruism: what does it mean, how should it be modelled, and what does it tell us? First we must explore the changing assumptions about altruism, and then examine how these have influenced the development of economic theories of charities.

What is Altruism?

In order to include altruism in a theory of charity we must first agree what the term means. At its core, the concept captures a concern for others that is not linked to a concern for oneself. This is an internal state, and is not directly observable. A distinction must be drawn between the acts we observe and the internal state, as there can be more than one motivation behind an apparently altruistic act. Being altruistic can create a desire to help others, but the decision to act is taken after considering the constraints faced by the agent (Alchian, 1973). For example, someone with very little wealth might be moved by the plight of those even less well-off than themselves, but is unable to afford to give even the smallest help. A rich philanthropist may give substantial amounts without a real concern for those the donation is helping, particularly if such behaviour can increase social standing. If we call gift-giving, or the observed "altruistic" behaviour generosity, then we can see that there is a divide between the act of generosity and the internal state of altruism. This highlights that we must try and explain the observable behaviour in terms of characteristics that are themselves observable.

In this context the word “charity” is used essentially to mean organised altruism, whether donating to a cause or founding an organisation. This means that the focus will be on the theoretical and practical difficulties of coordinating altruistic motives to action in a group setting.

A Recent History of the Economic Theory of Charity

For much of its history a description of altruistic behaviour was considered outside the scope of economics. In *The Economics of Charity* (Alchian, 1973) Johnson writes:

“Although there is a third, charity, market in which individuals collectively provide public goods without the incentives or penalties of the political market, virtually no research has been directed to it.”

The Economics of Charity (Alchian, 1973), Chapter 5, Page 84

This statement was true when written at the start of the 1970’s, but was followed by over thirty years of increasing interest in the voluntary sector and theories of the economics of charity. At this time early discussions of altruism in economics centered on a challenge to the strictly independent individual utility functions of Paretian welfare economics. An influential paper by Hochman & Rogers (1969) modelled altruism as the inter-dependence of individuals’ utility functions, creating some debate within the literature.² Lindsay (1969) proposed a model of the “economics of sharing” to explain the common public provision of healthcare services. This approach used equality of provision as an argument in individual’s utility functions in order to model interdependence. Although this early literature

² See Peacock & Rowley (1975) for a summary of these discussions.

certainly acknowledged the possibility of private charity, its focus was largely on the role of government in redistribution.

An influential social policy text published in 1970 discussed the role that altruism had to play in economic behaviour, with a specific example in the collection of blood. In *The Gift Relationship* by Richard Titmuss (1970) the collection of blood donations in the UK and USA were compared, examining the success and failings of a private market in paid blood donations. Economic theory predicted that the introduction of paid blood donors in the UK would increase the supply of blood. Titmuss suggested that this argument was flawed as it relied solely on a model of rational self-interest, and ignored the valuable and significant role that altruism plays in many types of transaction. Titmuss argued that the introduction of paid-for blood donation to the UK would decrease both the quantity and quality of blood supplied.

Economists at the time largely disagreed. Kenneth Arrow (1975) wrote a response to Titmuss's book in which he accepted that the study of altruism was important, and acknowledged the role that mechanisms for "truth-telling" play in the efficiency of markets with information asymmetries. He disagreed that the conclusions which Titmuss had drawn about the supply of blood did indeed follow from the analysis.

"Why should it be that the creation of a market for blood would decrease the altruism embodied in giving blood? I do not find any clear answer in Titmuss."

Arrow (1975), page 19

Translating Titmuss's framework into the language of utility theory more familiar to economists, Arrow identified three motives for action that could lead to seemingly altruistic behaviour:

- Self Interest – where agents utility does not depend on others (i.e. they are self-interested), but the cooperative behaviour is efficient if an agreement can be reached that eliminates or reduces free-riding and allows the gains from cooperation to be earned;
- Pure Altruism – where the utility of one agent directly affects the utility of another;
- Impure Altruism – where an agent derives utility from the act of helping another.

Initial theories of the role of nonprofit organisations focussed on the areas that economics was best equipped to tackle using the model of rational self-interest. These explained the existence of charity as an optimal response to the potential efficiency gains of cooperating in a social contract in order to improve society's welfare within a context of self interest. Ideas of utility gained from the act of "doing good", separate from the outcome of the act, were then developed. This uses the concept of 'warm glow', for example that donors gain utility from making a donation to charity rather than from the outcome that this donation had. It is an attempt to explain seemingly altruistic behaviour that can overcome the free-rider problem. More recently there has been a return to concepts of altruism where utility is gained from the outcome, and where this objective is seen as being separated in some way from a self-interested objective. This means that the debate has gone full circle, as the issues addressed are similar to those sparked off³ by the discussion in

³ While it should be noted that the economics of charity literature has its roots in the earlier welfare economics literature, it is argued here that the strong reaction Titmuss' book created, and its focus on gift giving rather than redistribution, made it particularly influential in the ensuing literature.

Titmuss's *The Gift Relationship*. We will now discuss each of these approaches to charity in turn.

Charity as Self Interest

Initial attempts to model charitable acts did not explicitly consider altruism. Seen as being outside the discipline of economics, the theories of charity focussed on self interest as the driving force, with constraints that led charitable activities to being the optimal response. This is an attempt to incorporate seemingly altruistic behaviour without having to address or acknowledge the existence of altruism at all.

These theories depict charities as being the result of a social contract to overcome some "failure" that leads to inefficient outcomes. These explanations do not require any description of altruistic behaviour, as they are privately optimal if the appropriate agreements can be reached and enforced. They seek to explain seemingly altruistic behaviour as the result of complex self-interested behaviour.

The literature falls into two broad categories: "Government failure" and "Contract failure".

"Government Failure" in Public Good Provision

When private firms are unable to provide efficient levels of a public good, there is a role for government intervention. However, institutional constraints may lead to the failure of the state to adequately provide these public goods. Young (2001) outlines five constraints on government provision of public goods that could lead to government failure, and so require a third organisational type.

- Categorical Constraint

Government provision tends to be standardised, making it difficult to cater for those preferring small variations in the nature of service provision.

- Majoritarian Constraint

The Government must provide the level of service desired by the median voter in order to stay in power. Voters who would prefer a lower or higher level of service provision will be disappointed.

- Time Horizon Constraint

Governments tend to have a shorter term outlook due to political terms, which may restrict their ability to provide services that would benefit society in the longer term.

- Knowledge Constraint

The hierarchy and bureaucracy of government can make it difficult to develop new ideas or experiment with new types of service provision.

- Size Constraint

Due to the intimidating size of government it can be difficult for individuals to convey their preferences about service provision.

Theories of government failure suggest that the formation of a third organisational form, the nonprofit firm, can be the optimal response to these constraints. This means that we would expect to see charities providing specialist variations of mainstream services, to be taking a longer term view in their service provision, and to be innovative in their fields.

Weisbrod (1988) advocated government failure as the prime cause of the rise of charities, and suggested that charitable activity would be greatest in a population that was more diverse, while a more homogeneous population would prefer government provision of services. He suggests that the voluntary sector is necessary in a democracy to cater for the needs of minorities which the government is unable to help sufficiently. Furthermore, Weisbrod suggests that this motive for charity operation explains the observed growth in the voluntary sector. As technological advances make travel and communication cheaper and easier the members of our societies are becoming more diverse (Weisbrod, 1997). This growing heterogeneity makes it harder for governments to cater to minority interests, and increases the number of charities.

Market Failure Due to Incomplete Contracts

A second explanation that is particularly influential in the literature is that charities can exist to help resolve market failure that results from incomplete contracts. In particular, where there are significant information asymmetries between buyers and sellers or aspects of a good or service that are non-contractible, there is potential for market failure leading to inefficient outcomes. The theories suggest that nonprofit organisations provide a way to overcome this failure (Weisbrod & Schlesinger, 1986).

If the seller of a good has private knowledge about quality that it is difficult, costly or even impossible for the buyer to ascertain then the seller has an incentive to exploit this asymmetry for private profit. Theorists argue that a nonprofit organisation can overcome this, as removing the profit motive neutralises the incentive to exploit an asymmetry, and market failure is avoided. While the charity here provides a socially

beneficial function, there is no theoretical treatment of the altruism that might lead to its conception, or that might motivate managers to forgo private profits in order to run it.

Many sectors in which charities are common, such as health or social care, exhibit significant information asymmetries about service quality. The quality of services provided may only be observable when they are consumed – these are ‘experience goods’ (Riordan, 1986). The quality of some services may never be observable, even after they have been consumed – these are ‘credence goods’ (Emons, 2001). If quality is difficult, costly, or impossible to measure then this gives the provider power to exploit the consumers lack of information in order to maximise profits.

Hansmann (1980) suggests that the profit non-distribution constraint means charity managers have little motivation to maximise profits and are unlikely to take advantage of their private information about service quality. This engenders extra trust in consumers and so makes the claims of unverifiable quality credible, helping to overcome the potential market failure.

Handy (1997) offers an explanation for the coexistence of private firms, nonprofits and public sector organisations in markets where contract failure due to information asymmetry is a feature. Care recipients in her model have a benefit function which trades off two intermediate inputs. One input is easily observed (X_1), and the other is difficult or costly to measure (X_2). Suppliers can offer different combinations of X_1 and X_2 . The nondistribution constraint provides nonprofits with a comparative advantage in the provision of unobservable quality, leading to the provision of services with a higher proportion of input X_2 . Private firms will provide services with a larger proportion of X_1 . If there are heterogeneous consumers with different

preferences for bundles of X_1 and X_2 then organisations of different types will be able to coexist efficiently in the same market.

Bilodeau & Slivinski (1998) outline a theory of rational nonprofit entrepreneurship, where entrepreneurs wishing to sell a public good in a multi-stage game must choose between forming a private company or a nonprofit organisation. The willingness of the public to contribute to the public good is greater if the organisation is bound by a non-distribution constraint, as there is less opportunity for the entrepreneur to appropriate contributions rather than providing the public good. If this greater willingness is sufficiently large then it can be optimal even for a self-interested entrepreneur to choose the constraints of the nonprofit form.

Similarly, Glaeser & Shleifer (2001) build on Hansmann (1980) and Weisbrod (1988) to outline a theory of not-for-profit entrepreneurs, who forgo the profits of a private firm in order to harness the voluntary contributions that a nonprofit organisation can elicit. Entrepreneurs make an optimal choice of organisation type, choosing to form a nonprofit organisation when the benefits of harnessing contributions to the organisation through the credibility of nonprofit status outweigh the potential profits of forming a for-profit organisation. Glaeser & Shleifer also show that donors would support nonprofits rather than for-profit organisations even in the absence of tax advantages.

Akerlof (1986) describes partial gift exchange as one explanation for labour contracts where workers are paid above the market-clearing wage and firms are rewarded by higher labour productivity even when worker effort is difficult to measure. Akerlof suggests that this gift relationship could be sustained by societal norms of a “fair day’s work”. Although Akerlof recognises the importance of social or cultural

factors in his model, these remain exogenous. This leaves the partial gift exchange to be an optimal response to a given set of norms.⁴

Charity as Caring About the Ends: Pure Altruism

Theories of charity as purely self interest, excluding altruism, seemed unsatisfactory, so next we consider how altruism can be added to a rational self-interested framework. Initially, altruism is incorporated as the welfare of others directly entering the agent's utility function. Becker (1974) was influential in using the concept of pure altruism in his conception of the family: the welfare of members of the family directly enters the utility function of the head of household. Becker then extends this model to apply to "... *the synthetic 'family' consisting of charitable person 'i' and all recipients of his charity.*" Becker (1974); page 1083.

Given two agents, Ann (A) and Ben (B), there are two possibilities:

$$U_A = f(X_A, X_B) \tag{1}$$

$$U_A = f(X_A, u_B(X_B)) \tag{2}$$

Where U_A and U_B are utility functions, and X_A and X_B are the quantities of X consumed, by Ann and Ben respectively.

That is, either the *quantity* (paternalistic function) of good X consumed by Ben, or the *utility* (non-paternalistic function) from the good X consumed by Ben, enter Ann's utility function directly.

Roberts (1984) describes a model of private charity and public transfers that uses a paternalistic utility function for the preferences of the altruist. In particular, his

⁴ See also Frank and Salkever (1991); Frank and Salkever (1994).

model predicts that public transfers will crowd out private giving, and in political equilibrium public transfers are “overprovided”, driving private giving to zero. Lucas & Stark (1985) examine the behaviour of migrants’ remittances to their home countries. They contrast a self-interested model with a pure altruism case, using a non-paternalistic utility function where the weighted utilities of the members of their household enter the migrants’ utility function. Their empirical results do not fully support the pure altruism specification, but instead they argue for a “tempered altruism” model where migrants are motivated by both altruistic and self-interested objectives.

Under the usual assumptions governing utility functions if Ann had a quantity of X, while Ben had none, then both would lead to her giving him some in order to maximise her utility. In the example, Ann’s utility would be maximised when the marginal utility of her allocation was equal to the marginal utility that she received from Ben consuming his allocation.

This formulation seems to capture some of the features of altruism. However, in groups it is vulnerable to free-riding. Ann cares only about the absolute quantity (or utility) that Ben receives, whether she gives it to him or not. If Carol, Dean and Erica also have Ben’s wellbeing enter their utility functions, then they will share the burden of supporting him. If marginal utility is decreasing in consumption, then the marginal impact of their individual contributions will fall as the number of donors increase. When Ann reduces her transfer to Ben she considers only the loss to her marginal utility, and does not internalise the loss of utility to Carol, Dean and Erica. This incentive to free-ride can result in inefficiently low transfers being made to Ben.

Sugden (1982) explores some of these concerns, by extending Becker's model of charitable giving. He challenges the applicability of the model to 'large' charities, where donors may have difficulty observing the contributions of others. The activities undertaken by charitable organisations tend to involve a separation between donor and recipient. The charity provides the mechanism for collecting donations from donors and distributing benefits to recipients. This divide between giver and receiver creates a great incentive for free-riding.

So if we understand altruism in this way, we would expect free-riding to be a real problem for the provision of charitable services. In practice free-riding seems to be far less of a problem than predicted. Many people make small donations to charity, where the marginal effect of their contribution is tiny, and the pure altruism theory does not explain this.

Charity as Caring About the Means: Impure Altruism

In order to explain the lack of free-riding in charitable contributions economic theorists introduced the concept of a 'warm glow' from altruistic behaviour, where impure altruists derive utility from the means rather than the end.

$$U_A = f(X_A, \lambda x_{AB}, (1-\lambda)X_B) \quad (3)$$

Where x_{AB} is the quantity of X gifted by Ann to Ben, and λ is weight between utility from the means and the ends. In this framework, a pure altruist is a special case where $\lambda=0$.

This is used to explain giving to charity where the final recipient is unknown to the donor, the charitable activity is difficult to observe, or is a public good with the potential for significant free-rider problems. As observed by Rose-Ackerman (1996)

in her survey of the nonprofit literature this leads to the perverse situation where the only people defined as “true” altruists by economists are those who care only about ends, and not the means. In a mixed population the contributions of impure altruists could potentially crowd out those of pure altruists, in extreme cases leaving the pure altruists giving little or nothing. Despite this, the impure altruism model has been very influential in providing theoretical explanations of nonprofit organisations.

Rose-Ackerman (1987) focuses on altruistic motives for supporting a nonprofit organisation, and suggests that the “ideological entrepreneurs” who start them are driven by “strong philosophical or professional commitments”. This is a ‘warm glow’ explanation, where entrepreneurs gain utility from the charities activities directly rather than from the outcomes. Rose-Ackerman also emphasises the role of the entrepreneurs in deciding the organisation’s mission, and the challenges that they will face in controlling this mission.

Frank & Salkever (1991) examine the provision of health care by nonprofit organisations. They develop a model of competition between private nonprofit, private and government hospitals. In their ‘pure altruism’ model the nonprofit hospital’s objective function contains two arguments: net revenue and unmet healthcare need. In this model nonprofit provision is crowded-out by increases in either private or government provision, unless the income effect of charity endowment is both positive and very large. The model is then extended to include ‘impure altruism’ in the nonprofit objective function by the addition of an argument capturing the nonprofits provision relative to its rivals. It is shown theoretically that impure altruism in the nonprofits objective function leads to rivalry between competing nonprofits, and could explain the lack of crowding-out of nonprofit

provision by private or public sector health care provision. This model implicitly assumes the existence of competing nonprofits, which could be explained through a model of nonprofit entrepreneurs such as Bilodeau & Slivinski (1998), discussed above.⁵ Frank & Salkever find empirical evidence in US data of competition between nonprofits in the provision of charity healthcare which supports the impure altruism nonprofit objective function.

Young (1983) suggests that charities pay lower rewards to managers as they don't make profits, and this leads to screening of managers. Managers seeking high financial awards will tend to favour private firms, whilst managers who gain utility from achieving the objectives of the charity will accept lower compensation to take on the job. This means that managers of charities have an interest in truthfully providing the service in order to maximise their own utility, and this makes charities services more credible. More recently, Delfgaauw & Dur (2010) also describe a model of managerial selection into the private and public sectors when workers differ in managerial ability and prosocial motivation. Their model suggests negative selection of managerial ability into the public sector. The public sector earnings penalty (due to a warm glow effect) is increasing in managerial ability, leading to efficient selection of managers into sectors, and arguing against increasing public sector compensation in order to attract 'better' managers.

Andreoni (1990) provided the classic reference for "warm-glow" giving by exploring its use to model donations to a public good. His analysis also explored the crowding-out effect of government grants to nonprofits on the level of donations, with an

⁵ Further discussion of the founding of nonprofits and competition for donations can be found in Bilodeau & Slivinski (1997)

impure altruism model predicting that the effects of crowding-out will be less significant.

This formulation of caring about the means leads to theoretical models of nonprofits with objective functions that include the level of service they provide or amount of goods they produce, often alongside profit or surplus.

The concept of warm glow can lead to confusion if it is used to describe any utility derived from a charitable act. Andreoni's proposal for warm-glow giving included utility only from the *means* but not the *ends* as a solution to the problem of free-riding in charitable provision. However, answering "Why do people give money?" with "Because they enjoy it" begs the question. This requires that we can separate analysis of the means from the ends, and that the enjoyment of giving without regard to the purpose of the gift is included within the definition of altruism.

The prestige motivation for charitable contributions and participation emphasises the social gains from being seen to contribute to the public good (Harbaugh, 1998). Prestige provides an intrinsic benefit from involvement with a charity and can overcome the free-riding that would be expected with voluntary contributions to a public good.

The popularity of warm-glow theories in this literature has led to its being extended to explain the absence of crowding out of donations by government grants to nonprofits, volunteering behaviour, voluntary sector wages in the labour market and to model the objective functions of nonprofit organisations.

Charity as Intrinsic Motivation

Behavioural economics has had a significant impact on economic theories of altruism, by incorporating ideas from the field of psychology and observing in experiments subjects' deviations from core economic assumptions.

Frey (1997) argues that altruistic motivation cannot be traded off so easily with financial self-interested incentives. He distinguishes between the extrinsic motivation of (often financial) incentives and the intrinsic motivation of gaining utility directly from undertaking an activity. His assertion, drawing on evidence from the literatures of psychology and experimental economics, is that these two motivations can interact. This has two main implications:

- “Crowding-Out” effects;
- “Spill-over” effects.

“Crowding Out” is observed when the introduction of external incentives for performing a task reduces the amount of intrinsic motivation derived from the task, with the results that “paying more” leads to lower rather than higher effort.

“Spill-over” is observed when the introduction of external incentives for one task reduces the intrinsic motivation for performing other tasks. For example, introducing payment for a teenager to perform one household chore reduces the effort applied to other unpaid, but previously undertaken, chores.

This interaction is a break with traditional “warm glow” explanations, which suggested that the glow produced the same type of utility as payment and agents could trade off these utilities internally.

This can lead to a labour supply curve that has both upward and downward sloping portions. The implications can run even deeper than this, suggesting that the method of reward can also be important, independent of the value of the payment. If a small payment is perceived as a gift or award (such as an Olympic gold medal), then it can increase intrinsic motivation. But if it is perceived as payment for services then intrinsic motivation can be crowded out. For example, allowing volunteers to claim their expenses can show that their time is valued and encourage greater volunteering. Providing an equivalent small “hourly rate” payment for volunteers could discourage volunteering, even if the expected value of the two payment schemes is identical.

This assertion that the incentive mechanism can have real effects helps to explain some of the complex behaviour observed in this area. Incorporating its implications into theoretical models is not straightforward.

“Some of these efforts to integrate psychological effects into economics have been noted by mainstream economists in the sense that they are (often almost ritually) quoted at the appropriate moments, but they have had precious little effect on economic theory as a whole.”

Frey (1997), page 122

Although many of the papers developing theories of nonprofits with a warm-glow approach reference the work of Frey and other authors presenting similar evidence, the models themselves do not include the implications of an interaction between intrinsic and extrinsic motivation. These theories have had an effect on economists’ understanding of altruism, but have not yet significantly affected the way that charitable organisations are modelled. Recent attempts to address this have been undertaken in the pro-social motivation literature, using a Principal-Agent framework.

Charity in a Principal-Agent framework: Pro-social motivation

A literature on altruism in a principal-agent framework has developed more recently, of which a key paper is Francois's (2000) development of a model of 'public service motivation' drawn from the study of public administration.⁶ In this model both principals and agents receive a warm glow from provision of a service that is independent of the organisational structure of the employer (i.e. for-profit or nonprofit). In the spirit of Bilodeau & Slivinski (1998), the choice of organisational form is then left to the principal and so is endogenous to the model.

In Francois's model nonprofit status provides a method of mitigating the moral hazard when effort is unobserved, combined with the potential free-riding of the purely altruistic agent. Nonprofit status allows the principal to credibly commit not to exert effort in a project in the case that the agent shirks, due to the fact that in a nonprofit the principal is not a residual claimant.

Bénabou & Tirole (2003) explore intrinsic and extrinsic motivation in tasks within the principal agent model. Their model has a principal with private information about benefit of the project to the agent, and so the agent's motivation. The extrinsic incentives provided by the principal as a payment convey information to the agent about the desirability of the task: high extrinsic incentives can send 'bad news' about the intrinsic payoff to the agent from the task. Bénabou & Tirole show that in some cases rewards can be reduce effort in the short term, while lower incentives can provide a signal that the agent is trusted by the principal. Bénabou & Tirole (2006) develop this further, identifying three sources of motivation: intrinsic, extrinsic and reputational. They argue for a need to go beyond the simple dichotomy of pure and

⁶ See also Francois and Vlassopoulos (2008) for a review of this literature focussing on incentives and the role of pro-social motivation in the provision of social services, and Dixit (2002) for a discussion of incentives in the public sector.

impure altruism to consider the impact that reputation formed through the observation of one's actions by other agents. Specifically, extrinsic rewards can affect the perception of what is a good deed, creating positive or negative reputational effects. They suggest going beyond a 'fixed' warm glow from doing good, instead considering a variable warm glow effect that is dependent on context e.g. what other people are doing. Ellingsen & Johannesson (2008) also develop a model of prosocial behaviour arising from a desire for social esteem, with extrinsic incentives providing a signal to agents about the value of impressing the principal.

Besley & Ghatak (2005) outline a model of "motivated" agents who have a "mission" which they care about, and they gain utility from working with a principal who shares their mission. Agents are prepared to give up some of their pecuniary rewards in return for matching with a principal who shares their mission. The model shows the efficiency gains of matching principals and agents who share a mission as effort is increased. The model makes a clear prediction – that wages in industries with motivated workers should be lower due to this warm glow accruing to workers.

Ghatak & Mueller (2011) extend the motivated agents theory to permit a choice of organisational form by motivated managers. Their model shows that when managers can choose between for-profit and nonprofit status (where nonprofit means that only a fraction α of the profits accrue to the manager) they can use nonprofit status as a commitment mechanism that they will not intervene in public good provision in the case of worker shirking. This ensures that individual workers' efforts have an impact on public good provision. Managers' trade-off the lower rents in a for-profit firm against the lower wages paid to workers in a nonprofit firm. This leads to a prediction of lower wages in nonprofits due to the reduction of efficiency wages.

Ghatak & Mueller conclude that the existence of nonprofits occurs when the supply of motivated agents is high, when labour markets are slack (so that firms do not need to compete for motivated agents), and in industries where the financial rewards are relatively less significant.

Going Full Circle: A Return to Titmuss

These ideas echo the original predictions of Richard Titmuss, and his ideas about the interaction of altruism and economic behaviour. So, in a sense, our understanding of these concepts has gone full circle.

One of the problems that theories of altruism have to tackle is their conflict with a model of self-interest, long one of the core assumptions of neo-classical economics. The growth of Experimental Economics as a method of testing game-theoretic predictions, and its subsequent findings, challenge some of the core assumptions about economic behaviour. This has prepared the way for some level of discussion about these assumptions within the mainstream of the discipline.

For example, Frohlich, Oppenheimer, & Moore (2001) write:

“Traditionally, economists have assumed self-interest governs economic choices. Recently, some social scientists and economists, especially those working in game theoretic and experimental areas, have begun to treat self-interest as a testable hypothesis.”

Frohlich, et al (2001), page 271

While there is no suggestion that core assumptions such as rational self-interest are to be abandoned across economics, the interaction of game theory and experimental economics has created a space in which it is now legitimate in the economic

mainstream to discuss these issues. This has helped in part to break down the taboo in economics of incorporating ideas from other disciplines in the social sciences. In particular, insights from psychology have been brought into economic models under the banner of “behavioural economics”.

“Over the years, some prominent researchers in both economics and psychology have criticized some of the tenets of mainstream economics as psychologically unrealistic and proposed alternative assumptions that they believed would improve economic analysis. ... Commonly labeled “behavioral economics”, these efforts to incorporate more realistic notions of human nature into economics have expanded enormously in the last decade. While still controversial, behavioral economics is on the verge of “going mainstream”, especially in top departments in the U.S.”

Rabin (2002), page 657

Experiments conducted with a range of cooperative experimental games (see Fehr & Schmidt (2006) for a recent review) show that perceptions of fairness are important in gift-giving. Examining games with different endowments has demonstrated the role of entitlement in defining fair outcomes. Games involving punishment mechanisms show that violation of norms has an influence in decisions to cooperate.

This literature has developed a body of consistent experimental findings that seem to challenge the self-interest assumption. They do not however point unambiguously to an alternative model. In their review of the experimental economics evidence on giving, Fehr & Schmidt (2006) outline three “*departures from the standard self interest model*” in the literature. In addition to self interest, agents may also have preferences over:

- The resources allocated to other agents;

- The fairness of other agents' behaviour;
- The type of preferences of the other agents.

The first encompasses the warm-glow explanations of the previous literature. It also extends to conditional preferences such as inequity aversion, where agents receive disutility from inequitable distributions whoever receives more. The second group broadly covers reciprocity, where actions are taken in response to the intentions of other agents. This is distinguished from the self-interested reciprocity observed in repeated games, where cooperation is utility maximising, but is instead reciprocal behaviour based on the perceptions of the motivations of other agents. The third involves decisions based on the type of preferences that other agents hold, rather than their direct actions; for example, rewarding other altruistic people and punishing selfish people.

This literature provides a basis on which to challenge and reform our understanding of self interest. The development of theories of charities stands as an example of the benefits to a research program of accepting criticism and suggestions from wider disciplines that share research topics.

Where is the Warm Glow? A Utility Framework

The literature reviewed in this chapter has shown that there is a wide range of theories of prosocial motivations, and a variety of explanations for their manifestation in independent nonprofit organisations, such as charities. An individual, i , can gain work utility from several sources:

$$U_i = f(w_i, j_i, g_i) \quad \frac{\delta U_i}{\delta w_i} > 0; \frac{\delta U_i}{\delta g_i} > 0; \quad (4)$$

Where w_i is the wage earned, j_i is the characteristics of the job, g_i is the utility from taking prosocial actions. The hourly wage paid in the job is an observed variable, and will be the dependent variable in wage equations to analyse sector differences. It is reasonable to think that some jobs, such as working in a care home, provide the opportunity to gain some utility from helping others regardless of the type of organisation. These characteristics are contained in j_i , and will be captured through controlling for industry and occupation. Changing job characteristics may increase or decrease utility, so the first derivative is uncertain. Further to these observed characteristics is the unobserved source of utility g_i . Individuals gain utility in g_i from taking actions that have an impact on others, and only gain this utility if they undertake the action. The propensity of individuals to receive warm glow utility is taken as exogenous, and we do not explore the formation of altruistic preferences.

As we have seen earlier in this chapter, the literature proposes two main mechanisms for this warm glow utility being observed in the nonprofit sector: organisational and individual.⁷ In the first, all workers have the potential to receive warm glow, but only nonprofits offer this utility due to the non-distribution of profits constraint (Francois, 2000, 2003; Hansmann, 1980; Rose-Ackerman, 1996). This enables a credible commitment from employers not to divert rents from the production of a public good. In the second, there are at least two types of workers: pro-socially motivated and non-motivated; and motivated workers match and sort into the nonprofit sector (Besley & Ghatak, 2005; Delfgaauw & Dur, 2007, 2010; Dixit, 2002). Both of these mechanisms predict that motivated workers will choose to work in the nonprofit sector, leading to a warm glow wage discount. Where they

⁷ Also discussed above is the literature on the prestige/self esteem motive for prosocial motivation (Bénabou & Tirole, 2006; Harbaugh, 1998); however we do not analyse this motive further in this dissertation.

differ is on the prediction for sector switchers. Workers switching sector in the organisational explanation will not exhibit pro-social motivation in the private sector. However, if workers who sort are of different types, then the second explanation predicts that the workers switching sector would continue to be intrinsically motivated.

Motivated workers making altruistic actions in all organisational types will not be detected in sector differences, but instead will be captured in industry differences. We model nonprofits as offering utility from action that is not available to workers in for-profit firms. This is treating donated labour in a similar way to monetary donations. Donors gain warm glow from the act of giving to charity beyond the utility received from the ends of the donation. Although the act provides the utility, this does not mean that donors gain warm glow utility from giving money to private firms. In order for a charitable donation to provide warm-glow utility from the act of giving the donor must believe that it will be used for charitable purposes. The same principle is applied to donated labour here: motivated workers donating labour (through either unpaid overtime or lower wages) do so in the context of a nonprofit employer because the nonprofit can more credibly commit to using that donation for charitable ends rather than extracting it as profit. This framework can be justified within a number of the theories of altruism.

Firstly, it can be justified where nonprofits operate in markets with significant information asymmetries and the non-distribution constraint provides a credibility mechanism for providing uncontractible quality, as per Handy (1997). The non-distribution constraint also provides a credible way for employers to commit not to appropriate motivated workers effort away from uncontractible quality and towards

contractible quality or cost-reduction. Secondly, the undertaking of altruistic activities within nonprofits, and the acceptance of lower extrinsic rewards, could provide both intrinsic and reputational benefits as per Bénabou & Tirole (2006). Thirdly, the context of undertaking altruistic acts (within an organisation with explicit prosocial objectives, as opposed to for-profit) can affect the intrinsic motivation, as per Frey (1997), with extrinsic incentives crowding-out the intrinsic motivation in a for-profit setting.

These theories all make the prediction that we would observe not only selection of mission-motivated workers into nonprofits, but also that we would observe differences in the warm glow utility gained by workers switching between sectors. This utility framework is used in the empirical analysis in Chapters 4 and 5 as the basis for the models estimated.

One further distinction needs to be made. Most of the theories discussed in this chapter use the term to refer to “nonprofits” as covering the public sector, the independent nonprofit (“voluntary”) sector, or both organisation types together. Both the theoretical and empirical work usually explores comparisons between the private sector and *either* the public sector or the voluntary sector, excluding the other or combining it within or other sector. In the empirical work in this thesis we include the three sectors separately. This however means that theory is less clear on what the differences between the public and voluntary sectors will be for mission motivation, as both are assumed to be mission motivated.

As we will show in the next chapter, significant numbers of workers move among all three sectors, and so it is possible to explore this question. If both the public and voluntary sectors are equally mission motivated then, after controlling for other

characteristics, we would expect to see that there are no differences in donated labour. However, there is some suggestion that we might expect to find higher levels of mission motivation in the voluntary sector. This would be the prediction of both early nonprofit theory (Weisbrod, 1988) and more recent motivated agent theory (Besley & Ghatak, 2005). The increased flexibility of voluntary organisations to provide heterogeneous public goods (and so to have heterogeneous missions) leads to the potential for better matches between mission-motivated principals and agents in the voluntary sector than the public sector, leading to higher levels of warm-glow utility.

Implications for Future Research

This chapter has suggested that the economic theories of charity have come full circle, and now include some appreciation of the complexity of altruistic motivations, and the ways in which intrinsic and extrinsic motivation can interact. Our current models of nonprofit organisations have a utilitarian underpinning of impure altruism extended to provide an objective function as an alternative to profit maximisation. These models make some predictions that are indeed borne out in the data. However, they do not make explicit the link between impure altruism on an individual level, and the behaviour of an organisation made up of many individuals.

There is still a disconnection between the behavioural theories and the models of the behaviour of charitable organisations. Intrinsic motivation theory implies that the mechanisms of contracting between government and nonprofits could have as much of an effect as the incentives themselves, but this has not been fully incorporated into models of nonprofit organisations. For example, models of nonprofit competition and contracting with the public sector often include a warm-glow objective function,

but do not consider that the institutional structure itself could affect that glow. It is important to consider whether a tender and contract method will produce an efficient outcome when contracting with a nonprofit, or if instead the mechanism used will crowd out the intrinsic motivation which gives the nonprofit its advantage.

There is still much to be done in developing economic theories of charity. With the apparent growing importance of the nonprofit sector it is perhaps becoming even more important that these issues are addressed.

The discussion here is not intended to suggest that the rational self-interested *homo oeconomicus* should be abandoned to model charities and nonprofits as being completely altruistic. Titmuss in his original book did not describe even the voluntary community blood donor as *purely* altruistic:

“No donor type can, of course, be said to be characterized by complete, disinterested, spontaneous altruism. There must be some sense of obligation, approval and interest; some awareness of need and of the purposes of the blood gift; perhaps some organized group rivalry in generosity; some knowledge that fellow-members of the community who are young or old or sick cannot donate, and some expectation and assurance that a return gift may be needed and received at some future time.

The Gift Exchange (Titmuss, 1970), Chapter 5, Page 89

Charity is a fundamentally complex phenomenon, and it is right that there are many explanations for its different facets. This chapter is intended to depict the development of the economic theory of charity as a journey through the motives underlying behaviour, from a self-interested starting point to a consideration of the inclusion of a richer model of explicit altruism. It also shows how a challenge issued from one discipline to another to explain the implications of fundamental

assumptions can result in fruitful research culminating in a richer understanding of human behaviour.

CHAPTER THREE

Describing the Voluntary Sector Workforce

Introduction

This chapter introduces the datasets used in this research. Firstly we outline the data available on the voluntary sector. Secondly we explore in turn the characteristics of the voluntary sector workforce, jobs and organisations, drawing comparisons with the private and public sectors. Lastly we examine whether the characteristics of workers switching into and out of the voluntary sector have changed over time.

The Datasets

Two datasets are used to analyse the voluntary sector workforce in this chapter. These are the UK Labour Force Survey (UK LFS), and the Workplace Employment Relations Survey (WERS).⁸ Each of these datasets has advantages and disadvantages in the study of this sector. Empirical analysis of the two datasets is combined to investigate the economics of the voluntary sector labour market in the UK.

UK Labour Force Survey (UK LFS)

The data used here is from the LFS over a ten year period between 1998 and 2007. The survey collects detailed information on around 50,000 households a year, following individuals for five consecutive quarters. Questions are asked about employment, household status, and other individual characteristics.

⁸ See Appendix One for more detail on the construction of the datasets used.

The survey seeks information on respondents during a specific reference period, normally a period of one week or four weeks immediately prior to the interview.

The LFS is the source of the internationally comparable (International Labour Organisation) measure known as 'ILO unemployment'.

Sampling the Voluntary Sector in the LFS

The LFS provides a large sample of workers in the voluntary sector. Organisational characteristics such as number of employees are gathered from workers' recall and so are not necessarily precise. The question about sector first asks:

“Q89 SECTOR – For your main job, do you work for a private firm or business or a limited company (1) or some other kind of organisation (2)?”

Employees in the voluntary sector should answer “(2)”, and will then be asked:

“Q90 SECTRO – If respondent answered (2), then what kind of non-private organisation was it?”

Q90 involves a choice of eight categories, one of which states, ‘a charity, voluntary organisation or trust’. It is this choice that has been used to differentiate voluntary sector employees.

Details of second and additional jobs are not gathered in sufficient detail to identify voluntary sector workers. These jobs are therefore omitted – if there are more of these types of job in the voluntary sector then this could potentially under-count voluntary sector jobs.

On the basis of these questions, employers are classified into one of three sectors: private, public or voluntary. It should be noted that this classification is based on the reported sector by the individuals interviewed. This has led to some concern about

the misclassification of sector. This is of particular concern when analysing panel data that records workers who switch between sectors. The issue of misrecording error is discussed in Gregg et al (2011), who show that levels of misrecording would need to be very high to significantly affect the conclusions from their model. They also note that misrecording is mainly attributable to self-employed general medical practitioners and staff in higher education. The former will be excluded as we examine only those in employment, whilst the latter will be excluded when we narrow the focus to the Health and Social work industries.

In this chapter two versions of the UK LFS data are used. The first is the pooled cross-section. This combines the wave one observation, collected in a face-to-face interview, for each worker to build a ten-year dataset. The second is the longitudinal LFS, which uses the first and fifth observation on each worker, one year apart, to build a panel dataset.

Workplace Employment Relations Survey (WERS)

The 2004 Workplace Employment Relations Survey (WERS 2004) is the fifth in a series of surveys aiming to provide a nationally representative account of the state of employment relations and working life inside British workplaces. Previous surveys were conducted in 1980, 1984, 1990 and 1998. WERS surveys organisations with more than five employees to build a large depository of information on employment relations. WERS 2004 Cross-section Survey includes 2,300 workplaces, 1,000 employee representatives and 22,500 employees, with an organisational response rate of 64%.

Sampling the Voluntary Sector in WERS

WERS organisation data is collected from management, financial accounting sources, and is checked at the organisational level. This ensures that the organisation's sector is reliably reported, and data about the organisation characteristics and size is accurate.

Many voluntary organisations are small, with few paid staff, and so those with fewer than five employees will have been omitted from the WERS survey.

Voluntary sector workers who work in the sector as a secondary or additional job will be included in the survey, as the selection of employees is conducted from all employees on the payroll, so there should be a representative sample of part-time and temporary voluntary sector workers.

Describing the Voluntary Sector

This chapter uses the UK LFS 1998 to 2007 to describe the characteristics of workers within the voluntary sector, and to draw comparisons with the private and public sectors. The analysis is split into three sections:

- Workers and Jobs;
- Workers in the Health & Social Work industries;
- Workers moving between sectors, using the longitudinal element of the UK LFS;

Workers & Jobs in the Voluntary Sector

Table 1 shows the proportion of workers in each sector, by gender. This shows that only a relatively small proportion of workers (2.6%) are employed in the voluntary sector.

The mean characteristics of workers in the three sectors are shown in Table 2 below. The first four columns show mean values or proportions for the whole sample, private, public and voluntary sectors respectively. The fifth column tests the hypothesis that the voluntary sector mean is significantly different from the private sector mean. The sixth column tests the hypothesis that there is a significant difference between all three sectors.

Workers in the voluntary sector are predominantly female, with two thirds of the workforce made up of women. Mean hourly pay in the voluntary sector is £0.75 lower than the private sector – this difference is small but statistically significant.

Workers in the voluntary sector are on average four years older than those in the private sector. Correspondingly they have more work experience (~3 years), but interestingly have less tenure with their employers by about 1.5 years. There are significantly higher proportions of voluntary sector workers in part-time and temporary jobs, consistent with the lower tenure. The proportion of voluntary sector workers with a degree education is twice that of the private sector, and correspondingly the proportion of workers in professional occupations is significantly higher in the voluntary sector. Whilst only about 5% of private sector workers are employed in the health & social work industries, nearly 60% of voluntary sector workers work in these industries.

MAKE-UP OF SECTORS

	Male	Female	TOTAL
Private	77.25%	57.47%	67.19%
Public	21.26%	38.94%	30.25%
Voluntary	1.50%	3.59%	2.56%
TOTAL	100%	100%	100%

Table 1: Proportion of Workers by Sector and Gender
(Source: UK Labour Force Survey 1998 - 2007)

SUMMARY STATISTICS

Variable	Whole Sample Mean (Std. Dev.)	Private Sector Mean (Std. Dev.)	Public Sector Mean (Std. Dev.)	Voluntary Sector Mean (Std. Dev.)	Vol. versus Private Test Statistic [†] (Probability)	All-Sector Difference Test Statistic [‡] (Probability)
Hourly wage (£)	10.26 (7.827)	10.01 (8.483)	10.88 (6.289)	9.48 (5.536)	-5.31 (0.000)***	345.03 (0.000)***
Age (years)	39.7 (11.63)	38.6 (11.93)	41.9 (10.59)	42.7 (11.17)	27.22 (0.000)***	2317.61 (0.000)***
Experience (years)	22.1 (12.39)	21.2 (12.70)	23.6 (11.49)	24.4 (12.15)	19.88 (0.000)***	1069.48 (0.000)***
Tenure (years)	7.88 (8.32)	7.00 (7.90)	10.04 (8.97)	5.54 (5.98)	-13.79 (0.000)***	3758.71 (0.000)***
Male (proportion)	0.491 (.499)	0.565 (.495)	0.345 (.475)	0.287 (.452)	-41.30 (0.000)***	10633.86 (0.000)***
Part-Time Work (proportion)	0.231 (0.421)	0.200 (0.400)	0.287 (0.452)	0.363 (0.480)	30.42 (0.000)***	2754.89 (0.000)***
Temporary Job (proportion)	0.049 (0.216)	0.037 (0.189)	0.072 (0.260)	0.091 (0.288)	20.93 (0.000)***	1557.23 (0.000)***
Degree Education (proportion)	0.216 (0.411)	0.164 (0.370)	0.322 (0.467)	0.326 (0.468)	32.46 (0.000)***	7768.51 (0.000)***
Professional (proportion)	0.429 (0.494)	0.367 (0.482)	0.556 (0.496)	0.552 (0.497)	29.05 (0.000)***	7698.96 (0.000)***
Health & Social Work Industry (proportion)	0.138 (0.345)	0.053 (0.225)	0.287 (0.452)	0.597 (0.490)	116.63 (0.000)***	26356.59 (0.000)***
Observations	244,466	164,255	73,943	6,268		

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

[†] Significant difference between Voluntary and Private tested by regressing the relevant variable on sector dummies ($Y_i = \alpha + \beta_P \text{PUB} + \beta_V \text{VOL} + e_i$) by OLS for continuous variables and logit for binary variables, and testing the hypothesis that $\beta_V = 0$. For continuous dependent variables the test statistic is a t-test, and for binary dependent variables the test statistic is a z-test.

[‡] Joint significance of the sector dummies in the regressions uses an F-test for continuous dependent variables and a χ^2 test for binary dependent variables, testing the constraint that $\beta_P = \beta_V = 0$

Table 2: Summary Statistics by Sector

Figure 2 shows the distribution of the age of workers in the three sectors. From this we can see that the higher average age in the voluntary sector is driven both by a later peak in the age distribution (around age 40), and the fact that the age distribution does not tail off so sharply in later years. This suggests that the voluntary sector employs a much greater density of older workers than the private sector. The public sector age distribution is more similar to the voluntary sector's, but still without such a large number of older workers. We will explore later in this chapter the extent to which this can be explained by workers switching into the voluntary sector later in their working life.

Figure 3 shows the distribution of tenure by sector. This shows that the pattern of short tenure in the voluntary sector is much more similar to that of the private sector than the longer public sector tenure. The proportions of workers with very low tenure in the voluntary sector is very similar to the private sector, and the histogram suggests that the difference in means between the sectors is driven by the longer tail of the private sector distribution; there are very few voluntary sector workers with tenure greater than 20 years despite the older workforce. This is consistent with the expansion of the sector, and the switching in to the voluntary sector of older workers from the other two sectors.

WORKER AGE

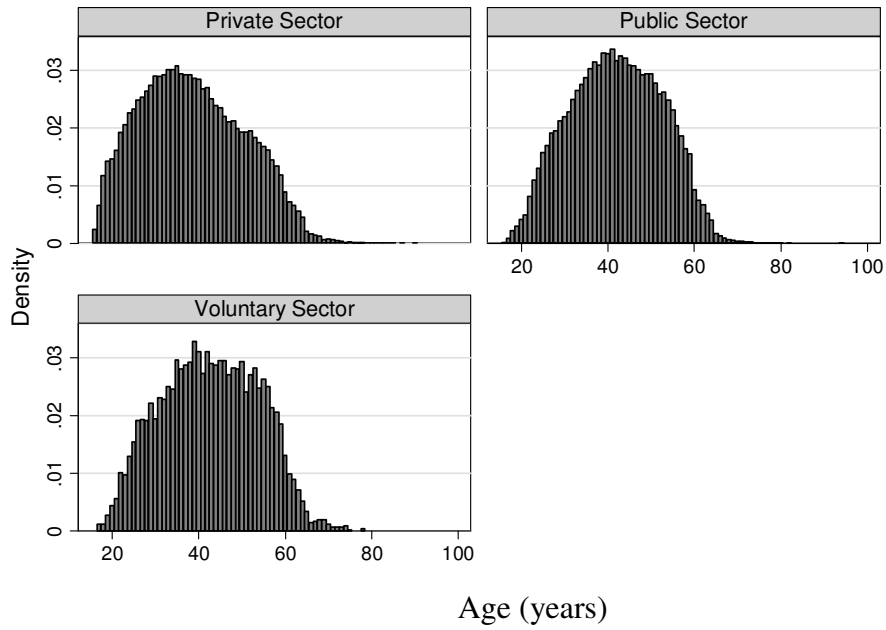


Figure 2: Mean Worker Age by Sector
(Source: UK Labour Force Survey 1998-2007)

WORKER TENURE

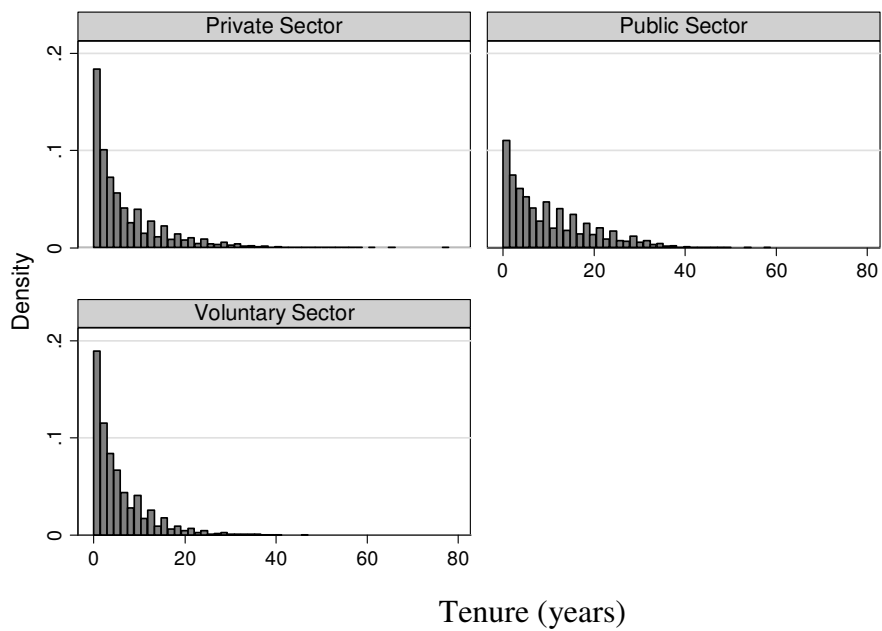


Figure 3: Mean Worker Tenure by Sector
(Source: UK Labour Force Survey 1998-2007)

The average hourly wages for male and female workers are shown in Table 3. For both men and women pay in the public sector is highest. While for men pay in the voluntary sector is at a slight discount to private sector wages, they are not statistically significantly different. For women the opposite is true, with private sector wages significantly lower than voluntary sector wages.

Variable	Whole Sample Mean (Std. Dev.)	Private Sector Mean (Std. Dev.)	Public Sector Mean (Std. Dev.)	Voluntary Sector Mean (Std. Dev.)	Vol. versus Private t-value [†] (Probability)	All-Sector Difference Test Statistic [‡] (Probability)
MALE Hourly wage (£)	11.58 (8.915)	11.35 (9.382)	12.46 (7.069)	10.82 (6.616)	-0.15 (0.881)	805.67 (0.000) ^{***}
FEMALE Hourly Wage (£)	8.99 (6.354)	8.28 (6.765)	10.04 (5.660)	8.937 (4.934)	6.79 (0.000) ^{***}	2317.61 (0.000) ^{***}

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

[†] Significant difference between Voluntary and Private tested by regressing hourly pay on sector dummies for male and female workers ($Y_i = \alpha + \beta_P \text{PUB} + \beta_V \text{VOL} + e_i$)

[‡] Joint significance of the sector dummies in the regressions uses an F-test for continuous dependent variables, testing the constraint that $\beta_P = \beta_V = 0$

Table 3: Mean Gross Hourly Pay by Sector and Sex

The histograms of log hourly pay are shown in Figure 4 and Figure 5. For both male and female workers the distribution of voluntary sector pay is more concentrated than the private sector.

HOURLY WAGES FOR MALE WORKERS

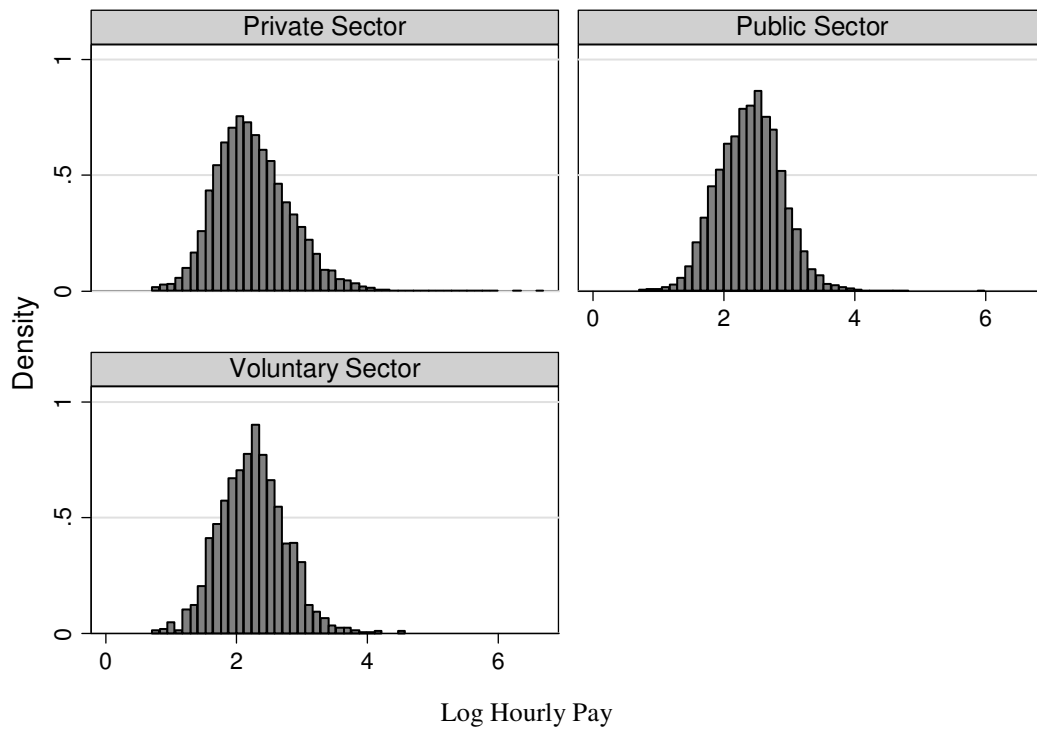


Figure 4: Histogram of Gross Hourly Wage Distribution by Sector for Male Workers (Source: UK Labour Force Survey 1998-2007)

HOURLY WAGES FOR FEMALE WORKERS

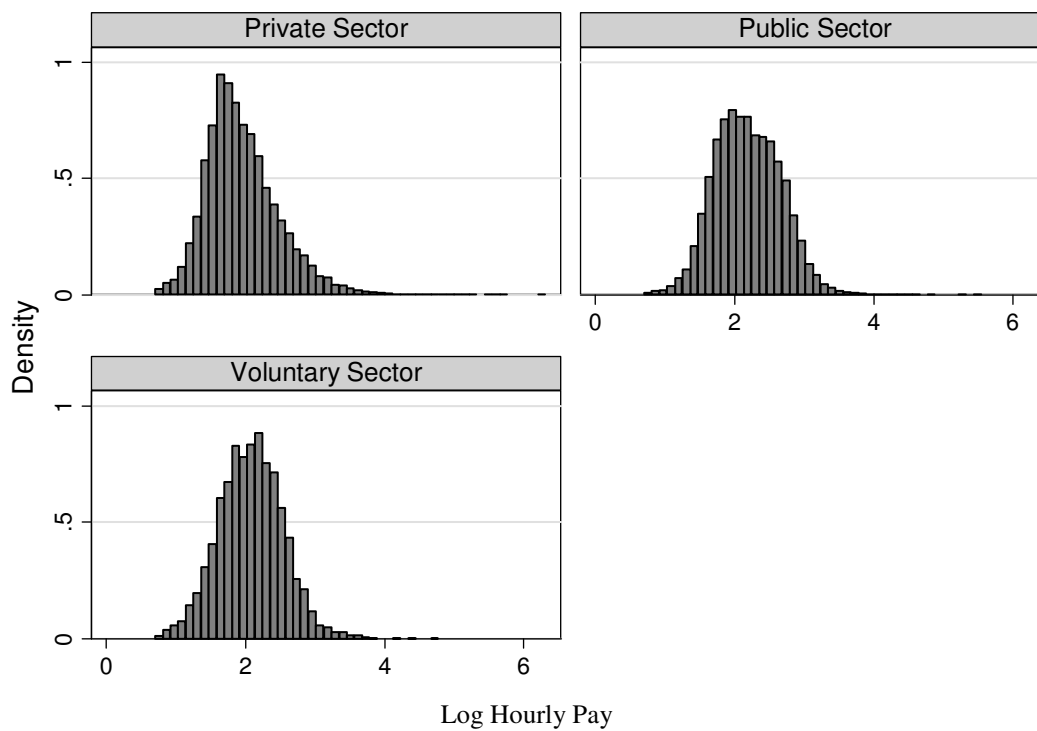


Figure 5: Histogram of Gross Hourly Wage Distribution by Sector for Female Workers (Source: UK Labour Force Survey 1998-2007)

Employment in the Health & Social Work Industries

As discussed in Chapter One, in this thesis we also examine sector differences separately within the health and social work industries (referred to from here on as HSW). This distinction is made by industry classification code.⁹

Table 4 shows the proportions of workers by sector in the HSW sample. Voluntary sector workers make up about 11% of the workforce in these industries. Descriptive statistics on key worker characteristics are summarised in Table 5. As in Table 2 above, this table shows both the mean characteristics by sector and a test of significant differences in the means.

Log hour wages in the voluntary sector are slightly but significantly higher than the private sector. Within the health & social work industries, voluntary sector workers are again older and more experienced, but with no significant difference in job tenure. The prevalence of part-time work is much higher across all sectors in the health & social work industries, and slightly lower in the voluntary than private sector. The incidence of temporary jobs remains much higher in the voluntary sector. Three times more workers in the voluntary sector than private sector have a degree education, and nearly twice as many are in professional occupations.

⁹ Industry is coded using the UK Standard Industrial Classification Of Economic Activities SIC(92), which is a hierarchical 5-digit Industry Classifications code that conforms with and corresponds directly to the European Community Classification of Economic Activities (NACE) Version 1 codes. The industry classification analysed is SIC(92) N 85 Health & Social Work. This broad industry classification includes: Human health activities: Hospitals, Nursing Homes, Dental practices, opticians, etc.; Veterinary activities: Vets and veterinary hospitals; Social work activities, with and without accommodation.

	Male	Female	TOTAL
Private	17.80%	27.94%	26.11%
Public	67.71%	61.74%	62.81%
Voluntary	14.50%	10.32%	11.08%
TOTAL	100%	100%	100%

Table 4: Proportion of Workers by Sector and Gender in the HSW Industries
(Source: UK Labour Force Survey)

SUMMARY STATISTICS

Variable	Whole Sample Mean (Std. Dev.)	Private Sector Mean (Std. Dev.)	Public Sector Mean (Std. Dev.)	Voluntary Sector Mean (Std. Dev.)	Vol. versus Private Test Statistic [†] (Probability)	All-Sector Difference Test Statistic [‡] (Probability)
Hourly wage (£)	9.42 (5.777)	7.24 (4.908)	10.36 (5.963)	9.26 (5.163)	18.51 (0.000) ^{***}	964.18 (0.000) ^{***}
Age (years)	41.43 (11.18)	40.25 (12.43)	41.71 (10.58)	42.62 (11.15)	10.55 (0.000) ^{***}	68.03 (0.000) ^{***}
Experience (years)	23.68 (12.15)	23.10 (13.10)	23.75 (11.71)	24.64 (12.18)	6.34 (0.000) ^{***}	20.62 (0.000) ^{***}
Tenure (years)	7.69 (7.79)	4.82 (5.41)	9.38 (8.50)	4.901 (5.08)	0.76 (0.447)	1825.04 (0.000) ^{***}
Male (proportion)	.179 (.384)	.122 (.328)	.194 (.395)	.235 (.424)	15.70 (0.000) ^{***}	297.22 (0.000) ^{***}
Part-Time Work (proportion)	.385 (.486)	.431 (.495)	.360 (.480)	.413 (.492)	-1.82 (0.068) [*]	143.73 (0.000) ^{***}
Temporary Job (proportion)	.054 (.227)	.035 (.185)	.054 (.227)	.098 (.297)	13.54 (0.000) ^{***}	188.53 (0.000) ^{***}
Degree Education (proportion)	.209 (.407)	.095 (.293)	.245 (.430)	.280 (.449)	25.46 (0.000) ^{***}	896.31 (0.000) ^{***}
Professional (proportion)	.496 (.499)	.283 (.450)	.579 (.493)	.527 (.499)	25.78 (0.000) ^{***}	2085.99 (0.000) ^{***}
Observations	33,840	8,837	21,255	3,748	-	-

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

[†] Significant difference between Voluntary and Private tested by regressing the relevant variable on sector dummies ($Y_i = \alpha + \beta_P \text{PUB} + \beta_V \text{VOL} + e_i$) by OLS for continuous variables and logit for binary variables, and testing the hypothesis that $\beta_V = 0$. For continuous dependent variables the test statistic is a t-test, and for binary dependent variables the test statistic is a z-test.

[‡] Joint significance of the sector dummies in the regressions is uses an F-test for continuous dependent variables and a χ^2 test for binary dependent variables, testing the constraint that $\beta_P = \beta_V = 0$

Table 5: Summary Statistics by Sector in the HSW Industries

Characteristics of Voluntary Sector Organisations

The second data-set used in this research is the Workplace Employment Relations Survey (WERS) 2004. This is an employer-employee linked dataset. This dataset provides much more detailed organisational-level data than that asked of individual workers through the UK LFS. Here we present an overview of the characteristics of employers in the voluntary sector.

Variable	Private Mean (S.D.)	Public Mean (S.D.)	Voluntary Mean (S.D.)	Sample Mean (S.D.)
No. Full-Time Employees	1541.99 (6801.58)	964.34 (1820.30)	434.08 (1228.18)	1318.58 (5656.09)
No. Part-Time Employees	1608.67 (12756.29)	427.72 (912.42)	104.76 (155.06)	1183.32 (10356.57)
Turnover Per Annum (£1,000s)	456,294 (3281367)	70,509 (240553)	25,477 (66613)	323,023 (2677268)
Total Employment Costs (£1,000s)	49,899 (219938)	88,193 (389176)	17,673 (42344)	58,362 (271666)
N	377	177	32	582

*Table 6: Mean Organisation Size variables
(Source: WERS 2004)*

Table 6 shows the means by sector of a number of measurements of organisation size. These figures were collected through the financial questionnaire completed by a representative of the organisation. Voluntary organisations are significantly smaller than private and public sector organisations in terms of number of employees, annual turnover and total employment costs. While there are also many small private firms, there are very few really large voluntary organisations.

We also use WERS data to explore self-reported mission-motivation, as perceived by both workers and managers. The WERS questionnaire for employees contains questions about the extent to which they share their employer's values. The questionnaire for managers asks for their views on employees' commitment to their employers' values. WERS also has a panel element, surveying the same workplaces but different employees within those workplaces. We exploit this to compare employees reported values in 1998 and 2004.

Here we test for sector differences estimated in multivariate ordered logit equations with sector dummies, controlling for worker characteristics including gender, age, education, job status, industry, and tenure, work hours and ethnicity.

$$\Pr(Y_i = x_j) = \alpha + \beta_1 \cdot Ind_i + \beta_2 \cdot Job_i + \beta_3 \cdot Org_i + \beta_4 \cdot y_i + e_i \quad (5)$$

The regression is estimated with clustered standard errors to account for the fact that up to 25 workers are drawn from each employer, creating clusters by organisation. Issues of worker selection into sector are not tackled here; however this analysis is presented to provide a description of worker self-reported mission by sector.

Organisational Attitudes

Workers are responding to the following questions:

To what extent do you agree or disagree with the following statements about working here? *(Strongly Agree / Agree / Neither Agree or Disagree / Disagree / Strongly Disagree)*

- (1) I share many of the values of my organisation

Table 7 below shows the results of the Organisation Characteristics equation estimates.

EMPLOYEE ATTITUDES

Whole Workforce

	Share Values 1998	Share Values 2004
main		
Public Sector	0.0185 (0.0908)	-0.121 (0.0759)
Voluntary Sector	0.254 (0.166)	0.192 (0.131)
Female	-0.0183 (0.0480)	0.0712 (0.0368)*
Health & S.W.	0.387 (0.130)***	0.721 (0.0978)***
<i>N</i>	11,457	17,058
pseudo <i>R</i> ²	0.051	0.031

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Health & Social Work Industries

	Share Values 1998	Share Values 2004
main		
Public Sector	0.107 (0.145)	-0.763 (0.130)***
Voluntary Sector	0.637 (0.212)***	0.0615 (0.174)
Female	-0.137 (0.116)	0.0757 (0.106)
<i>N</i>	2,102	2,673
pseudo <i>R</i> ²	0.045	0.035

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Additional explanatory variables in regression include: age, tenure, education, working hours, job status, ethnicity and industry.

Table 7: Organisational Attitudes
(Source: WERS 2004)

Whole Workforce

In the Whole Workforce sample, workers in the public and voluntary sectors are no more likely to report sharing the values of their employer than those in the private sector. This finding has not changed between 1998 and 2004. However, there is a significant generic industry effect, with workers in all sectors of the HSW industries more likely to share their employer's values in both years.

Health & Social Work Industries

In the HSW sub-sample, public sector workers were neither more nor less likely to share their employers values in 1998 compared to the private sector. However in 2004 they are significantly less likely than the private sector.

Voluntary sector workers were more likely to report sharing their employer's values in 1998 than those in the private sector, and this is statistically significant at the 1% level. However by 2004 this effect has been eroded, and there is no longer a statistically significant difference between the private and voluntary sectors.

Employees' Commitment to Values

Managers were asked the extent to which they thought that employees shared the values of their organisation. This is similar to the question asked to the individual employees.

Question:

To what extent do you agree with this statement: Employees here are fully committed to the values of this organisation.

(Str. Agree to Str. Disagree, 5 point scale)¹⁰

Table 8 shows the ordered logit coefficient estimates for organisational values. Managers in the voluntary sector are more likely to agree more strongly that their employees are committed to the organisation's values than those in the private sector, in all five specifications. There is a similar effect for public sector managers compared to the private sector. There is no significant difference between the public and voluntary sectors once organisational characteristics are controlled for.

Mission Motivation

This descriptive analysis of self-reported employer-employee value sharing suggests that within the HSW industries there has been a decline in mission motivation between 1998 and 2004. Care should be taken in interpreting these findings, as the analysis does not control for the selection of workers into sectors. There is also a concern about the extent to which reporting shared values with employers' captures mission-motivation.

However, workers in the voluntary sector have gone from being more likely to agree that they shared their employer's mission at the start of the time period to not reporting significantly differently from the private sector in 2004. This could be suggestive of a drop in mission-motivation, and will be explored further in Chapter 4.

¹⁰ This is question APHRAS09 in the WERS 2004 Cross Section Management Questionnaire

EMPLOYEE VALUES

	(1) Values	(2) Values	(3) Values	(4) Values	(5) Values
Public Sector	0.508** (3.18)	0.595*** (3.53)	0.748*** (4.00)	0.766*** (4.05)	0.789** (3.06)
Voluntary Sector	1.151*** (3.83)	1.022*** (3.33)	1.095*** (3.54)	1.089*** (3.50)	0.964** (2.71)
No. of Employees	-	Y	Y	Y	Y
Annual Turnover	-	Y	Y	Y	Y
Union	-	-	Y	Y	Y
Region	-	-	-	Y	Y
Industry	-	-	-	-	Y
cut1 _cons	-6.405*** (-16.48)	-7.333*** (-11.13)	-6.835*** (-12.85)	-7.340*** (-9.91)	-7.138*** (-9.01)
cut2 _cons	-3.257*** (-15.35)	-4.036*** (-11.97)	-3.987*** (-12.94)	-4.046*** (-8.46)	-3.834*** (-6.91)
cut3 _cons	-1.746*** (-8.62)	-2.466*** (-7.71)	-2.431*** (-8.36)	-2.489*** (-5.34)	-2.251*** (-4.14)
cut4 _cons	0.738*** (3.71)	0.151 (0.49)	0.170 (0.61)	0.164 (0.36)	0.459 (0.85)
<i>N</i>	827	827	827	827	827
<i>AIC</i>	1939.1	1924.6	1922.9	1935.1	1930.9

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

(Notes: Each regression is an ordered logit model with five categories. The control variables are included as indicated in the table above. AIC is Akaike's Information Criterion, a measure of goodness-of-fit of the model.)

Table 8: Ordered Logit Regressions for Organisational Values

(Source: WERS 2004)

Describing Workers who Switch Sectors

The LFS has a limited panel structure in which subjects are interviewed quarterly for five quarters after being selected for inclusion. This allows us to examine how the make-up of the voluntary sector is changing by profiling the workers moving into and out of the sector.

This analysis uses data from wave one and wave five for each worker in the Longitudinal LFS to identify workers who have switched sectors during the five quarters in which they were observed. Table 9 shows the proportion of the sample by sector in each wave. The majority of workers in each sector have remained within the same sector over the course of the year. Over 1.5% of workers in the sample moved into or out of the voluntary sector. Although the private sector workforce is approximately twice that of the public sector, around four times more workers switched to the voluntary sector from the private sector than from the public sector.

In this section we particularly examine the differences between workers who are observed as employed in the voluntary sector in both periods – “stayers” – and employees who move either into or out of the voluntary sector between the two observations – “switchers”. Human Capital theory would predict that workers switch jobs when the net present value of the utility stream from their current job is smaller than that available in an alternative job. As such, we would expect switchers to be younger, more educated, and with less firm-specific human capital.¹¹ Table 10 summarises the mean descriptive characteristics of both voluntary sector stayers and switchers, and tests for significant differences in these characteristics.

¹¹ e.g. temporary jobs, lower tenure, etc.

SUMMARY STATISTICS FOR SECTOR SWITCHERS

Wave 5	Wave 1			
	Private	Public	Voluntary	
Private	60.95%	1.17%	0.15%	62.27%
Public	2.21%	32.34%	0.13%	34.68%
Voluntary	0.97%	0.27%	1.82%	3.06%
TOTAL	64.13%	33.78%	2.10%	100%

Table 9: Sector Switchers

(Source: UK Labour Force Survey 1998 - 2007)

Variable	Vol. Sect. Stayers	Switch IN	Difference Stay vs. IN	Switch OUT	Difference Stay vs. OUT
	Mean (Std. Dev.)	Mean (Std. Dev.)	Difference [†] (Test statistic)	Mean (Std. Dev.)	Difference [†] (Test Statistic)
Age (years)	43.54 (10.08)	41.83 (10.84)	-1.706 (-5.27)***	41.25 (11.64)	-2.290 (-5.36)***
Tenure (years)	6.13 (6.41)	6.14 (7.14)	.0126 (0.06)	5.130 (6.322)	-1.001 (-4.21)***
Female (proportion)	.693 (.461)	.696 (.460)	1.013 (0.20)	.694 (.460)	1.005 (0.07)
Part-Time Work (proportion)	.374 (.484)	.389 (.487)	1.065 (1.02)	.414 (.492)	1.183 (2.20)**
Temporary Job (proportion)	.083 (.275)	.098 (.297)	1.204 (1.73)*	.137 (.344)	1.762 (4.85)***
Degree Education (proportion)	.295 (.456)	.294 (.456)	.996 (-0.05)	.292 (.455)	.986 (-0.17)
Professional (proportion)	.562 (.496)	.478 (.499)	.712 (-5.57)***	.4782 (.499)	.712 (-4.51)***
Health & Social Work (proportion)	.595 (.490)	.326 (.469)	.329 (-17.30)***	.500 (.500)	.681 (-5.09)***
Observations	4,311	1,445	-	851	-

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

[†] Significant difference between switchers and stayers tested by regressing the relevant variable on sector dummies ($Y_i = \alpha + \beta_p \text{IN} + \beta_v \text{OUT} + e_i$) by OLS for continuous variables and logit for binary variables, and testing the hypothesis that $\beta_v = 0$. Coefficients for the logit regression are reported as odds-ratios. For continuous dependent variables the test statistic is a t-test, and for binary dependent variables the test statistic is a z-test.

Table 10: Mean differences between voluntary sector stayers and switchers

(Source: UK Labour Force Survey 1998 - 2007)

Switchers are indeed significantly younger than voluntary sector stayers. There is no gender difference between switchers and stayers, supporting the relatively stable gender balance in the sector over the ten year period. Workers leaving the voluntary sector have significantly lower job tenure than stayers and are more likely to be in part-time and temporary jobs, but there is no significant difference for workers joining the sector. This could suggest that the lower job security observed in the voluntary sector is a feature of jobs in the sector rather than of the characteristics of individuals in the sector. Switchers both in and out are less likely than stayers to be in professional occupations or to work in the health & social work industries.

Figure 6 shows the number of workers moving into and out of each sector by age, to describe the net movement by sector. The private sector has a significant spike as young workers move into the sector from education. Movement into the sector then declines with age, with a significant net outflow for older workers. The public sector has a later spike, for workers in their early twenties, and this is likely to be graduates entering the sector. Movement in bulges again around 40 years, before declining as workers reach retirement age.

The voluntary sector has a small post-university spike, but the biggest numbers are entering the sector in their late thirties and early forties. There is still a significant net inflow of workers in their fifties, declining sharply from age sixty. This is consistent with the anecdotal evidence of workers joining the voluntary sector after completing careers in the private or public sectors.

AGE PROFILE OF SECTOR ENTRANCES AND EXITS

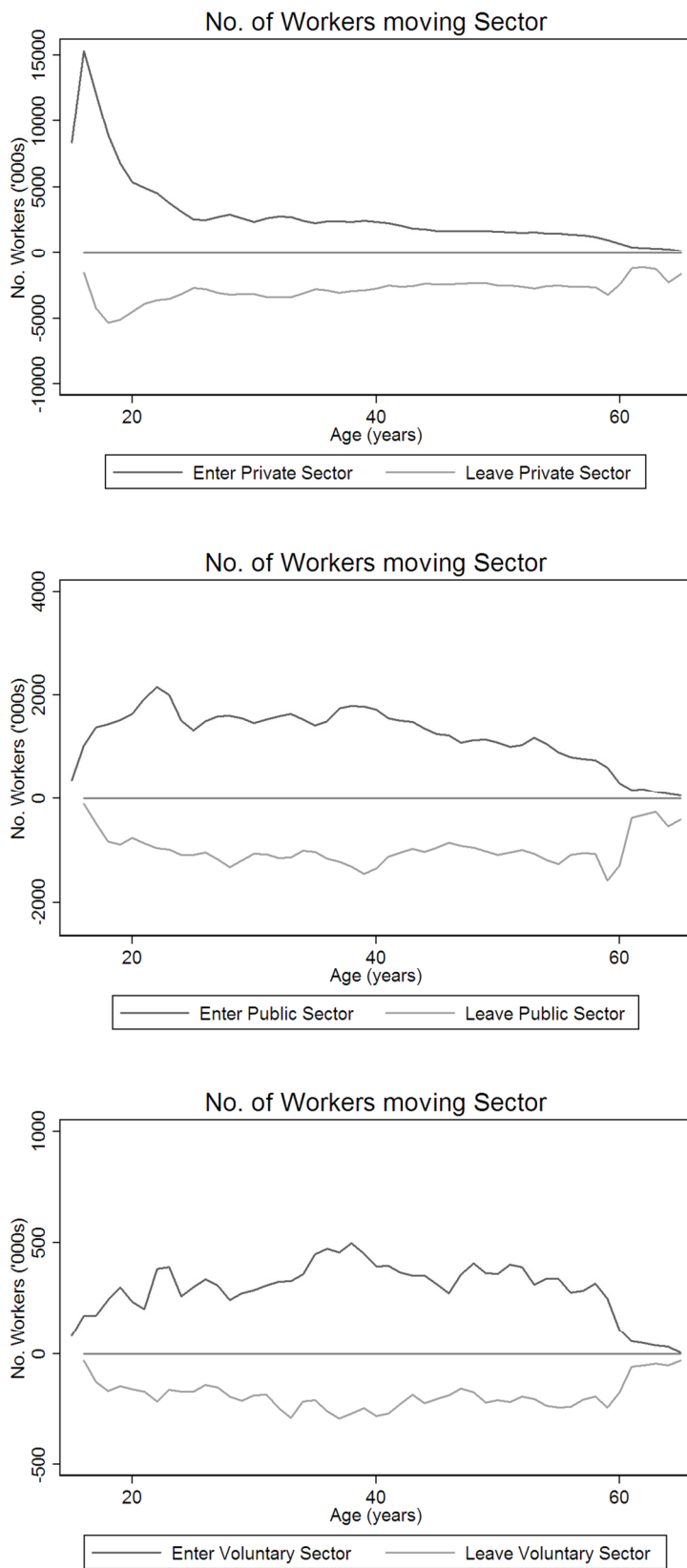


Figure 6: No. of Workers moving sector by age
 (Source: UK Labour Force Survey 1998 - 2007)

Changes in sector switchers over time

We have shown that there are significant differences between workers in different sectors, and between voluntary sector switchers and stayers. We now examine whether the characteristics of workers switching into and out of the voluntary sector have changed over time by comparing workers who are in the voluntary sector in at least one wave in 1997-2000 with those in the sector for at least one wave in 2003-2006. We estimate simple regressions of worker characteristics on a time dummy, a switch ‘in’ dummy, a switch ‘out’ dummy and interactions of time with the two switching dummies.

$$Y = \alpha + \beta_{IN}S_{IN} + \beta_{OUT}S_{OUT} + \beta_T T + \beta_{TIN}TXS_{IN} + \beta_{TOUT}TXS_{OUT} + \varepsilon \quad (6)$$

Workers who stay in the voluntary sector have $S_{IN} = S_{OUT} = 0$, workers who switch in to the sector have $S_{IN} = 1$, and workers who switch out of the sector have $S_{OUT} = 1$. β_T captures the change in characteristic from the passage of time for stayers. β_{IN} and β_{OUT} capture the differences in characteristics between stayers and switchers. β_{TIN} and β_{TOUT} capture the changes in characteristics over time for switchers, separately from stayers. Testing $\beta_{TIN}=0$ and $\beta_{TOUT}=0$ tests the hypotheses that the characteristics of switchers have changed differently between the two periods from those of stayers.

Switching Status	1997-2000	2003-2006	Total
Stayers in Voluntary Sector	1,894	1,439	3,333
Switchers IN to Vol. Sector	565	473	1,038
Switchers OUT of Vol. Sector	338	248	586
Total	2,797	2,160	4,957

Table 11: No. of Observations by Switching Status

Table 11 shows the sample of workers who are observed in at least one period in the voluntary sector. Studying this restricted sample allows us to compare workers who stay in the sector with those who are entering or leaving. The observations are pooled into two time periods at either end of our sample period. Table 12 shows the results of these regressions for a number of worker characteristics. It echoes the differences in characteristics between switchers and stayers shown above in Table 10. Across the sample period, stayers in the voluntary sector have become older and less likely to be in a professional occupation.

Sector switchers have not changed most characteristics between time periods in a significantly different way from stayers, with some notable exceptions. Workers switching into the sector are joining with greater tenure from their previous employer by the end of the sample period, while workers leaving are increasingly likely to have a degree. Both workers switching in and out of the voluntary sector are more likely to be in professional occupations in the second half of the sample period than they were in the first half of the sample. Workers switching into the voluntary sector are more likely in the later time period to have been working in the health & social work industries, but there is no similar effect for those leaving the sector.

Overall this suggests that there have been some changes in the characteristics of voluntary sector switchers over the ten years. While human capital theory predicts that workers who are earlier in their careers will be more likely to be switch jobs, the contracting out of services would require that workers of all grades switch sectors in order that the services can be both managed and delivered in the voluntary sector. The increased movement of professional occupations and HSW workers across the sample period supports this.

CHARACTERISTICS OF SECTOR SWITCHERS OVER TIME

	Age [†] Coef. (Std. Err.)	Tenure [†] Coef. (Std. Err.)	Female [‡] Odds Ratio (Std. Err.)	Part-Time [‡] Odds Ratio (Std. Err.)	Temp. Job [‡] Odds Ratio (Std. Err.)	Degree Educ [‡] Odds Ratio (Std. Err.)	Professional [‡] Odds Ratio (Std. Err.)	HSW [‡] Odds Ratio (Std. Err.)
Time (T)	0.943 (0.365)***	-0.284 (0.222)	0.972 (0.0738)	1.098 (0.0792)	0.850 (0.108)	1.125 (0.0867)	0.779 (0.0550)***	1.103 (0.0786)
Switch IN (S _{IN})	-2.149 (0.500)***	-0.743 (0.304)**	1.016 (0.106)	1.103 (0.109)	1.021 (0.170)	0.886 (0.0971)	0.541 (0.0524)***	0.311 (0.0320)***
Switch IN X Time (TXS _{IN})	-0.130 (0.746)	0.938 (0.453)**	1.055 (0.165)	0.808 (0.119)	1.160 (0.291)	1.091 (0.174)	1.453 (0.209)***	1.283 (0.192)*
Switch OUT (S _{OUT})	-3.619 (0.616)***	-1.585 (0.374)***	1.047 (0.136)	1.396 (0.167)***	2.175 (0.355)***	0.746 (0.105)**	0.561 (0.0667)***	0.684 (0.0810)***
Switch OUT X Time (TXS _{OUT})	1.554 (0.946)	0.291 (0.574)	1.022 (0.203)	0.814 (0.150)	0.693 (0.192)	1.568 (0.318)**	1.472 (0.268)**	1.064 (0.194)
Constant	43.15 (0.240)***	6.246 (0.146)***	-	-	-	-	-	-
N	4957	4957	4957	4957	4957	4957	4957	4957

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

$S_{IN} = S_{OUT} = 0$ for voluntary sector stayers and =1 for workers switching into (out of) the voluntary sector. T = 0 for years 1997-2000 and =1 for 2003-2006.
Switch(IN/OUT)XTime = Switch(IN/OUT) x Time

[†] OLS regression of variable on Switch dummies, Time and interactions ($Y = \alpha + \beta_{IN}S_{IN} + \beta_{OUT}S_{OUT} + \beta_T T + \beta_{TIN}TXS_{IN} + \beta_{TOUT}TXS_{OUT} + \varepsilon$)

[‡] Logit regression of binary variable on Switch dummies, Time and interactions ($Y = \alpha + \beta_{IN}S_{IN} + \beta_{OUT}S_{OUT} + \beta_T T + \beta_{TIN}TXS_{IN} + \beta_{TOUT}TXS_{OUT} + \varepsilon$)

Table 12: Regression results of Changes in the Characteristics of Sector Switchers over time

Sector Switchers Wage Differences

Table 13 shows the mean log hourly wage for workers by sector move. From this we can calculate the percentage difference in mean wages for each group to describe how wages change between the sectors.

Sector Move	Time (t) Mean (Std. Dev)	Time (t+1) Mean (Std. Dev)	Difference (t-stat) [†]	Percent Dif. ^{††} (with Private Sector as Reference)
Private	2.076379 (0.5466155)	2.134304 (0.5489315)	0.057925 (63.34) ^{***}	-
Private to Public	1.998803 (0.5140333)	2.081143 (0.488105)	0.08234 (13.12) ^{***}	2.62%
Private to Voluntary	2.032295 (0.499298)	2.08936 (0.4862863)	0.057065 (4.23) ^{***}	-2.71%
Public	2.219736 (0.4812104)	2.279511 (0.4809723)	0.059775 (49.87) ^{***}	0.29%
Public to Private	2.03392 (0.5257578)	2.063522 (0.5413346)	0.029602 (3.35) ^{***}	-3.16%
Public to Voluntary	2.155765 (0.4813902)	2.203026 (0.4662686)	0.047261 (3.26) ^{***}	1.84%
Voluntary	2.100577 (0.4546233)	2.173759 (0.4633017)	0.073182 (16.89) ^{***}	2.75%
Voluntary to Private	1.981768 (0.497646)	2.022818 (0.5171415)	0.04105 (2.05) ^{**}	-3.40%
Voluntary to Public	2.109722 (0.4706355)	2.186448 (0.4692873)	0.076726 (3.79) ^{***}	3.78%

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Log hourly wages are observed one year apart. The sectors of employment are those at the time of observation.

[†] Statistical significance of wage difference conducted as a paired sample t-test with two observations on each worker

^{††} Percentage difference calculated as $\Delta w = e^{\bar{w}_{t+1} - \bar{w}_t} - 1$. The percentages reported are subtracted from the annual private sector percentage change as a reference.

*Table 13: Mean Log hourly wage and percentage difference in whole workforce
(Source: UK Labour Force Survey 1997 to 2007)*

In all cases the mean log wage has increased, and this could be expected as the observations of wages are over a year apart. In order to draw a comparison, the last column in the table uses the wage difference experienced from remaining in the private sector (5.96%) as a base, and calculates the relative percentage differences experienced by the other groups.

Firstly, wages have grown faster for those staying in the voluntary sectors (2.75%), compared to those in the private sector. Workers switching from the public and voluntary sectors to the private have experienced a net loss in wages compared to private sector wage growth of around 3%. Workers switching into the public sector from either sector have experienced a net gain in wages compared to the private sector. Those workers who have moved from the private sector to the voluntary sector have also had a net loss in wages of 2.71%.

These descriptive summary tables do not control for differences in characteristics between switchers, jobs and industries. These factors will be analysed in Chapter Four.

Conclusion

This chapter has shown that there are significant differences in characteristics between the three sectors.

Workers in the voluntary sector are typically female, older, educated, and work in the health & social work industries. The average age of workers has increased in the past ten years, but at a similar rate in all three sectors. The voluntary sector appears to have increased slightly in its concentration of female workers.

Jobs in the voluntary sector are more likely to be part-time, and on temporary contracts. Although there appears to be a trend in the past ten years for an increase in part-time work and a decrease in non-permanent work, there is no evidence that the voluntary sector has been affected any more or less than the private and public sectors.

The analysis of sector switchers suggests that there is significant mobility into and out of the voluntary sector, to and from both the private and public sectors. Switching workers tend to be younger and in less secure jobs: either temporary contracts, part-time, or with lower job tenures. There is some evidence that these less secure jobs are concentrated in the voluntary sector, from the differences between switchers moving into and out of the sector. Lastly, there is some suggestion that over the sample period there had been an increase in the number of workers with professional occupations entering the sector and workers in the health & social work industries.

This provides evidence for the increasing ‘professionalisation’ of the voluntary sector in response to increased service contracting. This is occurring at least in part through attracting more professional occupations to switch into the sector. It suggests that there have been changes in the marginal worker through time, and this is explored further in the next chapter.

In the following chapters, we explore these differences between the sectors, and their impact on wages and hours of unpaid overtime.

CHAPTER FOUR

On the Up: Voluntary Sector Wages in the UK 1998 - 2007

“A bigger role for the voluntary sector, in framing and delivering local services, is central to our vision.”

The Rt. Hon Tony Blair MP (2002)

“Politicians once thought the man in Whitehall knew best. Now we understand that the... mother from the playgroup... might know better.”

The Rt. Hon Gordon Brown MP (2001)

Introduction

Government intervention in a market can often have unforeseen consequences. Studying the effects of a major policy change on a market can help us to understand how markets work, and evaluate the consequences of intervention.

Since coming to power in 1997 the Labour government in the UK has promoted the involvement of the independent nonprofit sector in the provision of public services. As a result, the so-called voluntary sector has grown dramatically as the increasing use of commissioning and competitive tendering has exerted many market forces on the sector from which it had previously enjoyed some shelter.

This growth has been fuelled by the rise in the number of public services contracted-out to the sector. The value of government contracts with the voluntary sector increased from around £2 billion in 1996/97 to £6.88 billion in 2005/06 (Public Administration Select Committee, 2008). This has increased the importance of the sector, both as a significant employer in the UK and as a key part of public service

provision (Charity Commission, 2007). In 2003 earned income from contracts and trading overtook donated income as the most significant source of funds for UK charities (National Council of Voluntary Organisations, 2008).

Much has been made of the distinctive advantages of the voluntary sector, rooted in the profit-distribution constraint and the “warm glow” of motivated workers. We ask: what effect has the exogenous shock of the government-supported expansion of the sector had on the make-up of the voluntary sector workforce?

This chapter focuses on the paid workforce in the voluntary sector to examine the effect of the sector’s growth on pay levels and the wage differentials between sectors. We show that the theory of compensating differentials predicts that the warm-glow wage discount will fall as the sector expands. Using data from the UK Labour Force Survey (LFS), we find that while there is evidence of lower voluntary sector wages in 1998, this gap has been closing over the past ten years as the sector has experienced faster wage growth than either the private or public sectors. The convergence of voluntary sector wage levels on the public sector wages has significant implications for the cost-saving potential of policies of the contracting-out of public services.

The analysis of sector differences suffers from a potential bias from sample selection, as workers are not allocated to a sector randomly. We tackle this in two ways. Firstly, we argue that government policy to expand the sector is an exogenous shock increasing the size of the sector beyond the warm-glow equilibrium and bringing many new workers into the sector. Secondly, we use the limited panel structure of the LFS with workers switching their sector of employment, to estimate a fixed effects model.

A significant challenge in voluntary sector research is the availability of data in what is still a relatively small sector. In this chapter, LFS data collected over the past decade has been pooled to permit detailed analysis of the trends in sector wage differences in the last ten years.

A Growing Third Sector

The starting point for the increasing interest of government in the voluntary sector can be traced back to the Deakin Commission on the Future of the Voluntary Sector (1996). This led to the establishment of the Compact (Home Office, 1998), a statement of understanding between government and the voluntary sector over the provision of public services.

“This Compact between Government and the voluntary and community sector provides a framework which will help guide our relationship at every level. It recognises that Government and the sector fulfil complementary roles in the development and delivery of public policy and services, and that the Government has a role in promoting voluntary and community activity in all areas of our national life.

The work of voluntary and community organisations is central to the Government’s mission to make this the Giving Age.”

The Rt. Hon Tony Blair MP (Home Office, 1998)

The rationale for the contracting-out of public services was increased value for money, incorporating reduced costs, increased quality and greater variety (Knapp, Hardy, & Forder, 2001; Le Grand, 2003).¹² For many public services, the voluntary sector was seen as having a comparative advantage in the provision of quality;

¹² However, see McMaster (McMaster, 1995;2002) for a critique of the aims and success of this policy.

particularly where there were significant information asymmetries between recipient and provider.¹³

The anticipated efficiency savings were to come from a number of sources. The competition for service provision in a market should result in efficiency gains. The expertise of voluntary organisations, particularly at the local level, could help them to tailor and deliver services more cheaply than the larger public sector. Wages in the voluntary sector were also lower than those in the public sector, and with lower levels of unionisation and more use of short-term contracts voluntary sector employers had more flexibility in their workforce and lower wage costs.

The motivation to a cause is also identified as an important aspect of voluntary sector provision. As organisations founded with a social goal, they were thought to attract like-minded motivated workers. This ‘caring about the cause’ is seen as an added advantage in the provision of difficult-to-measure quality.

An underlying assumption of this policy is that the benefits of voluntary sector provision outlined above outweigh any efficiency-loss from the removal of the profit-maximisation objective. While private companies can and do compete for these types of public service contracts, the importance of credibly overcoming the information asymmetry in service provision has been foremost in the decision to choose voluntary sector providers.

From 2002 a number of initiatives were introduced to increase the capacity of the voluntary sector to provide public services (National Audit Office, 2005), including a target to increase total spending on voluntary organisations. In the 2004 spending

¹³ See Francois and Vlassopoulos (2008) for a discussion of pro-social motivation in the delivery of public social services.

review the explicit target was dropped, in favour of a commitment to increase both capacity and overall contribution of the sector, measured by an indicator of the size of the sector's paid and unpaid workforce.

Between 1996 and 2005 the voluntary sector workforce grew by 26%, a much higher rate of increase than the private sector (11%) and the public sector (14%) over the same period (National Council of Voluntary Organisations, 2007). This represents a significant number of new recruits to the sector. If the comparative advantage of the sector flows from the efforts of "mission-motivated" workers, then economic theory must describe the changes in motivation in a growing sector.

Theories of Voluntary Sector Wage-Setting

The economic rationale for the existence of independent nonprofit organisations, or the voluntary sector, is based on the combination of the profit non-distribution constraint and the existence of intrinsic motivation in those running the organisation, as discussed in Chapter 2. These two elements allow voluntary organisations to more credibly provide services with significant information asymmetries, where quality is difficult to observe or contract over, than the private sector.¹⁴ The removal of the profit motive reduces the incentive to cheat on the provision of unobservable quality, and gives voluntary organisations an advantage in these industries. This explains the concentration of voluntary organisations in the health, social work and education industries.

¹⁴ See also Handy (1998), Kendall (2001) and Le Grand (2003) for discussion of the role of quasi-markets and motivation in contracting to provide quality.

There are a number of explanations that come under the banner of warm-glow theories, suggesting that voluntary sector workers gain utility from their work which compensates them for lower wages.

Compensating Wage Differentials

Compensating Wage Differentials is the concept that characteristics of the work that affect worker utility are reflected in the wage paid for the job. Classically, this has been shown in the form of “danger money”, where workers in dangerous or risky jobs are paid a wage premium to compensate for the greater risk of accident that they face in the course of their work. This concept can be generalised to allow for lower wages in the presence of positive aspects of the job. For the voluntary sector, this approach can be applied to the higher utility that workers receive from a nonprofit employer.

The term “warm glow” was used by Andreoni (1990) to describe the utility received by a donor from the act of giving, rather than the outcome itself. More recently Besley and Ghatak (2005) outline a model of ‘motivated agents’ that gain utility from producing goods or services that are in line with their ‘mission’, essentially a ‘warm glow’ arises from working in the voluntary sector. This warm glow forms part of the compensation received by workers for their efforts, and so predicts that motivated workers will accept employment in the mission-oriented sector at lower wages than non-motivated agents.

In this chapter we use a simple model of equalising differences to model the effect of warm glow on the labour market outcomes. The warm-glow utility described in Chapter 2 can be thought of as providing a positive benefit of work in the sector much as unpleasant working conditions might provide a negative cost to working in

job that is dirty or unsafe. As discussed in Chapter 2, we do not separately identify intrinsic utility that might arise from working in a caring profession, where that utility is available to workers in all sectors. Rather we identify the sector effect, given job characteristics. This model also allows us to consider the effects of an increase in the size of the voluntary sector.

Rosen (1986) outlines the classic model of compensating differentials. He provides a framework for a theory of labour supply to jobs with different (un)desirable attributes. These attributes are non-pecuniary by-products of undertaking the job. Examples provided by Rosen include:

- Onerous working conditions;
- Regional differences;
- Work schedules / unemployment risk;
- Composition of pay packages.

Rosen's model is outlined for an undesirable job attribute, without loss of generality. We will now outline Rosen's model with a desirable, warm-glow attribute in place of the undesirable attribute. Following Besley and Ghatak, we abstract from issues of public or private ownership of organisations, and instead discuss a profit-oriented sector and a mission-oriented sector. As described in the literature on pro-social motivation, the mission-oriented sector could include both public and voluntary sector organisations, while for-profit companies make up the profit-oriented sector. The mission-oriented sector is distinguished by allowing jobs within this sector to

carry a non-pecuniary benefit of contributing to the mission – the so-called warm glow.

The Sectors

The labour market is made up of two sectors, denoted by $D = (0, 1)$. Sector $D=0$ is the profit-oriented sector, and sector $D=1$ is the mission-oriented sector, where workers receive a warm-glow utility. The two sectors pay wages w_0 and w_1 respectively.

Workers

In Chapter 2, equation (4) described our formulation of warm glow utility as dependent on the wage paid, the job characteristics, and the warm glow utility received in the nonprofit sector. In order to explore a compensating differentials model in equation (7) below we now assume that all wages earned are spent on a numeraire consumption good (C). We also hold job characteristics (j) constant, and for parsimony omit the term from the theoretical model outlined below. Job characteristics will however be controlled for in the empirical analysis.

Workers utility is dependent on their consumption of market goods (C) and their work sector (D).

$$U = u(C, D) \tag{7}$$

If C_0 is the level of market goods consumed by workers in the profit-oriented sector, then C^* is the consumption level required by workers in the mission-oriented sector to be indifferent between the sectors.

$$u(C_0, 0) = u(C^*, 1) \quad \rightarrow C^* \leq C_0 \tag{8}$$

We can then define the compensating variation, Z , as:

$$Z = C^* - C_0 \tag{9}$$

Define the sector wage difference as:

$$\Delta W = w_0 - w_1$$

(10)

Workers will be indifferent between taking a job in either of the two sectors if:

$$\Delta W = -Z$$

(11)

Z is an exogenous personal taste variable that varies from worker to worker. In the traditional model, Z would represent the distaste for an unpleasant characteristic of the job. In this context mission-motivated workers have a low Z , as they get warm-glow utility from engaging in activities that are in accordance with their mission-motivation. Z can be thought of as the degree of mission motivation amongst the workforce. These theories then predict lower wages in the mission-oriented sector, and ΔW can be thought of as the market price for accepting a job in the mission-oriented sector.

Heterogeneous Labour Supply

The probability density function of tastes in the population is represented by $g(Z)$, and $G(Z)$ is the cumulative density function. Workers for whom $\Delta W < Z_i$ will choose to work in the mission-oriented sector (where the loss of wages is not as big as the indifferent level of consumption). This is illustrated in Figure 7. The shaded

area shows the proportion of the workforce in the mission-oriented sector, where for an individual worker i : $Z_i < Z^*$.

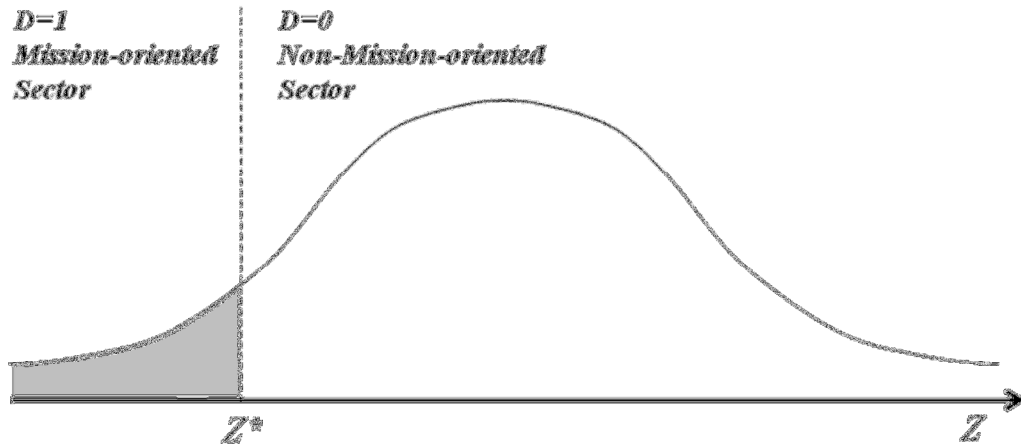


Figure 7: Probability Density Function over Z

The proportion of workers choosing to work in the mission-oriented sector will then be:

$$N_1 = \int_{-\infty}^{\Delta W} g(Z) dZ = G(\Delta W)$$

(12)

And the proportion of workers in the profit-oriented sector will be:

$$N_0 = \int_{\Delta W}^{\infty} g(Z) dZ = 1 - G(\Delta W) \quad (13)$$

This model implies that lower wages will be paid in the mission-oriented sector than in the profit-oriented sector, but workers will sort into their sector choice depending on their valuation of the warm-glow utility.

Heterogeneous Labour Demand

Rosen outlines the demand-side of the labour market similarly, with firms facing variable costs to “clean-up” the undesirable job attribute. This is not so easily applicable to the mission-oriented sector. The nonprofit status of an organisation is a legal institutional constraint, and is not easy to change. Glaeser (2001) outlines a theory of not-for-profit entrepreneurs, who forgo the profits of a private firm in order to harness the voluntary contributions that a nonprofit organisation can elicit. Entrepreneurs make an optimal choice of organisation type, choosing to form a nonprofit organisation when the benefits of harnessing contributions to the organisation through the credibility of nonprofit status outweigh the potential profits of forming a for-profit organisation.

Voluntary organisations have a clear incentive to recruit mission-motivated workers. The provision of warm-glow utility as part compensation reduces the costs in the sector, and increases the level of output that can be produced in line with the organisation’s aims.

Product Market Equilibrium

The growth in the voluntary sector over the past ten years has been driven by an increase in the contracting out of public service provision (Kendall, Matosevic, Forder et al., 2003). In recent years the amount of earned income received by voluntary organisations (through trading, contracting-out and commissioning) has been growing faster than the total voluntary income received through donations (National Council of Voluntary Organisations, 2008). In 2003, the total earned income for the voluntary sector exceeded the total voluntary income for the first time, and the increase has continued.

With this in mind, we model the product market of the mission-oriented sector simply as supplying services to a public sector buyer. These services are typically located in the Health and Social Work or Education industries. The public sector has a fixed budget M to spend on purchasing services, shown by the budget constraint in equation (14), and so is represented by a downward sloping demand curve.

$$M = p_P q_P + p_V q_V + P \quad (14)$$

Where p_P, p_V are the prices and q_P, q_V are the quantities of services provided by the profit-oriented and mission-oriented sectors respectively, and P is spending on other public goods.

Both the profit-oriented and mission-oriented sectors use the same production technology. Increasing the quantity supplied requires an increase in employment, and so organisations face an upwards-sloping supply curve.

$$q = f(L) \quad (15)$$

The profit-oriented sector maximises profits:

$$\underset{q_P}{\text{Max}} \pi = p_P \cdot q_P - C(q_P, w_P) \quad (16)$$

The mission-oriented sector maximises its output given a zero profit condition (due to the non-distribution of profits constraint).

$$0 = p_V \cdot q_V - C(q_V, w_V) \quad (17)$$

The increasing demand for mission-oriented sector services is represented in this simple model as an exogenous shift in the public sector demand curve. This is

driven by policy changes at a national level to contract out the provision of public services.

The purchaser of services has a demand for services D . These services can be supplied by either the Profit-oriented or Mission-oriented sectors. The existence of warm-glow wage discounts gives the mission-oriented sector a cost advantage in service provision, and so it is able to provide the same level of service at a lower price. The quantity of service demanded determines the mission-oriented sector's demand for labour, and so the equilibrium level of Z^* and w_V .

A Three-Sector Labour Market

So far we have focussed on two sectors: profit-oriented versus mission-oriented. While it would generally be assumed that for-profit firms would be in the former,¹⁵ and voluntary organisations made up the latter, the role of the public sector in this model also needs to be made clear. The analysis of nonprofits in the literature often combines organisations in the public and voluntary sectors together. Here we separate them, allowing for different levels of mission-motivation between the two sectors to exist. As per the motivated agents model (Besley & Ghatak, 2005), the smaller size and increased flexibility of voluntary organisations is likely to enable them to offer motivated workers a better mission match, and so achieving higher levels of warm-glow utility for workers. The reputational effects (Bénabou & Tirole, 2006) of working for a voluntary organisation may be different from those of a public sector organisation. If the marginal benefit to reputation of working for a prosocial organisation is decreasing as more people work for it then we would expect

¹⁵ As per our discussion of voluntary sector definitions in Chapter 1 we do not rule out social enterprises – for-profits with a pro-social objective – from making up part of the mission-motivated sector, nor deny the existence of so-called nonprofits without a strong mission. We simply argue that organisational form – private, public or voluntary – provides a good general indication of mission motivation for most organisations.

that smaller mission-driven organisations would provide greater intrinsic benefit through reputation. This would also support different warm glow effects being observed in the voluntary rather than the private sector. However, in our analysis we do not place a restriction on the ordering of sector effects in the empirical analysis.

Considering warm glow utility from a mission match as being one element in the bundle offered by employers, in line with the compensating differentials model, we would expect that workers would move between any of the three sectors when offered a bundle in another sector that increased their utility. As was shown in Chapter 3 through the analysis of sector switchers, around four times more workers switched to the voluntary sector from the private sector than from the public sector. Furthermore, the profile of sector switchers has changed over time as more professionals are attracted to work in the voluntary sector.

Increasing the Voluntary Sector Workforce

As the mission-oriented sector grows its demand for labour increases. In equilibrium the marginal worker has a taste for warm glow $Z_i = Z^*$. In order to attract workers for whom the utility of working in the profit-oriented sector is higher than that of the mission-oriented sector, w_V must increase.

The sector equilibrium wages, w_P and w_V , result in a split of the labour market at Z^* . Workers with $Z_i < Z^*$ will have $U(C^*, g) > U(C_0, 0)$ and so will choose to work in the mission-oriented sector. Workers with $Z_i > Z^*$ will have $U(C^*, g) < U(C_0, 0)$ and so will choose to work in the profit-oriented sector. This proportion is given by N_1 in Equation 12. As the marginal worker at Z^* is indifferent between working in the two sectors, the size of the mission-oriented sector workforce can only be increased by increasing the w_V . The additional workers will have $Z_i > Z^*$, and so the average level

of warm-glow utility will reduce in the mission-oriented sector. This increased wage will reduce the size of the warm-glow wage differential, and bring wages in the two sectors closer together.

Figure 8 shows the effect of an expansion in demand for mission-oriented sector production. If the purchaser decides to increase the proportion of services sourced from the mission-oriented sector then this will shift the demand curve D_X rightwards to D_X' . The new equilibrium in the labour market will be a higher wage w_V' . The additional workers in the mission-oriented sector are provided by the shift in Z^* to Z^{*}' . The additional workers recruited all have a preference for warm glow Z_i that is lower than the existing mission-oriented sector workforce. This in turn reduces the cost advantage of the mission-oriented sector. Over time this would reduce the sector wage-gap as the sector grows.

It should be noted that overall demand for the public services has not increased. What has changed is the mode of supply, in a shift from public sector provision to voluntary sector provision. As such, the change in wage differential is not due to recruitment of additional workers into an industry or profession, but instead is a shift of workers within industries and professions between sectors.

These theories can be tested empirically, by estimating sector wage differentials after controlling for observable differences in individuals, jobs and organisations. The theory makes two predictions: firstly, if the mission-oriented sector workforce is made up of individuals with a high taste for warm glow, then we would expect to find a wage discount in the sector. Secondly, as the sector grows, fuelled by an increase in contracting-out, the wage gap should narrow.

THE VOLUNTARY SECTOR WORKFORCE

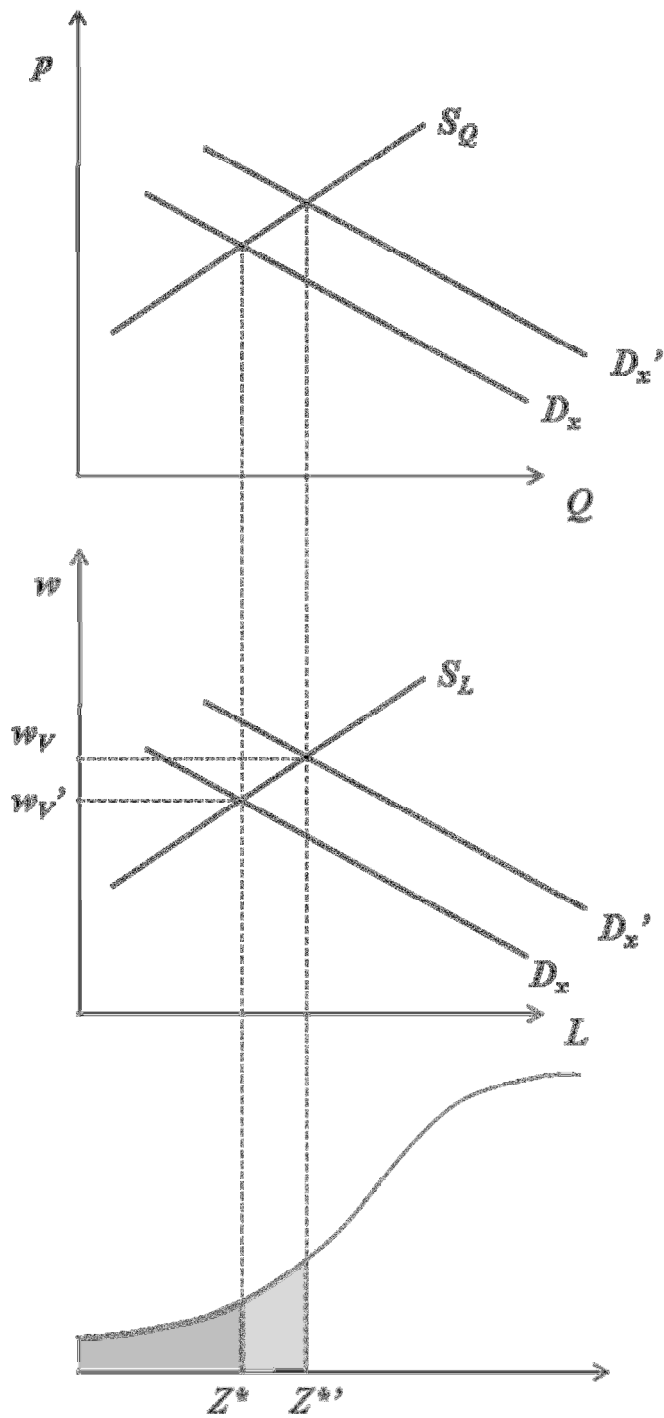


Figure 8: Expansion of the Mission-oriented Sector

Empirical Research on Sectoral Wage Differentials

There is an extensive literature on the apparent public sector wage premium found by examining the mean wages of workers in the two sectors (see Bender (1998) for a review). This premium is often found even after adjusting measures for the different workers characteristics in the two sectors. Disney and Gosling (1998) used the General Household Survey (GHS) and British Household Panel Survey (BHPS) to estimate the public sector premium in the UK after taking worker characteristics into account. They found that for men the premium fell from 5% in 1983 to only 1% by the mid-1990's. However, for women the public sector premium increased over the same period from 11% to 14%.

Relatively little empirical work has been done where the voluntary sector is examined separately as a third sector. The early literature, primarily using US data, focussed on specific industries or professions. Weisbrod (1983) examined wage differences between lawyers employed by nonprofit and for-profit firms, and found evidence of a nonprofit wage discount of ~20%. His analysis of a job choice equation suggested that lawyers in the nonprofit sector held different preferences to those employed in the private sector. Preston (1989) conducted an analysis of the nonprofit sector wage differential for white-collar workers using Current Population Survey (CPS) in the US, and found a significant nonprofit sector discount of 18% even after controlling for differences in human capital and other worker and job characteristics. She found a larger differential for male workers than female workers.¹⁶

¹⁶ See also Mocan and Tekin (2003), whose paper is discussed further in Chapter Five.

More recent work has analysed nonprofit wage differential across the whole workforce. Leete (2001) used US census data for 1990 and found little evidence of a difference between the private and voluntary sectors overall. However, she did find some significant differences at the disaggregated industry level. Ruhm and Borkoski (2003) undertook both a cross-sectional and longitudinal analysis of nonprofit compensation using the 1994-98 Current Population Survey Outgoing Rotation Groups. They find little evidence of wage differentials, with industry and worker heterogeneity playing a larger role. They conclude that nonprofit wages are set primarily by competitive markets, with little evidence of donated labour observed in wages. Although their dataset has a longitudinal component, this is used only to examine workers switching between sectors, and not to analyse changes in wage differentials across time. Our contribution to this literature is to examine the evolution of the sector wage differentials over time as the sector grows, while also controlling for sample selection bias through a fixed effects model.

The questions that we seek to address in this study are as follows. Firstly, are there significant sector wage differences found in the UK data, and do these support a warm-glow theory of wage setting? Secondly, how have these wage differences evolved in the past ten years of government-driven growth in the sector?

Exploring the Data

This analysis uses the UK Labour Force Survey (LFS). The LFS is a rotating panel, collected quarterly, following individuals for one year. The sample used here is for the 10 years from 1998 to 2007. This nationally collected dataset provides a large representative sample of the UK population, across all sectors and industries. Additionally, the pooled cross-sections permit analysis of changing wage

differentials following government intervention in the market that was not analysed in the previous literature.

Table 14 below shows the breakdown of the sample by sector and gender. This shows that there are around 6,500 workers sampled in the voluntary sector over the 10 year period. This means that voluntary sector workers make up only about 2.5% of the sample. However, the proportion of voluntary sector workers in the LFS sample has been growing over the period, from about 2.2% in 1998 to 2.7% in 2007.

Sector	sex		Total
	male	female	
Private Sector	95,892 (56.62%)	73,458 (43.38%)	169,350
Public Sector	26,343 (34.63%)	49,728 (65.37%)	76,071
Voluntary Sector	1,850 (28.74%)	4,588 (71.26%)	6,438
Total	124,085 (49.27%)	127,774 (50.73%)	251,859

*Table 14: Number and proportions of workers by Sex and Sector
Source: UK Labour Force Survey (1998-2007)*

The table also shows that the voluntary sector workforce is predominantly female, at over 71%, and this is higher even than the proportion of women in the public sector.

MEAN WAGES BY SECTOR OVER TIME

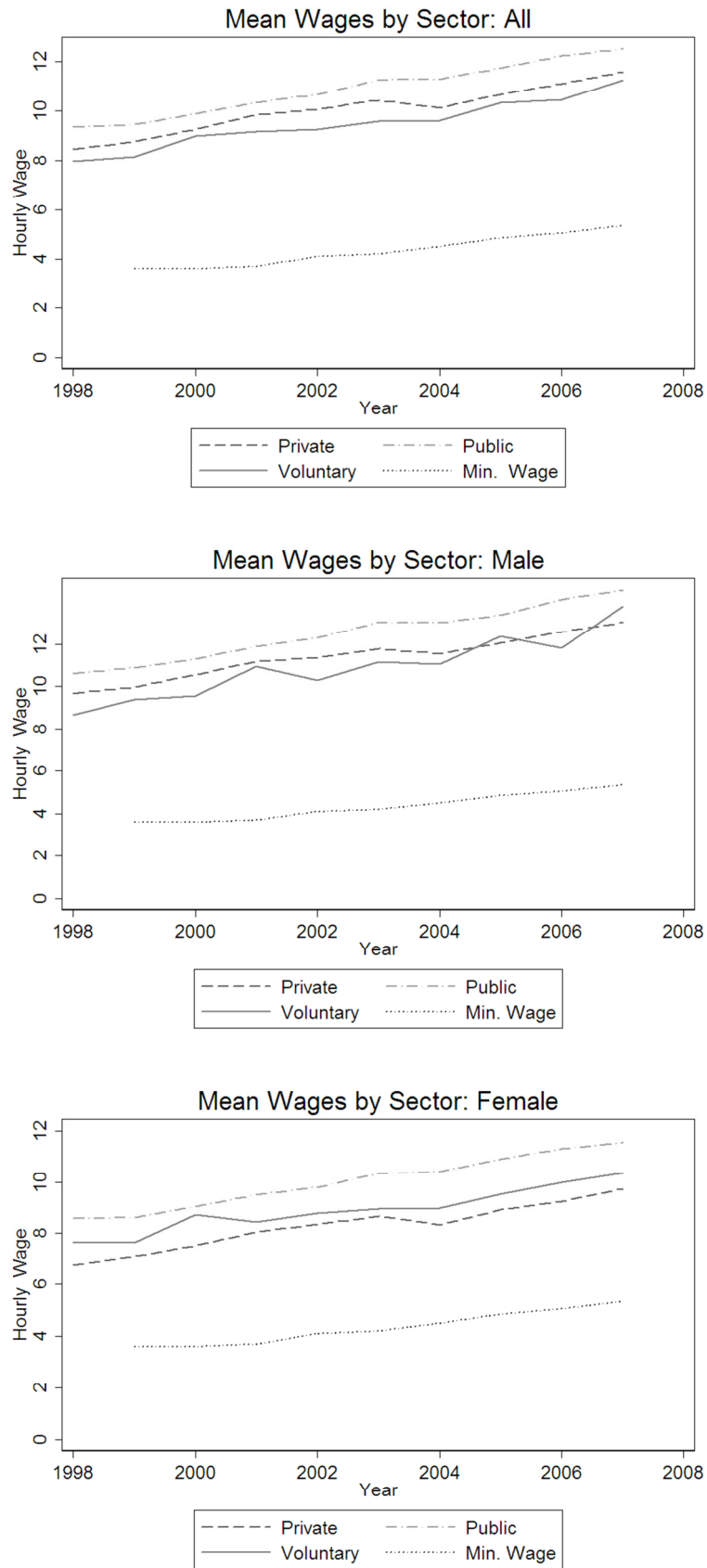


Figure 9: Mean Wages 1998 to 2007 by sector
(Source: UK Labour Force Survey 1998-2007)

We now look at how voluntary sector wages have changed in the past ten years. Figure 9 above shows the mean wages by sector and gender over the ten years of the sample period. In the first figure, the sample mean wages are plotted, showing that public sector wages are consistently highest, with private sector wages second and the lowest wages in the voluntary sector.

The second and third panels split the sample into male and female workers, and a quite different picture emerges. Voluntary sector male wages are still lower than the private and public sectors, although in 2005 and 2007 they edge above the private sector. Voluntary sector female wages are consistently at a premium to the private sector, but below the public sector throughout the ten years.

However, these differences in the mean wages between sectors could be explained by the differences in characteristics between workers in the sectors. For example, systematic differences between the sectors in the age, experience or education of workers could explain the observed difference in mean wages. In this chapter we estimate wage equations that allow us to control for observable differences in the characteristics of workers between sectors, in order to estimate the unexplained sector wage differential. It is this wage differential that would allow us to test the theory of warm-glow wage setting.

Estimating the Models

In this chapter we estimate three models. The first specification is a Mincer wage equation estimated on pooled cross-sectional data. The second specification interacts the sector and year variables to explore how the sector wage differentials have

evolved over the past ten years. The third specification uses a smaller panel dataset to estimate a fixed effects model using workers switching between sectors.

MODEL ONE: Pooled Cross-Section

In keeping with the existing literature, wage equations are estimated using a Mincer Equation (see (Heckman, Lochner, & Todd, 2006) for a review). This models wages with the equation:

$$\ln(w_i) = \beta_0 + \beta_{EDUC}EDUC_i + \beta_{EXP}EXP_i + \beta_{EXP2}EXP_i^2 + \varepsilon_i \quad (18)$$

This framework allows other controls to be added in order to test various hypotheses.

$$\ln(w_i) = \beta_0 + \beta_{PUB}PUB_i + \beta_{VOL}VOL_i + \beta_{EDUC}EDUC_i + \beta_{EXP}EXP_i + \beta_{EXP2}EXP_i^2 + \beta_X \cdot X_i + \varepsilon_i \quad (19)$$

Where PUB and VOL are sector dummy variables, and X is a collection of relevant control variables. The equations are estimated separately for male and female workers. In order to correct for potential selectivity bias due to non-participation (Heckman, 1979) a sample selection equation was estimated jointly with the wage equations. This probit model of labour force participation included age, marital status, number of children, and disability as independent variables.¹⁷ The instruments in the sample selection equation were selected in line with the wage equation literature as predictors of employment participation. A number of specifications of the selection equation were estimated, and the results presented are robust to these different specifications.

¹⁷ The estimation results of the selection equation can be found in Appendix Three

The summarised estimation results are shown in Table 15 columns (1) and (2) below. This table shows the results for male and female workers across the whole ten-year sample, with the estimated coefficients for public sector, voluntary sector, age, experience and tenure reported. Additional explanatory variables included in the model estimation but not reported include age, education, organisation size, occupation, industry, region, and time dummies for year and quarter.

Male workers in voluntary sector receive 12.2% lower wages than the private sector. Those in the public sector receive 2.6% less than the private sector.¹⁸ Wages for female workers in the voluntary sector are higher than the private sector by 1.5%, while those in the public sector earn 3.4% more than their colleagues in the private sector.

¹⁸ The sector coefficients β_{VOLS} and β_{PUB} have been converted from log coefficients to percentages as per Halvorsen & Palmqvist (1980)

MODELS (1) AND (2): POOLED CROSS-SECTION WAGE EQUATIONS

	MODEL ONE		MODEL TWO	
	(1a) Basic: Male	(1b) Basic: Female	(2a) Interact: Male	(2b) Interact: Female
Public Sector	-0.0262 (0.00446)***	0.0490 (0.00322)***	-0.00469 (0.00938)	0.0652 (0.00744)***
Voluntary Sector	-0.130 (0.00939)***	0.0148 (0.00566)***	-0.199 (0.0311)***	0.00266 (0.0186)
Experience	0.0102 (0.000915)***	0.00265 (0.000875)***	0.0102 (0.000915)***	0.00267 (0.000875)***
Exper ² /100	-4.957 (0.170)***	-4.275 (0.175)***	-4.960 (0.170)***	-4.276 (0.175)***
Tenure	0.0129 (0.000368)***	0.0145 (0.000378)***	0.0129 (0.000369)***	0.0145 (0.000379)***
Tenure ² /100	-0.0202 (0.00111)***	-0.0200 (0.00133)***	-0.0201 (0.00111)***	-0.0199 (0.00133)***
Part-Time	-0.0652 (0.00506)***	-0.0363 (0.00217)***	-0.0653 (0.00506)***	-0.0363 (0.00217)***
Temporary Job	-0.0411 (0.00552)***	-0.0360 (0.00431)***	-0.0410 (0.00552)***	-0.0359 (0.00431)***
PublicX2005			-0.0235 (0.0118)**	-0.0128 (0.00921)
PublicX2006			-0.0142 (0.0118)	-0.0144 (0.00910)
PublicX2007			-0.0239 (0.0141)*	-0.0275 (0.0107)**
VoluntaryX2005			0.154 (0.0413)***	0.0308 (0.0243)
VoluntaryX2006			0.106 (0.0409)***	0.0323 (0.0234)
VoluntaryX2007			0.150 (0.0483)***	0.0218 (0.0277)
Inverse Mills Ratio (lambda)	-0.111 (0.00441)***	-0.0442 (0.00485)***	-0.112 (0.00441)***	-0.0442 (0.00485)***
Constant	1.188 (0.0253)***	1.524 (0.0246)***	0.876 (0.0252)***	1.181 (0.0246)***
<i>N</i>	120169	124297	120169	124297
<i>R</i> ²	0.548	0.561	0.549	0.561
<i>AIC</i>	102076.1	83749.9	102052.7	83756.2

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

(Models (1a) and (1b): $\ln(w) = CONS + \beta_{PUB}PUB + \beta_{VOL}VOL + \beta_X X + \epsilon$ Models (2a) and (2b): $\ln(w) = CONS + \beta_{PUB}PUB + \beta_{PUBYR}PUBXYR + \beta_{VOLB}VOL + \beta_{VOLYR}VOLXYR + \beta_X X + \epsilon$ The experience and tenure variables are measured in years. The Sector/Year interactions for 1999-2004 have been omitted from the table to save space. Additional explanatory variables included in the model estimation but not reported above include Age, Education, Organisation Size, Occupation, Industry, Region, Year and Quarter.)

Table 15: Pooled Cross Section Estimation Results
(Source: UK Labour Force Survey 1998-2007)

MODEL TWO: Wage Differentials over time

This model allows us to explore the evolution of the sector wage differences over time. In the past ten years the voluntary sector has experienced significant growth, and has also seen a significant shift in its main source of funding from donated income to revenue from services. We now consider how this has affected wages in the voluntary sector.

The LFS data has been used to estimate wage differentials over time using the pooled-cross-section model, with the sector dummies interacted with the year dummies.

$$\ln[w(EDUC, EXP)] = CONS + \beta_{PUB} PUBLIC + \beta_{PUBYR} PUBXYEAR + \beta_{VOL} VOL + \beta_{VOLYR} VOLXYEAR + \beta_{EDUC} EDUC + \beta_{EXP} EXP + \beta_{EXP^2} EXP^2 + \beta_X X + \varepsilon \quad (20)$$

Table 15 above shows the estimates of this model, in columns (3) and (4). Also reported are the year and sector interactions for 2004 to 2007. The coefficient on the sector dummies now represents the estimated wage differential in 1998, the base year. The sector year interactions show how this wage differential has evolved over time. Male workers begin with wage premiums in the private and public sectors of 21.5% and 20.9% respectively. This premium reduces over the ten years, dropping to 3.7% in the private sector and 0.9% in the public sector by 2007. Female workers in 1999 earned 6.4% more in the public sector than the voluntary sector, but with no significant difference from the private sector. The private sector year interactions are not statistically significant, however the public sector premium falls across the ten years to only 1.3% in 2007.

Figure 10 below graphs these year specific dummies combined with the estimated individual sector and year effects, relative to private sector wages in 1998. These

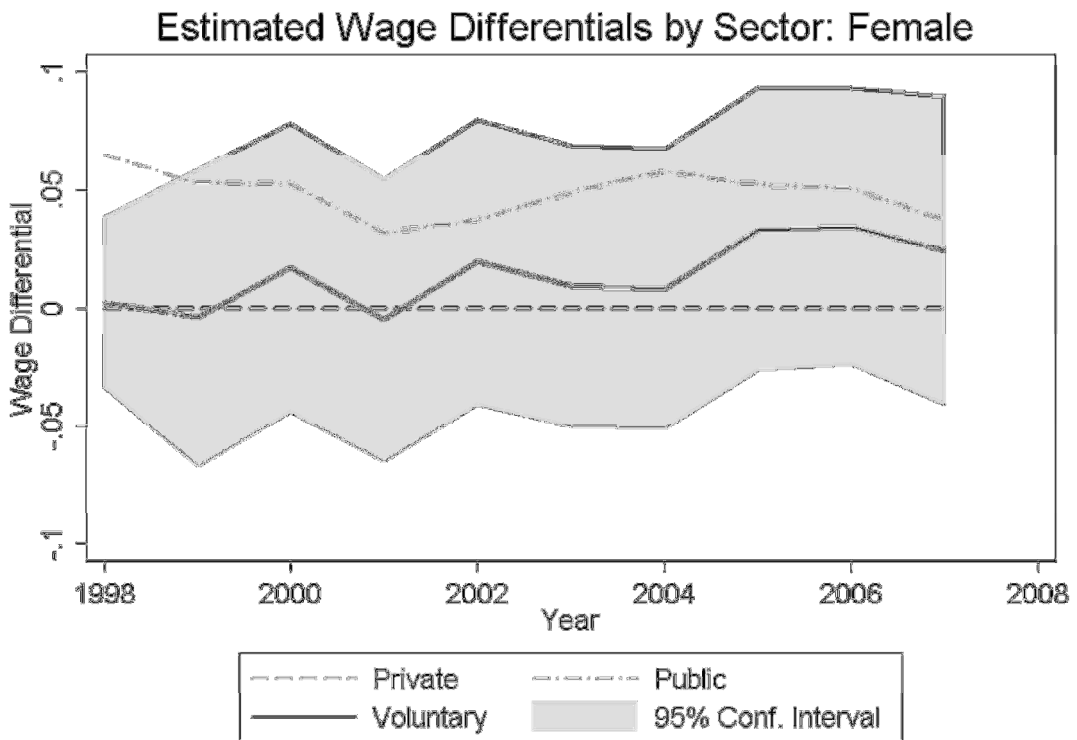
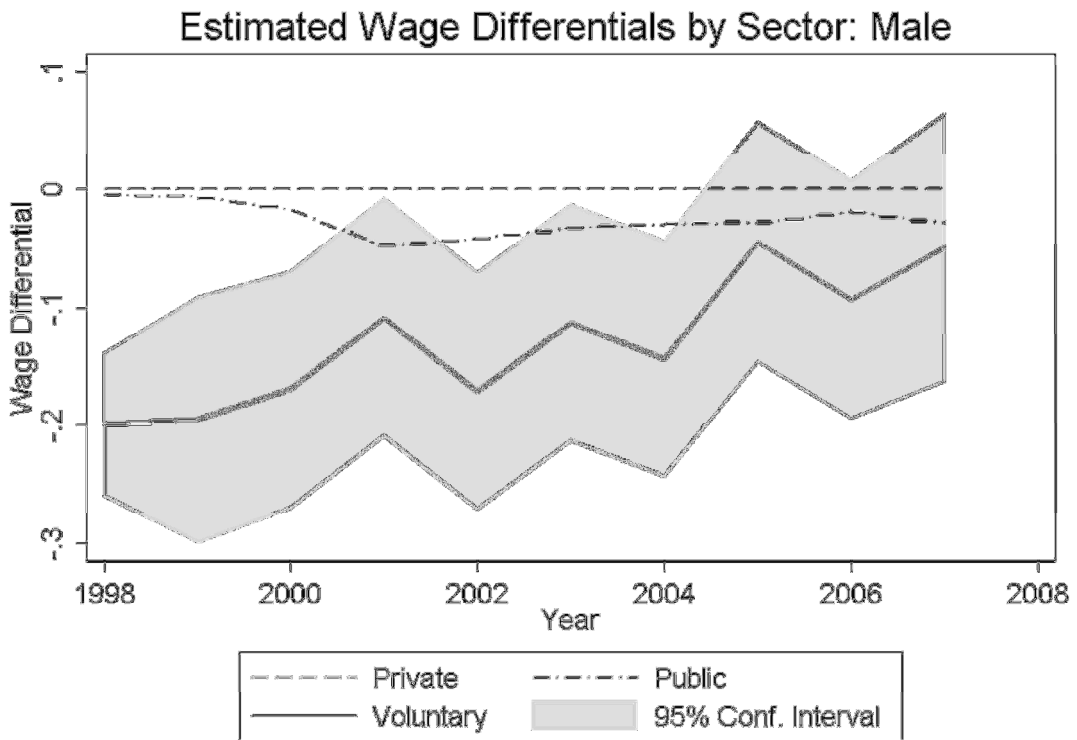
plots are produced by adding the year, sector, and interaction effects for each sector, and taking the Private sector wage level in each year as the base.

We can see that for male workers the voluntary sector wage discount was greatest in 1998, and the gap has been closing steadily over the ten-year period. For female workers, voluntary sector wages began on a par with the private sector, but with a significant discount from the public sector. Until 2004, voluntary sector wages seem to track the private sector wage growth, however in the last three years of this period they increase at a faster rate, approaching the public sector premium.

Model Three: Fixed Effects

The third model makes use of the limited panel structure of the UK Labour Force Survey. The dataset is a rotating panel, with workers surveyed quarterly and exiting after a year. This model uses the first and fifth waves of the panel, one year apart, as these are the two waves where participants are asked about the wage in their primary employment.

Estimating a panel model allows us to control for individual fixed effects by observing the same individuals in two sectors. Although this tackles some of the criticisms of cross-sectional analysis of wage differences, we must also address a number of issues. Firstly, sector effects are now identified by those individuals who are observed in both sectors. This requires that there are sufficient observations to fully identify the effects. The relatively small size of the voluntary sector makes this more difficult, but by combining several years of the LFS we have assembled a significant dataset.



Notes: The wage differentials are calculated summing the sector, year and interaction effects for each sector. The 95% confidence interval shown is for the voluntary sector estimates. The 95% confidence interval shows the interval around the voluntary sector wage level compared to the private sector base.

Figure 10: Estimated Wage Differentials 1998 – 2007
 (Source: UK Labour Force Survey 1998-2007)

Secondly, there is still a potential issue of sector selection as the decision to move job is not strictly exogenous. The ideal case would be an organisation switching sector as an exogenous shock. However organisations very rarely move into and out of the voluntary sector, and we would require observations on many employees of the firm to identify organisational effects. The detailed worker data, collected so close to the sector switch, is likely to be the closest we will come to a random panel dataset of sector moves.

Thirdly, estimating a fixed effects model increases the potential bias due to measurement error. For this reason we use only the data collected contemporaneously by personal or telephone interview, and do not extend the dataset to analyse data recalled from the twelve months prior to selection into the LFS.

Describing the sector switchers

Table 16 shows the panel sample by sector, gender and wave. Workers in the voluntary sector make up about 1.5% of the male workforce and about 3.5% of the female workforce.

Sector	Male			Female		
	Wave 1	Wave 5	Total	Wave 1	Wave 5	Total
Private Sector	36,768	36,440	73,208	25,709	25,083	50,792
Public Sector	11,309	10,896	22,205	19,969	19,454	39,423
Voluntary Sector	744	758	1,502	1,653	1,739	3,392
Total	48,821	48,094	96,915	47,331	46,276	93,607

*Table 16: Panel Sample by Wave and Gender
(Source: UK Labour Force Survey 1997-2002)*

Table 17 shows a breakdown of the sector switchers between waves 1 and 5 of the LFS. Unsurprisingly the majority of workers in each sector do not switch over the

year of observation. For males, 337 workers (0.7%) and for females, 813 workers (1.7%) switch into or out of the voluntary sector.

Wave 5		Wave 1					
		Private		Public		Voluntary	
		Freq.	Percent	Freq.	Percent	Freq.	Percent
Private	Male	36,062	73.87	594	1.22	136	0.28
	Female	24,340	51.43	815	1.72	329	0.7
Public	Male	634	1.3	10,647	21.81	61	0.12
	Female	1,167	2.47	19,003	40.15	131	0.28
Voluntary	Male	72	0.15	68	0.14	547	1.12
	Female	202	0.43	151	0.32	1,193	2.52

Table 17: Panel Sample by Wave and Gender
(Source: UK Labour Force Survey 1997-2002)

Although these sector switchers form a small proportion of the whole sample, they represent a significant proportion of voluntary sector workers. This is indicative of the fact that voluntary sector workers make up about 3% of the UK workforce.

Estimating the model

The model used is a fixed effects estimator with two time periods, regressing log hourly wages on a set of explanatory variables with sector dummy variables. Separate models are estimated for male and female workers.

$$\ln[w_{it}] = \beta_0 + \beta_{PUB} PUB_{it} + \beta_{PUBYR} PUBXYEAR_{it} + \beta_{VOL} VOL_{it} + \beta_{VOLYR} VOLXYEAR_{it} + \beta_{EDUC} EDUC_{it} + \beta_{EXP2} EXP_{it}^2 + \beta_X X_{it} + \alpha_i + \varepsilon_{it} \quad (21)$$

Results

The Fixed effects estimation results can be seen in Table 18 below. The time dummies and sector/year interactions for the Public Sector have been omitted from the table to save space. Additional explanatory variables included in the model

estimation but not reported above include education, organisation size, industry, and region.

They show a public sector wage premium in 1997 of ~3.5% and a voluntary sector wage discount of ~12.5% for male workers. For female workers there is a public sector premium of ~5.7% and no significant voluntary sector wage difference.

The change in sector wage differentials by year can be seen in Figure 11 below. For both male and female workers wages in the voluntary sector grow faster than the private and public sectors. Male workers begin with a significant voluntary sector wage discount, which disappears across the time period. Female workers begin and end with no statistically significant wage difference, although the estimated premium grows over the period. For male workers the public sector premium is steady over the time period, while it rises slightly for female workers.

MODEL 3: FIXED EFFECTS WAGE EQUATIONS

	(3a) FE: Male	(3b) FE: Female
Public Sector	0.0322 (0.0137)**	0.0585 (0.0115)**
Voluntary Sector	-0.137 (0.0354)**	0.0108 (0.0258)
VoluntaryX1998	0.0583 (0.0240)**	0.0180 (0.0183)
VoluntaryX1999	0.106 (0.0346)**	0.0280 (0.0252)
VoluntaryX2000	0.129 (0.0396)**	0.0160 (0.0280)
VoluntaryX2001	0.160 (0.0423)**	0.0260 (0.0296)
VoluntaryX2002	0.176 (0.0467)**	0.0519 (0.0323)
Age ² /100	-0.0747 (0.00680)**	-0.0691 (0.00732)**
Tenure	0.00366 (0.00107)**	0.00216 (0.00122)*
Tenure ² /100	0.00388 (0.00385)	0.00618 (0.00545)
Part Time	0.0226 (0.0106)**	0.0378 (0.00534)**
Temporary Job	-0.0256 (0.00788)**	-0.0126 (0.00659)*
Constant	3.119 (0.112)**	2.586 (0.116)**
<i>N</i>	96915	93607
<i>R</i> ²	0.064	0.060
<i>AIC</i>	-140914.7	-130812.3

Standard errors in parentheses

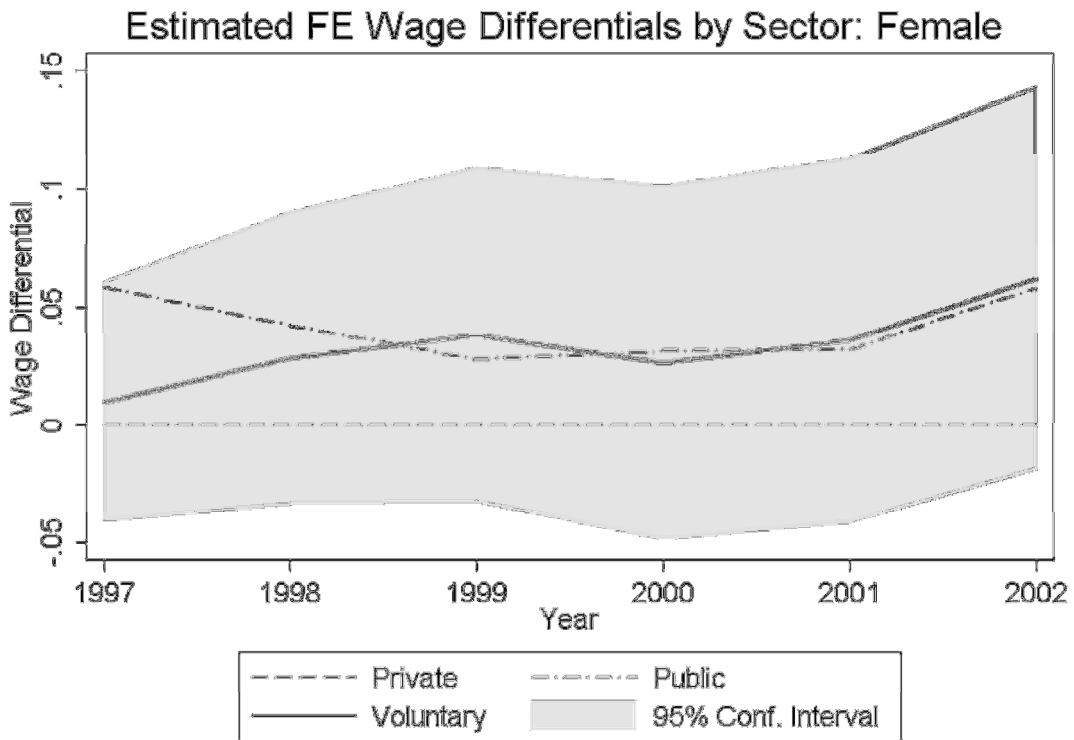
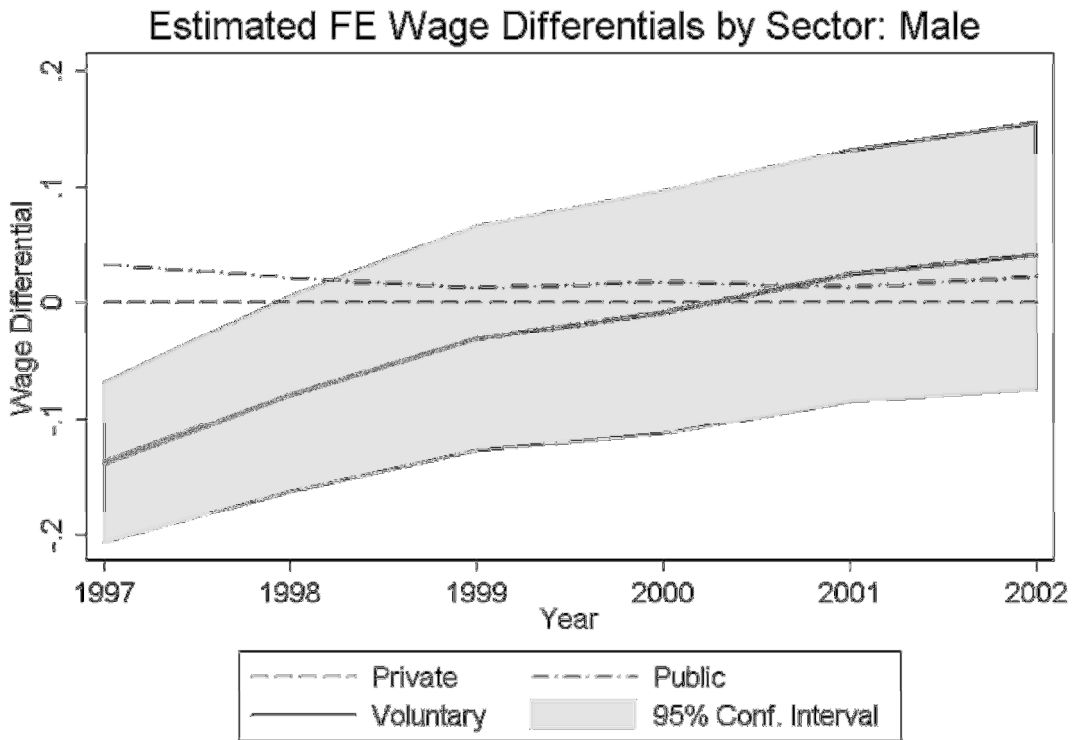
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

(Model (3a) and (3b):

$$\ln[w_{it}] = \text{CONS} + \beta_{\text{PRIV}} \text{PRIVATE}_{it} + \beta_{\text{PRIVYR}} \text{PRIVXYEAR}_{it} + \beta_{\text{PUB}} \text{PUBLIC}_{it} + \beta_{\text{PUBYR}} \text{PUBXYEAR}_{it} + \beta_{\text{EDUC}} \text{EDUC}_{it} + \beta_{\text{EXP2}} \text{EXP}_{it}^2 + \beta_X \mathbf{X}_{it} + \alpha_i + \varepsilon_{it}$$

The age and tenure variables are measured in years. The Sector/Year interactions for the Public Sector have been omitted from the table to save space. Additional explanatory variables included in the model estimation but not reported above include Education, Organisation Size, Industry, Region, and Year dummies. Age is omitted due to collinearity, as all worker observations are one year apart.)

Table 18: Fixed Effects Panel Estimation Results
(Source: UK Labour Force Survey 1997-2002)



Notes: The wage differentials are calculated summing the sector, year and interaction effects for each sector. The differentials for the public and voluntary sectors are shown relative to the private sector as a base in each year. The 95% confidence interval shows the interval around the voluntary sector wage level compared to the private sector base.

Figure 11: Estimated Wage Differentials 1997 – 2002
 (Source: UK Labour Force Survey 1997-2002)

Discussion

This analysis has found evidence of a significant voluntary sector wage discount for male workers compared to equivalent workers in the private and public sectors. Female workers in the voluntary sector face a wage discount compared to public sector workers, but a premium over those in the private sector. We also show that the voluntary sector wage gap with the other two sectors has significantly narrowed for male workers over the past ten years. For female workers, voluntary sector wages began the decade level with private sector wages but below the public sector. By the end of the ten year period they are at a significant premium to the private sector, and much closer to the public sector wage level.

These findings were supported even after controlling for worker fixed effects using the limited panel structure of the Labour Force Survey. This suggests that the findings are not simply explained by sector selection effects due to unobserved worker heterogeneity. For male workers the estimated voluntary sector wage differential halved between the cross-section and fixed effects models, suggesting that selection of motivated workers does play a role.

This decade has seen a significant expansion of the voluntary sector workforce. The theory of compensating wage differentials that forms the basis for warm-glow theories of wage-setting clearly predicts that as the voluntary sector expands the warm-glow wage gap should narrow.

We must also rule-out alternative explanations for the sector wage growth over this period. Firstly we consider gender differences. A significantly higher proportion of voluntary sector workers are female. This is in part explained by the industries and

occupations in which the voluntary sector operates. Preston (1990) showed that female worker selection into the nonprofit sector is driven by the opportunities and responsibilities that they are able to access in this sector. After controlling for this, Preston found no significant gender difference in sector selection. If the additional voluntary sector workers moving into the sector in response to the policy have been disproportionately male due to the types of jobs created, then this could explain the greater erosion of the male wage differential. Figure 12 shows the proportion of male workers by sector over the sample period. This suggests that instead the proportion of male workers has actually fallen slightly, from 29% in 1998 to 26% in 2007, and so this does not explain the wage difference.

Alternatively, it is feasible that as public services have been contracted out to the voluntary sector the unions have followed the workforce. If there has been an increase in unionisation in the voluntary sector in response to the growth of the workforce, then this could explain in part the faster wage growth.

Figure 12 also shows the proportion of workers who are union members, and the proportion of workers who report that a union is present at their place of work, by sector. This shows clearly that the proportion of workers in the voluntary sector who are union members has fallen since 1998 from 29% to 18% in 2006. This suggests that the move of workers from the public to the voluntary sectors has not been driven by an increase in unionisation. In fact, the reverse is true: wage growth has been higher in the voluntary sector despite a decline in unionisation within the sector.

GENDER BALANCE AND UNION MEMBERSHIP

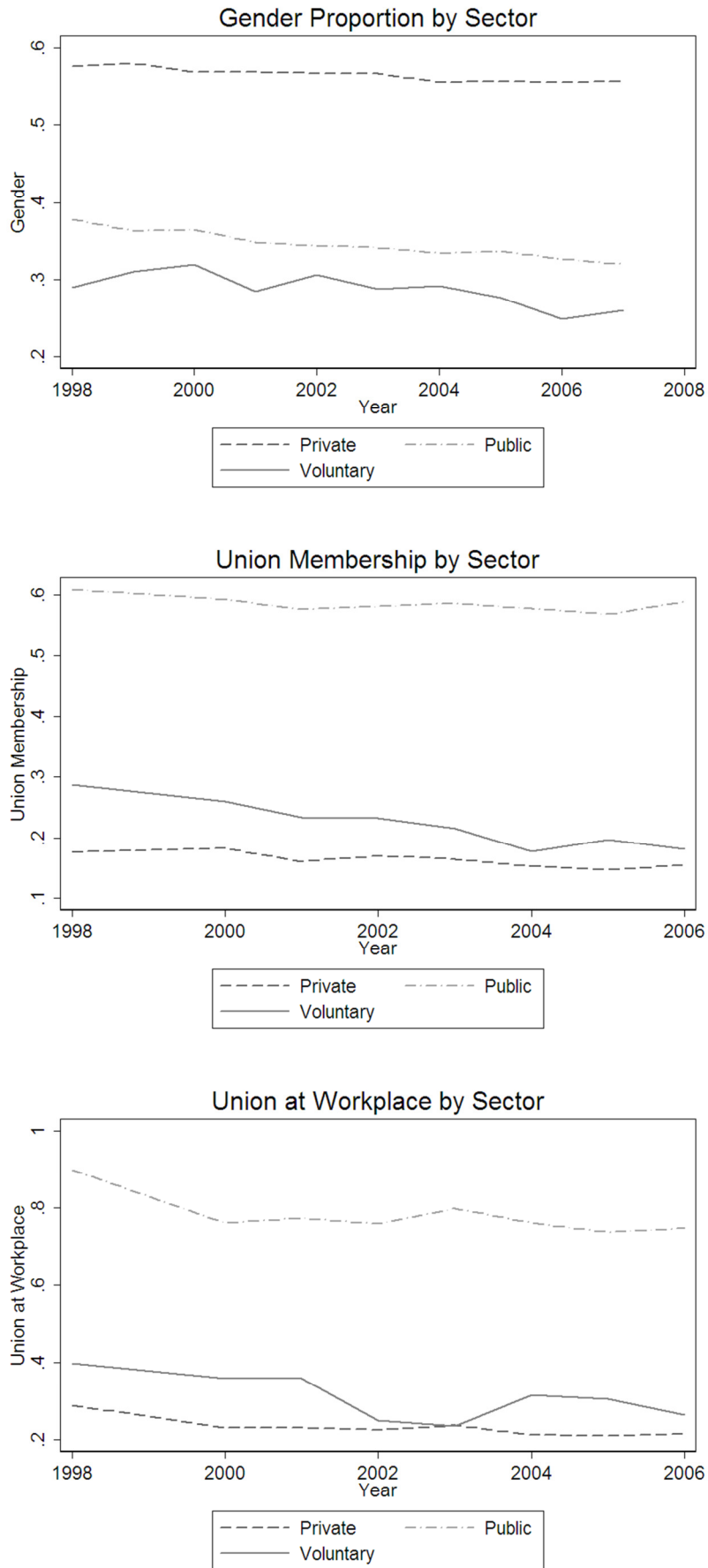


Figure 12: Gender Balance, Union Membership and Presence by Sector (Source: UK Labour Force Survey 1998-2008)

This analysis also suggests that as the voluntary sector expands the average level of warm-glow motivation within the sector reduces. The conclusions drawn depend on a stable distribution of Z in the population: if workers become in general more altruistic then the distribution of Z will shift, and we could expect an increase in the size of the sector without warm glow reducing.

We argue that despite the increasing size of the voluntary sector the distribution of Z has remained constant. Measuring this distribution is challenging. We use a proxy for levels of altruism in the population that is unrelated to the sector of employment. We consider levels of formal volunteering, defined as activities to help others undertaken without pay. Volunteering takes place in all three sectors, private, public and voluntary. It is an activity which takes place in leisure time, and volunteers undertake different types of roles from paid staff in all sorts of organisation. The willingness to help others through unpaid activities provides a proxy for the levels of mission-motivation in the population.

	<i>National Survey of Volunteering</i>				<i>Citizenship Survey</i>	
	1981	1991	1997	2001	2003	2005
Formal Volunteering in Past 12 months	44%	51%	48%	39%	42%	44%
Regular Formal Volunteering in past 12 months	27%	31%	29%	27%	28%	29%

*Table 19: Percentage of Formal Volunteers over time*¹⁹
Source:(Low, Butt, Ellis Paine, & Davis Smith, 2007)

Table 19 shows the percentage of the population who reported having undertaken formal volunteering work in the previous 12 months. Figures are shown for both once-off and regular volunteering. They show that levels of volunteering have not

¹⁹ Figures from the Helping Out survey in 2006 showing higher volunteering proportions. However the report notes that methodological differences mean that the figures for 2006 are not comparable with previous surveys.

significantly increased since 1997: in fact they seem to have experienced a dip compared to volunteering levels in the early 1990's. If the sector was growing due to an increase in altruism in the population (and so a shifting Z distribution) we would reasonably expect that levels of unpaid volunteering would also show a similar change. This supports our assertion that the growth of the voluntary sector workforce has been fuelled by a movement of Z^* , rather than by an increase in the number of altruistic workers in the population.

There are a number of consequences if the distribution of Z has remained constant, and so the average level of mission-motivation in the voluntary sector has fallen. Firstly, the scale of the problem depends on the shape of the distribution of Z, the taste for warm glow. If it is relatively uniform, then there will be little difference between existing and new voluntary sector workers. If however it is steeply peaked, then the introduction of new workers could have a significant impact on the make-up of the voluntary sector workforce. Two potential impacts of this are identified.

Firstly, if the mission of an organisation is determined by negotiation between the employees then the introduction of employees with weaker mission-oriented motivation could have implications for the strength and type of mission. The theoretical rationale for voluntary sector provision of public services is that the combination of the profit non-distribution constraint and the intrinsic motivation of workers allows the credible provision of quality where there are significant information asymmetries between provider and purchasers or recipients. If the mission, or level of intrinsic motivation, is diluted then this could have implications for the comparative advantage of voluntary organisations in the provision of these types of services.

Besley and Ghatak (2005) extend their Principal-Agent model to allow a spectrum of missions that the Principal and Agent bargain over. They show how compromising on mission can be used as an alternative to incentive pay. The converse of this is that as incentive pay increases in the voluntary sector, and wages converge, there is less of a role for mission-matching between principals and agents.

Akerlof (1986) discussed reciprocal gift exchange in the workplace, where workplace norms provide the framework for a system of reciprocal effort. The introduction of new workers who do not share these norms could cause this reciprocal equilibrium within the organisation to collapse, and reduce effort even amongst the most mission-motivated workers.

Secondly, a further rationale for contracting-out public services is to reap efficiency and cost-saving benefits from the competitive tendering of services. At least some of these benefits arise from the lower wage levels attributed to warm glow. However the findings in this chapter suggest that the effect over the past ten years of this policy has been strong growth in voluntary sector pay for both male and female workers, as pay in the sector has converged on pay levels in the public sector. While cost-savings through lower wages are only part of the objectives of this policy, this will have significantly eroded the cost benefits.

An additional aspect of the government's policy is the change in the way that the nonprofits fund their activities. The increased use of contracting-out has changed the balance of the forms of funding, with a move from grants and donations to greater use of service contracts. At a simple level, we would expect the increased competitive pressure to exert a downward force on wages in the voluntary sector. However, the change of funding form could also impact the workplace norms of

Akerlof's gift exchange, or crowd-out intrinsic motivation as there is a greater focus on performance and targets. A further effect could be an impact on job quality. Cunningham (2001) suggests that the pressure of contracting-out services is changing human resources practices in the voluntary sector, and creating conflict between employees and employers within nonprofits. Furthermore, the evidence suggests that contracting-out is increasing work-intensity and driving down terms and conditions within social care in the voluntary sector (Baines, 2004; Cunningham & James, 2009) as competition between providers to win a contract puts a strong downward pressure on costs that did not necessarily exist when the organisations were funded by grants. Further to this, the requirement in contracting to record and evidence results and targets puts more pressure on employees, reducing the flexibility in job tasks that they may have had in the past. To the extent that this drop in job quality results in a compensating differential, we would expect to see wages in the voluntary sector rising. Lastly, changing funding structures could have an effect on the organisations' mission. The mission of an organisation must balance the preferences of both funders and workers. As Besley & Ghatak showed, worsening matches between the missions of principals and agents reduce the effect of mission motivation. It seems likely that public sector purchasers, who are able to write enforceable contracts, have better information about the performance of a voluntary organisation than donors, who likely give without being able to enforce their wishes (beyond exit from donating) and are further removed from the work of the organisation. As such, organisations may need to adjust their missions towards those of the contract funders, and away from the preferences of donors. If this mission change reduces the quality of employer-worker mission matches, then it will reduce mission motivation and so increase nonprofit wages.

This illustrates that the link between the government policy changes and the growth of the sector is complex, and there are several channels through which the policy could impact the mission motivation of workers. What this analysis has shown is that there is faster wage growth observed both in average wage differences across the sector (through cross-sectional analysis) and in marginal workers (through longitudinal analysis). Although it is not possible to separately identify or decompose the effects of sector growth and changing funding structures, we argue that this analysis provides evidence of decreasing warm-glow effects in the voluntary sector during a period in which policy makers were trying to harness this motivation.

There are a number of caveats that should be highlighted in interpreting these results. The LFS has been chosen for this analysis due to the richness and high quality of the worker data that it includes. But, given the nature of the voluntary sector, it is not without fault. Sector data is recorded only for respondents' main jobs, and not for secondary or further jobs. Since many jobs in the voluntary sector are part-time and/or temporary, it is conceivable that they make up a greater proportion of these omitted jobs. This suggests that the estimate of sector size provided by the UK LFS is certainly a lower bound. This feature of the data could be important if some of the movement into the sector is workers 'upgrading' from a second job in the voluntary sector to making that their main job. This should not however significantly change the analysis: since we are concerned with the marginal worker indifferent between the two sectors we would still expect that there would need to be a change in the sector wage differential in order for the marginal worker to want to work one additional hour in the sector. Note also that this effect is only a concern for workers with more than one job. The effect of workers whose main job is part-time, upgrading to a fulltime job within the sector is still being directly observed in the

data, and so controlled for in the model. Given the types of jobs involved, the effect of second jobs is likely to be minor in the estimation, but is an ongoing issue for voluntary sector researchers and is worthy of note.

It should also be noted that this analysis does not provide an overall critique of the policy of contracting-out public services. The cost savings from lower wages forms only one part of the policy's objectives. It does however show the unintended effects that a government policy can have, and raises some broader concerns for the effect that the policy has had on mission-motivation in the voluntary sector.

Conclusion

As with the findings in the US literature, the evidence for warm-glow wages is not clear cut. Although male workers are paid less in the voluntary sector, this wage-gap has been narrowing in the UK in recent years, and now appears to be non-existent. For female workers (who make up more than two thirds of the voluntary sector workforce), the analysis suggests a small voluntary sector premium above the private sector. While female workers still earn less than their colleagues in the public sector, the gap between the voluntary and public sectors has been narrowing. Our analysis suggests that contracting-out services has driven up voluntary sector wages to the public sector wage level, to the extent that wage costs for services in the voluntary sector are now similar to the wage costs in the public sector.

We have tackled the issue of sector selection bias by both examining the labour market in the voluntary sector in the face of an exogenous shock, and through the analysis of a fixed effects model to control for unobserved worker heterogeneity.

This has shown that the results are robust even after controlling for a potential sample selection bias.

Over the past ten years the voluntary sector has moved closer to the market, engaging in competitive tendering and commissioning processes for service provision. The government has specifically targeted increasing the capacity of sector to provide public services. This chapter has shown that during this period the sector has seen significant growth, both as a proportion of the UK workforce and in the workers' pay.

We have explored the consequences of a government initiative to expand a specific sector through contracting-out public services. The motive for this policy was based on increasing value for money, in terms of cost, quality and variety. Through our analysis of voluntary sector workforce data, we argue that this policy has in fact had the opposite effect, by increasing wages to public sector levels and diluting the mission-motivation of workers in the sector.

CHAPTER FIVE

Time Flies When You're Having Fun? Donated Labour in the Health & Social Work Industries

Introduction

In this chapter we compare working hours between the private, public and voluntary sectors. Specifically, we investigate the role of unpaid overtime as “donated labour” amongst employees within the Health & Social Work industries.

Traditional warm-glow analysis uses wage differences between the private, public and voluntary sectors as a measurement of donated labour. This, however, does not control for differences in effort between the sectors. Here we test for differences in hours worked between the sectors. Our main contribution in this chapter is to provide a more robust exploration of nonprofit wage differentials, as well as adding an additional explanation to the literature on unpaid overtime.

This chapter uses ten years of pooled cross-sectional data from the UK Quarterly Labour Force Survey (LFS) in order to examine levels of unpaid overtime at a disaggregated industry level in industries where voluntary sector concentration is relatively high. The rotating-panel structure of the UK LFS allows us to estimate a fixed effects model to control for unobserved worker heterogeneity. We focus on the Health & Social Work industries for two reasons: firstly, to reduce the unobserved heterogeneity between organisations and jobs by narrowing the activities undertaken;

secondly, to examine the caring industries where theory predicts that warm glow should be strongest.²⁰

We begin by examining whether there are significant levels of donated labour observed in the voluntary sector, expressed as hours of unpaid overtime. Next, we test whether donated labour explains the voluntary sector wage premium found in the caring industries. Evidence is found of donated labour through significantly higher levels of unpaid overtime for voluntary sector workers at all industry detail levels. Wage equations are estimated with wages adjusted for these additional hours of unpaid work, showing that for female workers there is a significant warm-glow wage discount even after controlling for unobserved worker heterogeneity.

Empirical Literature on Sector Differentials and Donated Labour

We are unaware of any empirical work examining unpaid overtime in the voluntary sector, as distinct from the public sector. The conflicting findings in the empirical warm-glow wage differentials literature, as outlined in the previous chapter, mean that the industry-specific differences in sector wage differentials remain unexplained. In particular, there is often a significant voluntary sector wage premium found in the caring industries such as health and social work.

Leete (2001) used US census data for 1990 and found little evidence of a difference between the private and voluntary sectors overall. However, she did find some significant differences at the disaggregated industry level. Although the industry categories used in Leete's paper differ from those in the UK LFS, it is possible to

²⁰ See Chalkley and Malcomson (1998) for a discussion of the role of mission motivation in health contracting.

identify some that are relevant to the industry classifications examined in this chapter.

Industry	Nonprofit Premiums (t-statistic)	% Nonprofit (Sample Size)
Nursing & Personal Care Facilities	2.22% (3.5)	19.40% (60,120)
Hospitals	5.02% (18.87)	43.70% (171,612)
Day-care services	6.72% (6.54)	35.40% (21,505)

Figure 13: Estimated Nonprofit Wage Premiums from US Census 1990
(Source: (Leete, 2001))

Figure 13 shows that Leete found significant nonprofit sector premiums of between 2.2% - 6.7% in caring industries in the US. The table also shows that these were in industries with a relatively high concentration of nonprofit organisations. Examining similar sectors, Mocan & Tekin (2003) used employer-employee matched data on child care workers in the USA, and found evidence of a nonprofit wage premium of between 6% - 15%.

Gregg, Grout, Ratcliffe, Smith and Winmeijer (2011) tested the donated labour hypothesis in nonprofit organisations by examining data on unpaid overtime. They include both organisations in the public and voluntary sectors within their definition of nonprofits. They examine the probability of undertaking unpaid overtime, comparing for-profit versus nonprofit sectors and ‘caring’ versus ‘non-caring’ industries. Data from the British Household Panel Survey (BHPS) are used in both cross-section and panel form to test the hypothesis of sector differences in donated labour. Gregg et al find that workers in nonprofit organisations are more likely to donate their labour than those in the for-profit firms. They show that this is not due to implicit contracts. The results also suggest that individuals may select into sectors based on their propensity to donate labour.

This chapter extends this analysis in a number of ways. We estimate a three sector model, to identify differences between public nonprofits and independent nonprofits. We focus on the health and social work industries to examine unpaid overtime and wage differences at the industry level. Lastly, we estimate wage equations on adjusted wages in order to test for the existence of implicit contracts.

The Economics of Overtime Pay

Overtime hours are defined ‘as actual hours of work in excess of the standard contractual hours’ (Hart, 2004). Commonly these hours are paid for at a higher rate than basic working hours. However, a more recent literature has begun to explore the phenomenon of reported unpaid overtime. Workers may work either paid or unpaid overtime in addition to their contracted hours, or they may work a combination of both, or neither.

The total weekly hours H_i for a worker i are therefore shown below, where h_b are the usual contracted hours, h_{po} are the hours of paid overtime and h_{uo} are the hours of unpaid overtime.

$$H_i = h_i^b + h_i^{po} + h_i^{uo} \quad (22)$$

The total weekly pay W_i received by a worker i is shown below, where w_b is the basic hourly wage rate, and π is the overtime premium.

$$W_i = w_i^h h_i^b + \pi w_i^h h_i^{po} \quad (23)$$

The overtime literature suggests that the term ‘unpaid overtime’ is a misnomer. Although there is no explicit contractual payment for hours of unpaid overtime

worked, the question that the literature addresses is: how is the worker compensated for these hours?

Bell and Hart (2003) use the 1998 British New Earnings survey to investigate the relationship between basic hourly pay and overtime premiums. They show that there is a significant negative relationship, with higher overtime premiums being associated with lower basic hourly wages. They suggest that overtime premiums are driven by custom and practice within an industry, and are not related to the length of overtime worked. Firms therefore can use the variable premium to maintain a competitive effective wage. This supports an implicit contract between firms and workers over the effective hourly wage that will be paid, for a given mix of basic and overtime hours.

Bell and Hart (1999) propose five explanations for the existence of unpaid overtime:

- uncertainty over task completion times;
- auctions for task allocation;
- regulate team performance;
- gift exchange;
- compensating differentials.

Firstly, unpaid overtime could permit the adjustment of contracts where there is uncertainty on behalf of both the employer and the worker about the time required to undertake a task. With some probability, the worker will undertake additional hours unpaid to fulfil a contract.

Secondly, employers may allocate work tasks on the basis of ‘bids’ from workers as to task completion times. Workers have an incentive to understate their task completion time in order to win the contract, and then work additional hours unpaid to fulfil it, if the payment from contracted hours still outweighs their outside option.

Thirdly, teams of workers may use unpaid overtime as a regulation device to allow lower productivity workers additional time to complete tasks where the same wage is paid to all team members. Effectively, the unpaid overtime allows the informal adjustment of hourly wages within the team.

Fourthly, employers and workers may enter into an implicit contract, where workers ‘gift’ extra effort in return for a higher basic wage. This extra effort could be in the form of additional hours unpaid, holding work intensity constant. Although the exchange is not explicitly contracted over, it is enforced through workplace norms.

Lastly, if wage bargains regarding overtime premiums are reached outside the level of the relationship between employer and worker, there may be welfare improvements from negotiating a lower, local rate. This could be reached through an implicit agreement to undertake a mix of paid and unpaid overtime hours.

The fourth explanation has significance in the nonprofit literature, and could be relevant in the analysis of sector differences. Bell and Hart find evidence of gift exchange through the association of unpaid overtime with higher wages. They did not however find evidence of unpaid overtime being used to adjust rigidities in paid overtime rates, tested by examining the link between undertaking both paid and unpaid overtime.

Pannenberg (2005) explores the long-term effects of unpaid overtime using data from the German Socio-Economic Panel. Pannenberg finds evidence of increased real wage growth for male workers who work unpaid overtime, robust to the estimation of a fixed-effects model, but little evidence of a similar significant effect for women. This supports the role of unpaid overtime as an investment, with a positive expected value, at least for male workers.²¹

We propose an additional explanation for unpaid overtime: if wages are rigid within industries across sectors, then the effective wages of workers in mission-motivated organisations can be adjusted by working additional hours of unpaid overtime.

The traditional warm-glow model suggests that workers gain utility from both their wage and the intrinsic motivation of engaging in a mission-motivated activity. Building on equation (4) in Chapter 2, where we outlined the formulation of warm glow utility, the utility function U_i of a worker has three arguments: the total wages earned (W_i), the characteristics of the job, and the level of intrinsic utility derived from working in a mission-motivated activity (g_i).

$$U_i = (W_i(w_i, h_i), j_i, g_i) \quad (24)$$

Warm-glow utility arises from the workers' participation in the provision of the public good, rather than solely from the public good itself. However, as discussed in Chapter 2, the organisational form determines whether there is a residual claimant with an incentive to expropriate the donated labour as profit. This, together with the efficiency gain of 'mission-matching' of motivated agents to nonprofits with prosocial missions, leads to a prediction of donated labour in the nonprofit sector.

²¹ See also Bell and Freeman (2001) for a more general discussion of the link between hours worked and future earnings.

This suggests two competing explanations for sector differences in unpaid overtime. Workers who receive a warm glow from their work could engage in unpaid overtime, which would lower their effective salary, whilst apparently receiving the same compensation as other workers. Alternatively unpaid overtime can form part of an implicit bargain between worker and employer, where additional hours of unpaid overtime are expected and compensation is paid through a higher hourly wage for the “official” paid hours of work.

We investigate sector wage differences to test between these two explanations for unpaid overtime in the voluntary sector.

Warm-Glow Hypothesis: Workers engage in additional hours of unpaid work due to the intrinsic utility of working in the mission-oriented sector. The compensation for the hours of unpaid overtime is received in warm-glow utility.

Gift-Exchange Hypothesis: Workers in the voluntary sector engage in implicit contracts, where additional hours of unpaid work ‘gifted’ to employers are rewarded with higher basic wages. The compensation for the hours of unpaid overtime is received through the higher level of the basic wage.

It should be noted that we are examining sector differences between sectors within industries. It is reasonable to think that there could be a level of job satisfaction arising from working within the caring industries independent of the legal structure of the employer, but we are not testing for an overall warm glow effect of caring for others, rather the additional warm glow arising from working in a mission-motivated organisation. We are looking at sector differences in warm glow *given* that the workers are employed in the caring industries.

Bell and Hart suggest a method of controlling for the effect of unpaid overtime on final compensation, by calculating an adjusted wage which is then used as the explanatory variable in a wage equation. First, we test for the existence of a sector difference in unpaid overtime. Second, we test its impact in an adjusted-wage equation on the warm-glow sector difference.

The Dataset

This chapter uses the UK Quarterly Labour Force Survey (UK LFS) between 1998 and 2007 to create a pooled cross-section dataset with a large enough voluntary sector sample size to permit detailed analysis.

Unobserved Heterogeneity

A recurring problem in estimating differences between sectors is accounting for unobserved heterogeneity: whether observed sector wage differences are explained by differences between organisational forms, or by sector selection by workers. There are two main sources of unobserved heterogeneity that could affect our analysis:

- Heterogeneity in jobs;
- Heterogeneity in workers.

We control for unobserved heterogeneity between jobs by restricting the sample to detailed industry classifications to allow comparison between similar job activities and roles. In this chapter we estimate sector wage equations at the detailed industry level, coded using the UK Standard Industrial Classification Of Economic Activities

(SIC(92)). The industry classification analysed is SIC(92) N 85 Health & Social Work.

This broad industry classification includes:

- Human health activities: Hospitals, Nursing Homes, Dental practices, Opticians, etc.;
- Veterinary activities: Vets and Veterinary hospitals;
- Social work activities: Social work services with and without accommodation, as detailed above.

This reduction to more detailed job classification comes at a cost of reduced sample size.

We control for unobserved heterogeneity between workers by estimating a fixed effects model using two observations on each worker. This allows us to include an individual specific fixed effect in the regressions.

Exploring a Three Sector Workforce

Since the mid-1990's the questions asked in the LFS allow the identification of organisations which operate in the Voluntary sector, permitting an analysis of a three sector model.²²

Although the voluntary sector as a whole accounts for only around 3% of the UK workforce, 60% of the sector operates within the industry classification SIC(92) "85 Health & Social Work". In contrast, 29% of the Public Sector and 5% of the Private

²² See Appendix Two for more detail on sector classifications in the UK LFS

Sector is engaged within this industry classification. Table 20 below shows the industry sample size by sector and gender. It shows that although the voluntary sector makes up a significant proportion of the industry, the private and public sectors are both still major players within each category.

Sector	MALE		FEMALE	
	Freq.	Percent	Freq.	Percent
Private	461	0.150	3057	0.246
Public	2203	0.716	8028	0.646
Voluntary	413	0.134	1351	0.109
TOTAL	3077		12436	

Table 20: Sample by Sector and SIC(92)
 (Source: UK Quarterly Labour Force Survey 1998 – 2007)

Mean values of a selection of key individual and job characteristics are shown in Table 21 below.

In order to control for unobserved worker heterogeneity we also estimate a panel model using two observations on each worker, one year apart. Due to data constraints in building the panel we estimate this model using a smaller sample based on worker observations between 1997 and 2002.²³

Table 22 below shows the panel sample by sector in wave 1 and wave 5. Workers observed for at least one wave in the voluntary sector make up 14% (411 observations) of the male sample and 12% (1,353 observations) of the female sample.

²³ See Appendix One for more detail on building the datasets.

SAMPLE MEANS

	MALE				FEMALE			
	Private	Public	Voluntary	ALL	Private	Public	Voluntary	ALL
Age (years)	41.23	41.75	43.35	41.88	40.13	41.69	42.20	41.36
Tenure (years)	4.81	10.10	5.14	8.66	5.05	9.85	5.14	8.15
Part-time (%)	0.08	0.04	0.16	0.06	0.38	0.38	0.41	0.38
Temp. Job (%)	0.02	0.07	0.10	0.07	0.02	0.04	0.08	0.04
Unpaid Overtime (hours)	2.81 (5.569)	3.65 (5.936)**	5.00 (6.366)***	3.71 (5.968)	1.55 (3.445)	2.40 (3.811)***	3.68 (4.957)***	2.33 (3.913)
Paid Overtime (hours)	5.37 (6.533)	4.45 (6.653)***	1.63 (3.934)***	4.21 (6.424)	3.83 (5.279)	2.96 (4.923)***	1.97 (4.066)***	3.07 (4.956)
Total Overtime (hours)	8.23 (7.023)	8.10 (7.688)	6.63 (6.496)***	7.91 (7.456)	5.38 (5.611)	5.36 (5.549)	5.65 (5.509)	5.40 (5.560)
Total Work Hours (hours)	45.47 (10.993)	46.14 (10.544)	41.10 (10.786)***	45.34 (10.776)	36.22 (12.501)	36.38 (11.254)	35.27 (11.997)**	36.22 (11.658)
Hourly Wage (£)	8.96	13.22	11.13	12.30	7.08	10.33	9.15	9.40

Standard Deviations for working hours variables are shown in brackets.

† For Public and Voluntary Sector working hours a t-test for significant difference from the Private Sector was conducted. * p < 0.10, ** p < 0.05, *** p < 0.01

Table 21: Sample Means by Sector and gender

(Source: UK Labour Force Survey 1998 – 2007)

Wave 5	Wave 1	Private		Public		Voluntary	
		Freq.	Percent	Freq.	Percent	Freq.	Percent
Private	Male	285	0.10	60	0.02	67	0.02
	Female	2,262	0.20	187	0.02	209	0.02
Public	Male	77	0.03	2,042	0.71	20	0.01
	Female	346	0.03	7,447	0.64	82	0.01
Voluntary	Male	28	0.01	31	0.01	265	0.09
	Female	84	0.01	78	0.01	900	0.08
TOTAL	Male	2,875					
OBSERVATIONS	Female	11,595					

Table 22: Sample by Sector in Wave 1 and Wave 5

(Source: UK Labour Force Survey 1998 – 2002)

Overtime Data

In the UK LFS respondents are asked about their working hours and overtime. Respondents are asked to estimate the number of weekly hours of paid and unpaid overtime that they undertake in their main job.

Table 23 below shows the sample tabulated by participation in the two types of overtime hours. It shows that most workers work only either one type of overtime or the other. About 13% work no overtime, and 11% report working at least some of both paid and unpaid overtime.

COUNT	No Paid Overtime ($h_i^{po}=0$)	Paid Overtime ($h_i^{po}>0$)	TOTAL
No Unpaid Overtime ($h_i^{uo}=0$)	2,001	5,905	7,906
Unpaid Overtime ($h_i^{uo}>0$)	5,850	1,757	7,607
TOTAL	7,851	7,662	15,513

Table 23: Breakdown of sample by overtime hours

Table 21 above shows that unpaid overtime hours are significantly higher in the public and voluntary sectors compared to the private sector, whilst paid overtime hours are significantly higher in the private sector. For both male and female workers, total working hours are significantly lower in the voluntary sector

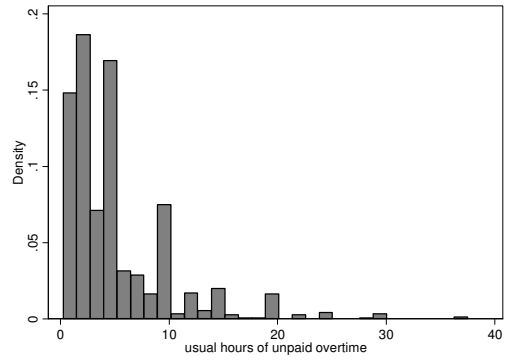
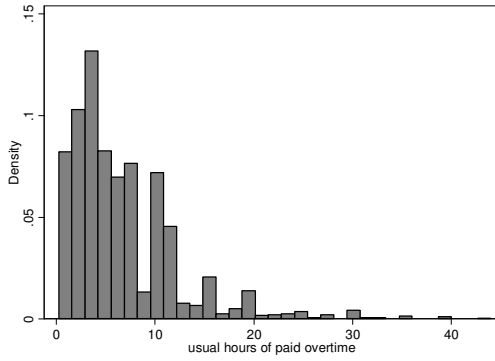
Figure 14 below shows histograms of the hours of paid and unpaid overtime by sector for workers with overtime working greater than zero. This shows clearly the higher levels of paid overtime in the private sector.

HISTOGRAMS OF OVERTIME HOURS BY SECTOR

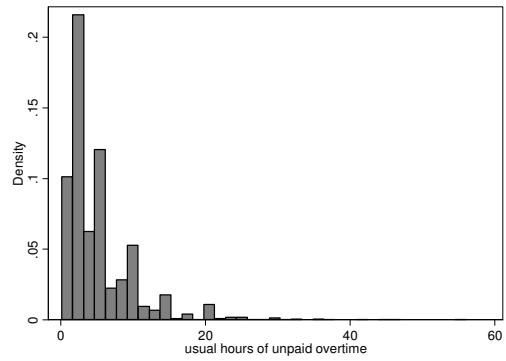
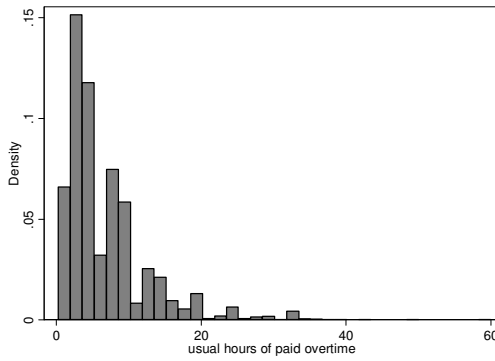
PAID OVERTIME
($h_{po} > 0$)

UNPAID OVERTIME
($h_{uo} > 0$)

PRIVATE SECTOR



PUBLIC SECTOR



VOLUNTARY SECTOR

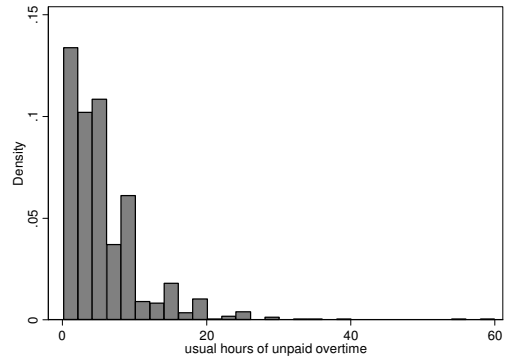
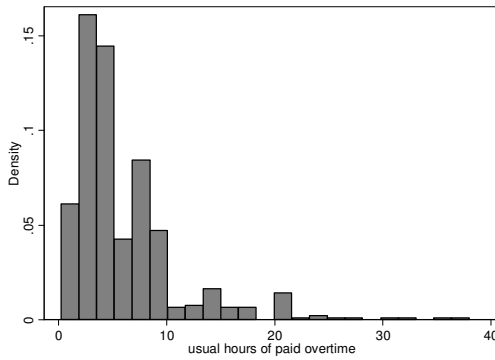


Figure 14: Histogram of Hours of Overtime by Sector
(Source: UK Labour Force Survey 1998 – 2007)

Estimating Working Hours Equations

In order to investigate this, working hours equations (Bell & Hart, 1999) were estimated to attempt to explain the observed unpaid overtime. Data on unpaid overtime, paid overtime, total overtime and total working hours were used to estimate sector differences, conditioning on a range of explanatory variables.

The overtime data contains many observations censored at zero, as it is not possible to observe negative overtime. Many workers in the sample worked only one type of overtime, or no overtime at all. In order to control for this, overtime working is modelled with an underlying propensity to undertake overtime, h_i . The overtime hours are observed when h_i is greater than zero, but zero overtime is observed when h_i is less than zero. This is estimated with a Tobit model:

$$\text{if } h_i > 0 \rightarrow \text{hours}_i = \beta_0 + \beta_{PUB}PUB_i + \beta_{VOL}VOL_i + \beta_x X_i + \varepsilon_i \quad (25)$$

$$\text{if } h_i \leq 0 \rightarrow \text{hours}_i = 0$$

Where:

PUB Sector Dummy for Public Sector workers

VOL Sector Dummy for Voluntary Sector

X_i Characteristics of jobs: organisation size, FT/PT, permanent/temporary, length of tenure; Characteristics of the workers: age, experience, marital status, number of children; Time Dummies for year and quarter

Following Bell and Hart (2003), a proxy for income is included in the estimation of the hours equations. In order to avoid the endogeneity problem of the joint

determination of wages and hours, w^* is the predicted hourly wage from a basic Mincer wage equation, rather than the observed hourly wage.

$$\ln(w_i^h) = \beta_0 + \beta_Z Z_i + u_i \quad (26)$$

$$\ln(w_i^*) = \ln(\widehat{w}_i^h) = \hat{\beta}_0 + \hat{\beta}_Z Z_i \quad (27)$$

The variables Z_i included in the wage equation to identify w^* are age, experience, tenure, part-time, job status, education, organisation size, occupation and region and time dummies. The variables included in Z_i but not X_i as exclusion restrictions are education and occupation.

The coefficients on the sector dummies for the public and voluntary sector relative to the private sector are shown below in Table 24. Columns one to four show the hours equations for unpaid overtime, paid overtime, total overtime and total hours respectively.

These estimates suggest that male workers work slightly more unpaid overtime in the voluntary sector than the private by about 2.3 hours per week. We find that female workers work an extra 2.7 hours of weekly unpaid overtime in the voluntary sector. Levels of paid overtime are also significantly lower in the voluntary sector for both male and female workers, by 6.9 hours and 3.3 hours respectively. Male workers in the voluntary sector work significantly fewer total hours of overtime (2.5 hours) and total weekly hours of work (3.9 hours) than those in the private sector. For female workers there is no significant difference in total overtime, and evidence of only slightly shorter total weekly hours (1 hour) in the voluntary than the private sectors.

OVERTIME EQUATIONS: CROSS-SECTIONAL DATA

	MALE				FEMALE			
	(1) Unpaid h_i^{uo}	(2) Paid h_i^{po}	(3) Total OT $h_i^{po} + h_i^{uo}$	(4) Total Hours $h_i^b + h_i^{po} + h_i^{uo}$	(1) Unpaid h_i^{uo}	(2) Paid h_i^{po}	(3) Total OT $h_i^{po} + h_i^{uo}$	(4) Total Hours $h_i^b + h_i^{po} + h_i^{uo}$
model								
Public Sector	-1.217 (0.557)**	-0.809 (0.612)	-1.602 (0.438)***	-2.097 (0.480)***	0.397 (0.165)**	-0.793 (0.215)***	-0.475 (0.148)***	-1.219 (0.173)***
Voluntary Sector	2.302 (0.658)***	-6.887 (0.840)***	-2.466 (0.548)***	-3.853 (0.600)***	2.770 (0.216)***	-3.280 (0.321)***	0.213 (0.206)	-0.976 (0.241)***
$\ln(w_i^*)$	17.58 (0.738)***	-12.30 (0.838)***	3.627 (0.560)***	4.733 (0.614)***	9.553 (0.271)***	-7.368 (0.370)***	1.555 (0.245)***	3.683 (0.287)***
Age (years)	0.214 (0.255)	1.200 (0.298)**	0.475 (0.201)**	1.439 (0.220)**	-0.131 (0.105)	1.270 (0.149)**	0.483 (0.0967)***	0.754 (0.113)**
Age ² /100	-69.67 (28.99)**	-100.6 (35.62)***	-49.25 (23.26)**	-152.9 (25.44)***	5.880 (12.56)	-165.0 (18.65)***	-58.73 (11.73)***	-106.0 (13.75)***
Tenure (years)	-0.333 (0.0651)***	0.239 (0.0811)**	-0.0556 (0.0542)	-0.0234 (0.0594)	-0.0890 (0.0234)***	-0.0148 (0.0333)	-0.0755 (0.0222)***	-0.0547 (0.0260)**
Tenure ² /100	0.691 (0.202)***	-0.491 (0.262)*	0.0722 (0.171)	-0.00552 (0.187)	0.137 (0.0765)*	0.213 (0.112)*	0.240 (0.0741)***	0.219 (0.0869)**
Part-Time Working	-1.536 (0.818)*	-1.422 (0.907)	-2.035 (0.627)***	-19.44 (0.682)***	-2.640 (0.139)***	-0.837 (0.190)***	-2.838 (0.128)***	-17.24 (0.150)***
Temp. Job	1.264 (0.702)*	2.714 (0.873)***	2.843 (0.603)***	4.579 (0.662)***	0.833 (0.302)***	-0.519 (0.467)	0.613 (0.298)**	0.581 (0.350)*
Constant	-41.34 (4.432)***	8.861 (4.866)*	-6.524 (3.354)*	13.88 (3.667)***	-18.05 (1.655)***	-2.986 (2.239)	-4.942 (1.480)***	24.80 (1.733)***
sigma								
Constant	8.227 (0.158)***	9.943 (0.195)***	7.681 (0.105)***	8.513 (0.109)***	5.672 (0.0555)***	8.098 (0.0807)***	6.008 (0.0421)***	7.157 (0.0454)***
N	3077	3077	3077	3077	12436	12436	12436	12436
AIC	12610.4	13485.5	19939.0	21986.5	45230.2	50781.9	72311.0	84318.6

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Models 1-4: Tobit if $h_i > 0 \rightarrow hours_i = \beta_0 + \beta_{PUB}PUB_i + \beta_{VOL}VOL_i + \beta_x X_i + \varepsilon_i$; if $h_i \leq 0 \rightarrow hours_i = 0$

Total OT = Unpaid OT + Paid OT; Total Hours = Basic Hours + Total OT; $\ln(w_i^*) = \beta_0 + \beta_z Z_i$

Additional control variables not listed in the table above include experience, marital status, number of children, organization size, region, year and quarter dummies.

Table 24: Overtime Equation Estimation Results

(Source: UK Labour Force Survey 1998 – 2007)

Although this indicates that there are higher levels of unpaid overtime in the voluntary sector, controlling for individual and organisational characteristics, it does not control for unobserved worker heterogeneity. Gregg et al (2011) showed evidence of worker selection into sector based on their propensity to undertake unpaid overtime. In order to address this we estimate hours equations in the panel. We estimate three different specifications: a fixed effects OLS regression, a random effects regression, and a random effects Tobit regression.

Model (a): Fixed Effects

$$hours_{it} = \alpha_i + \beta_{PUB}PUB_{it} + \beta_{VOL}VOL_{it} + \beta_x X_{it} + \varepsilon_{it} \quad (28)$$

Model (b): Random Effects

$$hours_{it} = \alpha_i + \beta_{PUB}PUB_{it} + \beta_{VOL}VOL_{it} + \beta_x X_{it} + \varepsilon_{it}; \alpha_i \sim IID(0, \sigma^2) \quad (29)$$

Model (c): Random Effects Tobit

$$\begin{aligned} \text{if } hours_{it} > 0 &\rightarrow hours_{it} = \alpha_i + \beta_{PUB}PUB_{it} + \beta_{VOL}VOL_{it} + \beta_x X_{it} + \varepsilon_{it} \\ \text{if } hours_{it} \leq 0 &\rightarrow hours_{it} = 0; \alpha_i \sim IID(0, \sigma^2) \end{aligned} \quad (30)$$

Model (a) is the simplest specification, but it does not account for the censoring of the hours variable at zero. Model (b) uses a random-effects specification, which assumes that individual effects are random factors independently drawn from an identical distribution across individuals. This model is more efficient under the assumption that X_{it} and α_i are uncorrelated. If this assumption is violated, then the correlation can lead to inconsistent estimators. This model also does not account for the censoring of the hours variable at zero.

The Hausman test provides a method for testing the assumption that X_{it} and α_i are uncorrelated in order to select between a fixed effects and random effects specification. Hausman tests were conducted for the four hours variables.²⁴ For all the estimations apart from Paid Overtime (Male) and Total Overtime (Male) the null hypothesis of no systematic

²⁴ Appendix Four contains the results of the Hausman tests.

difference in the estimates was rejected. This suggests that the random effects specification could be biased. We present the Random Effects estimates here for comparison with the other two models, but with due caution as to interpretation.

Model (c) adds the Tobit structure, but at the cost of also imposing a random effects structure to the individual effects. The Random Effects Tobit estimator is used as there is no straightforward estimator for a Fixed Effects Tobit model. Efficiency is increased by the addition of the Tobit structure, but at the cost of a potential inconsistency from the random effects specification.

The significant number of zeroes in the working hours data means that Model (c) is preferred on theoretical grounds, but the likely existence of a correlation between the errors and the explanatory variables mean that Model (a) is preferred on econometric grounds. All three models have been reported for comparison. Differences in the estimates from the three models are found mainly in magnitude and statistical significance, but not in the sign of the estimated effect. Omitting the Tobit structure of the data leads to an underestimation of the effect. Comparison of the three estimates in each case suggests that while the random effects structure might lead to an overestimation of the magnitude of the effects, controlling for the Tobit structure also has a significant effect.

The panel data sample results are shown in Table 25 and Table 28 below. Columns 1(a) to 4(a) show the fixed-effects hours equations for unpaid overtime, paid overtime, total overtime and total hours respectively. Columns 1(b) to 4(b) show the random-effects hours equations for unpaid overtime, paid overtime, total overtime and total hours respectively. Columns 1(c) to 4(c) show the random-effects tobit hours equations for unpaid overtime, paid overtime, total overtime and total hours respectively.

OVERTIME EQUATIONS: PANEL DATA FEMALE WORKERS

Hours Equations: xtobit : LFS Panel : Female

	(1a) FE Unpaid OT h_i^{uo}	1(b) RE Unpaid OT h_i^{uo}	(1c) RE Tobit Unpaid OT h_i^{uo}	(2a) FE Paid OT h_i^{po}	(2b) RE Paid OT h_i^{po}	(2c) RE Tobit Paid OT h_i^{po}
Public Sector	0.176 (0.337)	0.0284 (0.0886)	0.331 (0.167)**	-0.640 (0.397)	-0.283 (0.117)**	-0.672 (0.234)***
Voluntary Sector	0.574 (0.373)	1.122 (0.126)***	2.232 (0.222)***	0.0457 (0.439)	-1.229 (0.166)***	-3.612 (0.362)***
$\ln(w_i^*)$	0.660 (0.737)	3.238 (0.132)***	7.244 (0.249)***	0.596 (0.867)	-2.046 (0.176)***	-5.880 (0.382)***
Age ² /100	-0.382 (0.344)	0.0266 (0.00464)***	-0.0578 (0.0644)	-0.123 (0.405)	-0.0281 (0.00619)***	-0.230 (0.0913)**
Tenure (years)	0.0945 (0.0607)	-0.0000510 (0.0137)	-0.00503 (0.0245)	0.0197 (0.0714)	-0.00913 (0.0182)	-0.00393 (0.0380)
Tenure ² /100	-0.347 (0.234)	-0.0162 (0.0484)	-0.0398 (0.0859)	-0.147 (0.275)	-0.00853 (0.0644)	-0.0385 (0.138)
Part-Time Working	-0.755 (0.241)***	-1.414 (0.0696)***	-2.440 (0.128)***	-1.047 (0.284)***	-0.682 (0.0921)***	-0.527 (0.190)***
Temporary Job	-0.0419 (0.377)	0.0498 (0.166)	0.268 (0.286)	0.230 (0.444)	0.303 (0.217)	0.0657 (0.456)
Constant	-9.926 (30.99)	-3.376 (0.289)***	-14.68 (1.048)***	17.45 (36.46)	7.052 (0.383)***	8.343 (1.425)***
N	11596	11596	11596	11596	11596	11596
R^2	0.022	-	-	0.019	-	-
AIC	38319.2	59801.0	42117.8	42090.3	66026.6	43360.2

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Model (a): Fixed Effects $hours_{it} = \beta_0 + \alpha_i + \beta_{PUB}PUB_{it} + \beta_{VOL}VOL_{it} + \beta_x X_{it} + \varepsilon_{it}$

Model (b): Random Effects $hours_{it} = \beta_0 + \alpha_i + \beta_{PUB}PUB_{it} + \beta_{VOL}VOL_{it} + \beta_x X_{it} + \varepsilon_{it}; \alpha_i \sim IID(0, \sigma^2)$

Model (c): Random Effects Tobit if $hours_{it} > 0 \rightarrow hours_{it} = \beta_0 + \alpha_i + \beta_{PUB}PUB_{it} + \beta_{VOL}VOL_{it} + \beta_x X_{it} + \varepsilon_{it};$ if $hours_{it} \leq 0 \rightarrow hours_{it} = 0; \alpha_i \sim IID(0, \sigma^2)$

$\ln(w_i^*) = \beta_0 + \beta_z Z_i$

Additional control variables not listed in the table above include organisation size, region, and time dummies.

Table 25: Overtime Equations: Fixed Effects linear regression and Random Effect Tobit models

(Source: UK Labour Force Survey 1998 – 2002)

OVERTIME EQUATIONS: PANEL DATA FEMALE WORKERS

Hours Equations: xtobit : LFS Panel : Female

	(3a) FE Total Overtime $h_i^{po} + h_i^{uo}$	(3b) RE Total Overtime $h_i^{po} + h_i^{uo}$	(3c) RE Tobit Total Overtime $h_i^{po} + h_i^{uo}$	(4a) FE Total Hours $h_i^b + h_i^{po} + h_i^{uo}$	(4b) RE Total Hours $h_i^b + h_i^{po} + h_i^{uo}$	(4c) RE Tobit Total Hours $h_i^b + h_i^{po} + h_i^{uo}$
Public Sector	-0.465 (0.498)	-0.253 (0.133)*	-0.297 (0.155)*	-0.352 (0.585)	-0.243 (0.186)	-0.227 (0.186)
Voluntary Sector	0.620 (0.551)	-0.133 (0.190)	-0.149 (0.220)	0.945 (0.647)	-0.525 (0.263)**	-0.494 (0.263)*
$\ln(w_i^*)$	1.256 (1.089)	1.183 (0.199)***	1.822 (0.238)***	1.373 (1.280)	2.646 (0.279)***	2.749 (0.287)***
Age ² /100	-0.505 (0.509)	-0.00125 (0.00697)	-0.102 (0.0595)*	-0.194 (0.598)	-0.00697 (0.00981)	0.191 (0.0717)***
Tenure (years)	0.114 (0.0896)	-0.00949 (0.0206)	-0.0245 (0.0240)	0.132 (0.105)	0.0162 (0.0288)	0.0268 (0.0288)
Tenure ² /100	-0.494 (0.346)	-0.0235 (0.0728)	0.0105 (0.0852)	-0.639 (0.406)	-0.0593 (0.102)	-0.0992 (0.103)
Part-Time Working	-1.802 (0.357)***	-2.089 (0.105)***	-2.403 (0.123)***	-9.956 (0.419)***	-17.00 (0.148)***	-16.92 (0.150)***
Temporary Job	0.188 (0.557)	0.383 (0.250)	0.450 (0.288)	-0.282 (0.655)	-0.275 (0.343)	-0.258 (0.341)
Constant	7.525 (45.79)	3.657 (0.435)***	0.807 (0.939)	75.93 (53.81)	35.68 (0.607)***	38.58 (1.132)***
<i>N</i>	11596	11596	11596	11596	11596	11596
<i>R</i> ²	0.036	-	-	0.185	-	-
<i>AIC</i>	47374.2	69355.8	64441.7	51119.0	76616.4	76500.0

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Model (a): Fixed Effects $hours_{it} = \beta_0 + \alpha_i + \beta_{PUB}PUB_{it} + \beta_{VOL}VOL_{it} + \beta_x X_{it} + \varepsilon_{it}$

Model (b): Random Effects $hours_{it} = \beta_0 + \alpha_i + \beta_{PUB}PUB_{it} + \beta_{VOL}VOL_{it} + \beta_x X_{it} + \varepsilon_{it}; \alpha_i \sim IID(0, \sigma^2)$

Model (c): Random Effects Tobit if $hours_{it} > 0 \rightarrow hours_{it} = \beta_0 + \alpha_i + \beta_{PUB}PUB_{it} + \beta_{VOL}VOL_{it} + \beta_x X_{it} + \varepsilon_{it}$; if $hours_{it} \leq 0 \rightarrow hours_{it} = 0; \alpha_i \sim IID(0, \sigma^2)$

Total OT = Unpaid OT + Paid OT; Total Hours = Basic Hours + Total OT; $\ln(w_i^*) = \beta_0 + \beta_z Z_i$

Additional control variables not listed in the table above include organisation size, region, and time dummies.

Table 26: Overtime Equations: Fixed Effects linear regression and Random Effect Tobit models

(Source: UK Labour Force Survey 1998 – 2002)

OVERTIME EQUATIONS: PANEL DATA MALE WORKERS

	(1a) FE Unpaid OT h_i^{uo}	(1b) RE Unpaid OT h_i^{uo}	(1c) RE Tobit Unpaid OT h_i^{uo}	(2a) FE Paid OT h_i^{po}	(2b) RE Paid OT h_i^{po}	(2c) RE Tobit Paid OT h_i^{po}
Public Sector	0.642 (0.814)	-0.625 (0.332)*	-0.560 (0.583)	-1.249 (1.093)	0.654 (0.391)*	1.596 (0.761)**
Voluntary Sector	0.301 (0.863)	1.022 (0.421)**	2.919 (0.701)***	-0.883 (1.158)	-2.031 (0.497)***	-5.997 (1.069)***
$\ln(w_i^*)$	1.770 (1.494)	6.810 (0.376)***	13.52 (0.685)***	0.755 (2.005)	-2.420 (0.436)***	-9.256 (0.944)***
Age ² /100	-0.211 (0.799)	0.0244 (0.0144)*	-0.237 (0.197)	0.703 (1.072)	-0.0979 (0.0166)***	-0.326 (0.241)
Tenure (years)	-0.0129 (0.160)	-0.0784 (0.0429)*	-0.172 (0.0739)**	0.0769 (0.215)	-0.0648 (0.0498)	-0.135 (0.101)
Tenure ² /100	0.0743 (0.507)	0.134 (0.142)	0.334 (0.242)	-0.481 (0.680)	0.232 (0.165)	0.607 (0.336)*
Part-Time	-1.942 (1.082)*	-0.655 (0.429)	-1.876 (0.798)**	-0.962 (1.452)	-1.259 (0.503)**	-2.122 (0.999)**
Temporary Job	-0.202 (0.754)	0.105 (0.420)	0.845 (0.698)	1.999 (1.012)**	2.950 (0.500)***	3.683 (0.970)***
Constant	66.38 (73.15)	-9.933 (0.931)***	-31.31 (3.518)***	-35.05 (98.18)	9.962 (1.086)***	16.89 (4.035)***
N	2875	2875	2875	2875	2875	2875
R^2	0.054	-	-	0.024	-	-
AIC	11002.8	17406.3	12108.1	12695.0	18401.9	11801.1

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Model (a): Fixed Effects $hours_{it} = \beta_0 + \alpha_i + \beta_{PUB}PUB_{it} + \beta_{VOL}VOL_{it} + \beta_x X_{it} + \varepsilon_{it}$

Model (b): Random Effects $hours_{it} = \beta_0 + \alpha_i + \beta_{PUB}PUB_{it} + \beta_{VOL}VOL_{it} + \beta_x X_{it} + \varepsilon_{it}; \alpha_i \sim IID(0, \sigma^2)$

Model (c): Random Effects Tobit if $hours_{it} > 0 \rightarrow hours_{it} = \beta_0 + \alpha_i + \beta_{PUB}PUB_{it} + \beta_{VOL}VOL_{it} + \beta_x X_{it} + \varepsilon_{it}$; if $hours_{it} \leq 0 \rightarrow hours_{it} = 0; \alpha_i \sim IID(0, \sigma^2)$

$\ln(w_i^*) = \beta_0 + \beta_z Z_i$

Additional control variables not listed in the table above include organisation size, region, and time dummies.

Table 27: Overtime Equations: Fixed Effects linear regression and Random Effect Tobit models

(Source: UK Labour Force Survey 1998 – 2002)

OVERTIME EQUATIONS: PANEL DATA MALE WORKERS

	(3a) FE Total Overtime $h_i^{po} + h_i^{uo}$	(3b) RE Total Overtime $h_i^{po} + h_i^{uo}$	(3c) RE Tobit Total Overtime $h_i^{po} + h_i^{uo}$	(4a) FE Total Hours $h_i^b + h_i^{po} + h_i^{uo}$	(4b) RE Total Hours $h_i^b + h_i^{po} + h_i^{uo}$	(4c) RE Tobit Total Hours $h_i^b + h_i^{po} + h_i^{uo}$
Public Sector	-0.607 (1.279)	0.0114 (0.458)	0.269 (0.506)	-1.321 (1.302)	-0.356 (0.531)	-0.392 (0.527)
Voluntary Sector	-0.582 (1.356)	-1.022 (0.583)*	-0.843 (0.644)	-1.056 (1.381)	-2.309 (0.671)***	-2.376 (0.667)***
$\ln(w_i^*)$	2.525 (2.348)	4.451 (0.509)***	5.168 (0.586)***	3.284 (2.391)	6.471 (0.601)***	6.510 (0.624)***
Age ² /100	0.492 (1.255)	-0.0741 (0.0193)***	-0.0378 (0.159)	0.628 (1.278)	-0.0992 (0.0230)***	-0.136 (0.168)
Tenure (years)	0.0640 (0.252)	-0.144 (0.0582)**	-0.165 (0.0652)**	-0.120 (0.256)	-0.132 (0.0686)*	-0.138 (0.0692)**
Tenure ² /100	-0.407 (0.797)	0.369 (0.192)*	0.424 (0.215)**	-0.0476 (0.811)	0.300 (0.227)	0.316 (0.228)
Part-Time	-2.904 (1.700)*	-1.904 (0.589)***	-2.222 (0.658)***	-9.636 (1.731)***	-17.88 (0.689)***	-17.86 (0.685)***
Temporary Job	1.798 (1.185)	3.075 (0.587)***	3.028 (0.647)***	2.664 (1.206)**	4.664 (0.671)***	4.582 (0.667)***
Constant	31.33 (114.9)	-0.0502 (1.269)	-1.164 (2.705)	23.61 (117.0)	33.92 (1.487)***	33.28 (2.864)***
<i>N</i>	2875	2875	2875	2875	2875	2875
<i>R</i> ²	0.030	-	-	0.077	-	-
<i>AIC</i>	13601.6	19325.0	18302.1	13705.3	20091.0	20046.6

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Model (a): Fixed Effects $hours_{it} = \beta_0 + \alpha_i + \beta_{PUB}PUB_{it} + \beta_{VOL}VOL_{it} + \beta_x X_{it} + \varepsilon_{it}$

Model (b): Random Effects $hours_{it} = \beta_0 + \alpha_i + \beta_{PUB}PUB_{it} + \beta_{VOL}VOL_{it} + \beta_x X_{it} + \varepsilon_{it}; \alpha_i \sim IID(0, \sigma^2)$

Model (c): Random Effects Tobit if $hours_{it} > 0 \rightarrow hours_{it} = \beta_0 + \alpha_i + \beta_{PUB}PUB_{it} + \beta_{VOL}VOL_{it} + \beta_x X_{it} + \varepsilon_{it}$; if $hours_{it} \leq 0 \rightarrow hours_{it} = 0; \alpha_i \sim IID(0, \sigma^2)$

Total OT = Unpaid OT + Paid OT; Total Hours = Basic Hours + Total OT; $\ln(w_i^*) = \beta_0 + \beta_z Z_i$

Additional control variables not listed in the table above include organisation size, region, and time dummies.

Table 28: Overtime Equations: Fixed Effects linear regression and Random Effect Tobit models

(Source: UK Labour Force Survey 1998 – 2002)

All three models find that female voluntary sector workers work more hours of unpaid overtime, although the fixed effects model is not significant. The difference between the fixed effects and the random effects model is about 0.5 hours, while the Tobit estimate is 2.2 hours of extra unpaid overtime per week. This is in-line with the cross-section estimates. The Tobit model also finds significantly lower levels of paid overtime (-3.6 hours) in the voluntary sector, with no significant difference in total overtime and only a small difference in total working hours (-0.5 hours).

The results for male voluntary sector workers are broadly similar, but with bigger estimated differences between the private and voluntary sectors. The fixed effects estimate for unpaid overtime is not significant (0.3 hours), while the random effects (1.0 hour) and Tobit models (2.9 hours) show significantly higher levels of overtime in the voluntary sector. The fixed effects estimate for paid overtime is negative but not significant (-0.9 hours), while the random effects (-2.0 hours) and Tobit models (-6.0 hours) show significantly fewer hours of paid overtime. Male voluntary sector workers also work a significant two hours fewer per week than those in the private sector. This is also in line with the estimates from the cross-sectional model.

Unlike Gregg et al (2011), who examined the extensive margin and reported finding no difference in unpaid overtime between public and voluntary sectors, our results suggest that there are significant differences amongst all three sectors at the intensive margin in cross-section, with workers in the voluntary sector working the greatest number of hours of unpaid overtime.

These results appear to support a donated labour theory – workers in the voluntary sector are providing additional hours of work unpaid, compared to those in the private sector. However, the results are less clear after controlling for unobserved

worker heterogeneity. Although the random effects model specifications (b) and (c) show higher levels of unpaid overtime in the voluntary sector, the estimated sector differences in the fixed effects model (a) are not significant. This means that we cannot rule out that the sector differences in cross-section are the result of selection of motivated workers into the voluntary sector. These results are in line with Gregg et al (2011), who found evidence of selection into the nonprofit sector by workers with a higher propensity for working unpaid overtime.

As has been described, the literature on unpaid overtime offers an alternative explanation to donated labour. Workers can use additional hours of unpaid work to adjust rigid wage contracts. Workers need only care about the number of hours they work, and the total that they get paid, and not about exactly how this is recorded. A contract with a low wage and fixed hours could be equivalent to a contract with a higher wage, but where additional hours unpaid are an implicit part of the contract. As mean wages for voluntary sector workers in the HSW industries are higher than the private sector, this could in part be explained by the additional hours worked unpaid. We now consider whether there is still a sector difference after accounting for these additional hours.

This can be tested by calculating an “Adjusted” hourly wage for each worker based on the wage per actual hour worked. Calculating this wage for each worker and then using it as the dependent variable in the wage equations will provide a test for the presence of a “warm glow” through additional unpaid hours. We would expect a drop in the estimated sector premium if these hours are unrewarded through basic pay.

Estimating the Wage Equations

In Figure 15 below the mean hourly wages can be seen by sector over the sample period.

Within the HSW industries the public sector wages are the highest, followed by the voluntary sector, and with wages lowest in the private sector. There appears to be a significant gap between the private sector wages and the other two sectors, while the public and voluntary sector wages seem broadly similar.

Although this does not take account of differences in individuals' characteristics, such as age, education and experience, this suggests that there could be a voluntary sector premium paid to workers in this sector when compared to the private sector.

We also test the robustness of the findings after controlling for unobserved worker heterogeneity by estimating a model using the limited panel structure of the LFS. This allows us to control for potential bias arising from worker selection between sectors.

The adjusted hourly wage, taking account of unpaid overtime, is calculated as follows:

$$w_i^a = \frac{w_i^h h_i^b + \pi w_i^h h_i^{po}}{(h_i^b + h_i^{po} + h_i^{uo})} \quad (31)$$

Where w_i^a is the Adjusted Hourly Wage for worker i , w_i^h is the contracted hourly wage, h_i^b is the contracted basic hours per week, h_i^{po} is the number of hours of paid overtime, h_i^{uo} is the number of hours unpaid overtime, and π is the premium paid for overtime working.

MEAN WAGES 1998 TO 2007 BY SECTOR

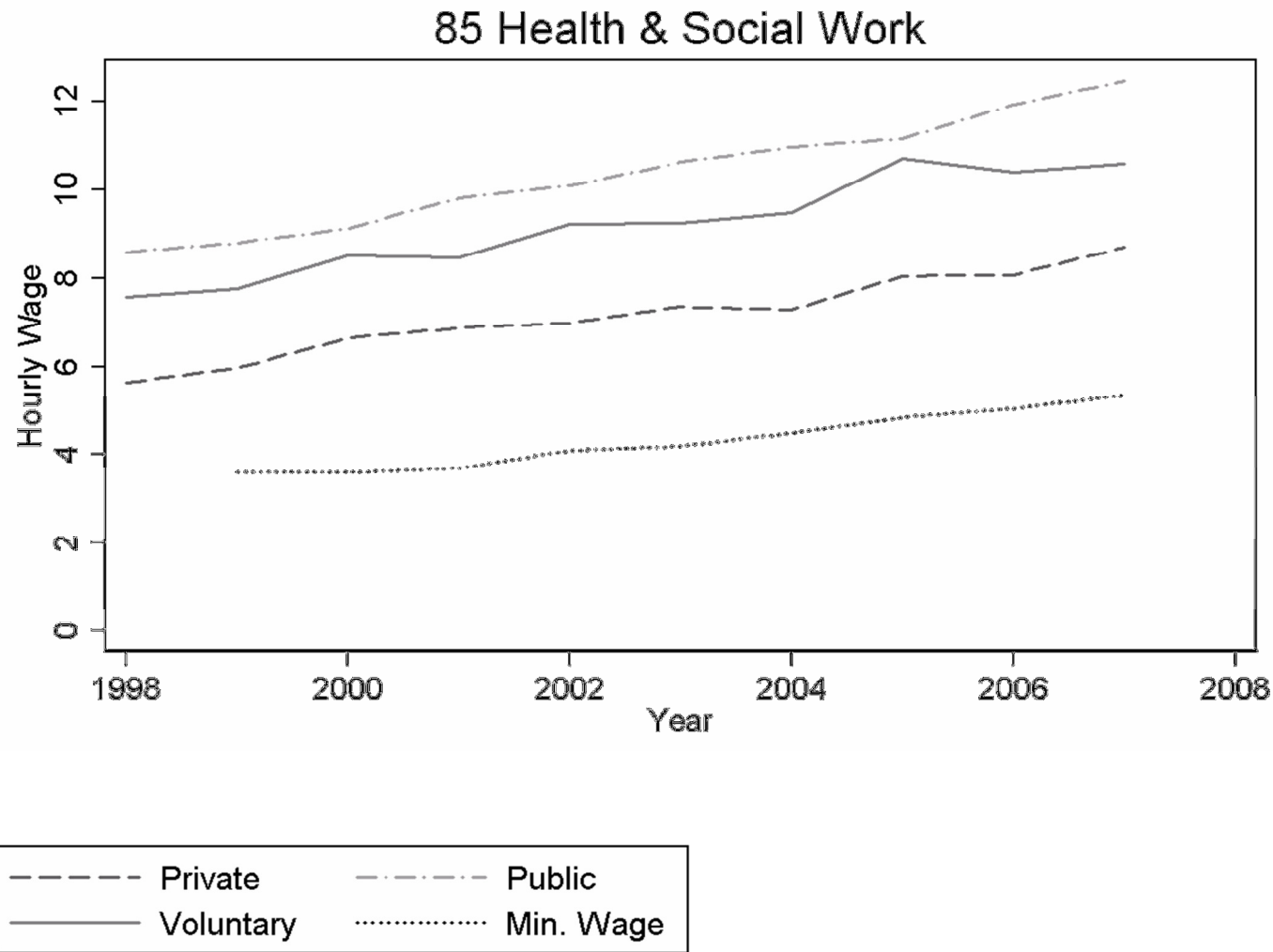


Figure 15: Average Gross Hourly Pay by Sector & Industry between 1998 – 2007
(Source: UK Quarterly Labour Force Survey 1998 – 2007)

As the Labour Force Survey does not provide data on wages for paid overtime an average premium of $\pi=1.28$ was used as per the findings of Bell and Hart (2003) from the British New Earnings Survey.²⁵

The adjusted wage was calculated, and the wage equations estimated. The effect of the additional unpaid overtime was estimated using standard Mincer Wage Equations (see (Heckman, Lochner, & Todd, 2006) for a review). Separate equations were estimated for male and female workers, regressing log hourly pay on a range of explanatory variables with sector dummies for the public and voluntary sectors.

The first model is estimated using the pooled cross-section:

$$\ln(w_i^h) = \beta_0 + \beta_{PUB}PUB_i + \beta_{VOL}VOL_i + \beta_x X_i + \varepsilon_i \quad (32)$$

The wage equation coefficient estimates for the Male and Female workers in the pooled cross-section are shown in Table 29. The first and third columns show the wage equations with the log of the basic hourly wage as the dependent variable. The second and third columns show the wage equations with the log of the adjusted wage as the dependent variable. Coefficients for public sector, voluntary sector, age, experience, tenure, and job status are reported. Also included in the regressions, but not reported in the table, are education, occupation, organisation size, region and year and quarter dummy variables.

In the basic wage equation specification (models 1 and 3) significant wage premiums are found for male and female workers in both the public and voluntary sectors. Estimating the adjusted wage equations (models 2 and 4) reduces the wage premium

²⁵ The robustness of this assumption has been tested by estimating all specifications of the model with values of $\pi=\{1, 1.5, 2\}$. The sign, magnitude and statistical significance of the voluntary sector effects were unchanged.

for male and female workers in the voluntary sector, but has no significant effect on wage premiums in the public sector.

The second model is estimated using a fixed effects model in the panel dataset:

$$\ln(w_{it}^h) = \beta_0 + \alpha_i + \beta_{PUB}PUB_{it} + \beta_{VOL}VOL_{it} + \beta_x X_{it} + \varepsilon_{it} \quad (33)$$

Table 30 shows the estimates from the fixed effects wage equations on the panel dataset. As before, columns one and three contain the wage equations for the basic hourly wage, while columns two and four contain the adjusted hourly wage equations. Coefficients for public sector, voluntary sector, age, experience, tenure, job status and organisation size are reported. Also included in the regressions, but not reported in the table, are region and year and quarter dummy variables.

The basic model estimation (columns 1 and 3) with individual fixed effects removes the public and voluntary sector wage premiums found in the pooled cross-section, suggesting that these are due to unobserved worker heterogeneity.

Estimating the adjusted wage model (columns 2 and 4), to control for overtime working, now leaves the male voluntary sector wage difference unchanged. However, female workers have significantly lower effective wages in the voluntary sector than the private sector. No significant differences between effective wages in the private and public sectors are found for either male or female workers.

WAGE EQUATIONS: POOLED CROSS-SECTION

	MALE		FEMALE	
	(1) Basic Wage	(2) Adjusted Wage	(3) Basic Wage	(4) Adjusted Wage
Public Sector	0.139 (0.0193) ^{***}	0.144 (0.0184) ^{***}	0.147 (0.00739) ^{***}	0.140 (0.00720) ^{***}
Voluntary Sector	0.0534 (0.0240) ^{**}	0.0121 (0.0229)	0.0861 (0.0102) ^{***}	0.0382 (0.00995) ^{***}
Age (years)	-0.000428 (0.00892)	0.00469 (0.00854)	0.0187 (0.00479) ^{***}	0.0239 (0.00467) ^{***}
Age ² /100	3.507 (1.025) ^{***}	2.608 (0.981) ^{***}	0.701 (0.584)	-0.269 (0.569)
Experience (years)	0.0109 (0.00451) ^{**}	0.00825 (0.00431) [*]	-0.00149 (0.00247)	-0.00498 (0.00241) ^{**}
Experience ² /100	-7.131 (0.839) ^{***}	-6.401 (0.803) ^{***}	-4.072 (0.499) ^{***}	-2.959 (0.486) ^{***}
Tenure (years)	0.0145 (0.00232) ^{***}	0.0149 (0.00222) ^{***}	0.0160 (0.00106) ^{***}	0.0148 (0.00103) ^{***}
Tenure ² /100	-0.0291 (0.00743) ^{***}	-0.0302 (0.00711) ^{***}	-0.0301 (0.00363) ^{***}	-0.0280 (0.00354) ^{***}
Part-Time Working	-0.0893 (0.0270) ^{***}	-0.0878 (0.0259) ^{***}	-0.0255 (0.00590) ^{***}	-0.00942 (0.00575)
Temporary Job	-0.0907 (0.0264) ^{***}	-0.0814 (0.0253) ^{***}	-0.00316 (0.0147)	-0.0180 (0.0144)
Constant	1.613 (0.155) ^{***}	1.546 (0.148) ^{***}	1.231 (0.0760) ^{***}	1.166 (0.0741) ^{***}
<i>N</i>	3077	3077	12436	12436
<i>R</i> ²	0.629	0.582	0.615	0.577
<i>AIC</i>	2100.8	1830.8	5474.1	4842.5

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

$$\text{Model 1,3: } \ln(w_i^h) = \beta_0 + \beta_{PUB}PUB_i + \beta_{VOL}VOL_i + \beta_x X_i + \varepsilon_i$$

$$\text{Model 2,4: } \ln(w_i^a) = \beta_0 + \beta_{PUB}PUB_i + \beta_{VOL}VOL_i + \beta_x X_i + \varepsilon_i$$

(Additional control variables not listed in the table above include Education, Occupation, Organisation Size, Region, and Time Dummies.)

Table 29: Estimated Sector Wage Differences

(Source: UK Labour Force Survey 1998 – 2007)

WAGE EQUATIONS: FIXED EFFECTS MODEL

	(1)	(2)	(3)	(4)
	Male: Basic	Male: Adj	Female: Basic	Female: Adj
Public Sector	0.00880 (0.0468)	-0.0172 (0.0476)	0.0201 (0.0253)	0.00805 (0.0258)
Voluntary Sector	-0.0290 (0.0478)	-0.0304 (0.0486)	-0.0381 (0.0273)	-0.0664 (0.0279)**
Age ² /100	0.0348 (0.0110)***	0.0498 (0.0112)***	0.0590 (0.00599)***	0.0649 (0.00611)***
Tenure (Years)	0.0310 (0.00909)***	0.0274 (0.00924)***	0.00587 (0.00436)	0.00352 (0.00445)
Tenure ² /100	-0.0892 (0.0290)***	-0.0833 (0.0294)***	-0.0187 (0.0172)	-0.0129 (0.0176)
Part-Time Working	0.0465 (0.0604)	0.0784 (0.0614)	0.0828 (0.0175)***	0.0820 (0.0179)***
Temporary Job	-0.117 (0.0433)***	-0.0977 (0.0441)**	0.0215 (0.0282)	0.0107 (0.0288)
OrgSize: 1-10	<i>Reference</i>	<i>category</i>		
OrgSize: 11-24	-0.0174 (0.0422)	-0.0306 (0.0429)	0.000623 (0.0218)	0.00388 (0.0222)
OrgSize: 25-49	-0.0121 (0.0498)	-0.0364 (0.0507)	-0.0293 (0.0252)	-0.0198 (0.0257)
OrgSize: 50+	0.0326 (0.0467)	-0.00861 (0.0475)	-0.0179 (0.0241)	-0.00748 (0.0246)
Constant	1.553 (0.220)***	1.225 (0.223)***	1.011 (0.120)***	0.895 (0.123)***
<i>N</i>	2875	2875	11596	11595
<i>R</i> ²	0.056	0.060	0.048	0.054
<i>AIC</i>	-5360.1	-5263.9	-21682.4	-21205.4

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

$$\text{Model 1,3: } \ln(w_{it}^h) = \beta_0 + \alpha_i + \beta_{PUB}PUB_{it} + \beta_{VOL}VOL_{it} + \beta_x X_{it} + \varepsilon_{it}$$

$$\text{Model 2,4: } \ln(w_{it}^a) = \beta_i + \alpha_i + \beta_{PUB}PUB_{it} + \beta_{VOL}VOL_{it} + \beta_x X_{it} + \varepsilon_{it}$$

(Additional control variables not listed in the table above include Region and Time dummies.)

Table 30: Fixed Effects Wage Equations

(Source: UK Labour Force Survey 1997 – 2002)

A comparison of the wage premiums from the Basic Wage and Adjusted Wage models for male workers is shown in Table 31. The sector coefficients β_{VOLs} and β_{PUB} have been converted from log coefficients to percentages using the equation below as per Halvorsen and Palmqvist (1980).

$$\beta_{VOLs}^{percent} = e^{\beta_{VOLs}} - 1 \quad (34)$$

The first two columns for each sector show the estimated percentage sector wage differences from the wage equations. The third column for each sector shows the difference between these estimates.

MODEL	Public			Voluntary		
	Basic	Adjusted	Difference	Basic	Adjusted	Difference
Female XS	15.8%	15.0%	-0.8%	9.0%	3.9%	-5.1%
Female Panel	1.9%	0.6%	-1.3%	-3.6%	-6.4%	-2.8%
Male XS	14.9%	15.5%	0.6%	5.5%	1.2%	-4.3%
Male Panel	-0.1%	-2.8%	-2.7%	-3.0%	-3.4%	-0.4%

Table 31: Differences in Sector Premiums
(Source: UK Labour Force Survey 1997 – 2007)

For female workers, both models suggest that controlling for hours of overtime has a significant effect on the sector wage differentials. Controlling for individual unobserved heterogeneity accounts for the voluntary sector wage premium, but the addition of overtime then leads to the estimation of a voluntary sector wage discount of around 6%.

Although controlling for overtime reduces the voluntary sector wage premium for male workers in the pooled cross-section model, in the fixed effects model we find no effect from overtime hours on the sector wage differential.

Tests of Robustness

We now outline a range of robustness tests carried out for these results. One concern in this analysis is whether we have adequately controlled for unobserved job heterogeneity. If there are still significant unobserved differences in the jobs that workers are employed in between the sectors then this could account for some or all of the sector differences. To tackle this we have repeated the cross-sectional estimations for two more detailed sub-industry classifications: Social Work²⁶, and Social Work with Accommodation.²⁷ Although the sample size is small at the most detailed industry level, the results were robust in both sign and significance. The sample size at this level was too small to permit panel estimation.

The second concern is the role of part-time working, as this is prevalent in the voluntary sector, and affects the number of contracted hours. The model was re-estimated using only those workers who are on full time contracts, restricting the panel sample to 2,668 male observations and 6,537 female observations. This has no effect on the sign or significance of the estimated effects. Furthermore, it increases the estimated voluntary sector wage discount to 10% below the private sector wage for female workers. The increased warm-glow estimate also supports the formulation of warm-glow utility as being related to effort rather than merely participation: the size of this effect is bigger for workers working longer hours in the mission-motivated organisation.

The one-year panel structure of the UK LFS is too short to be able to test for sector differences in future job rewards resulting from overtime. The fixed effects wage equations were estimated interacting tenure with the sector dummies, to test for

²⁶ SIC Code 85.3, A sub-category of Health & Social Work

²⁷ SIC Code 85.31, a sub-category of Social Work

sector differences in the returns to tenure, and these coefficients were small and not statistically significant. This does not lend support to a link between sector differences in unpaid overtime and later within-firm rewards.

Overall, these findings suggest that there are differences in levels of unpaid overtime between the sectors. Furthermore, for female workers the hours of unpaid overtime support a warm-glow donated labour hypothesis, where additional hours are worked without pay. The same is not true however for male workers. Although there are also significant levels of unpaid overtime in the voluntary sector, controlling for these hours does not affect the sector difference in effective hourly wage.

Discussion

This chapter has examined working hours and wage data from the UK Labour Force Survey disaggregated by Industry to examine sector differentials within Health and Social Work services, where the majority of voluntary sector workers are employed. The empirical analysis found strong evidence of higher levels of unpaid overtime amongst voluntary sector workers, for both males and females. The basic hours wage equations showed a public and voluntary sector premium for both male and female workers. This is broadly in line with the findings of Leete (2001) using US data. Controlling for unobserved individual heterogeneity with a fixed effects model accounts for the public and voluntary sector wage premiums.

The findings of this chapter make two main contributions:

- The apparent nonprofit sector wage premiums in health & social work industries are largely explained by unobserved worker heterogeneity;

- There are significant differences in overtime working between the sectors, and this has an effect on sector wage differences, providing evidence of warm glow for female workers.

Previous analysis of nonprofit wage differentials using cross-sectional data has shown a variety of wage effects dependent on industry. The caring industries are consistently found to have wage premiums in the voluntary and public sectors, compared to the private sector. The analysis here shows that this can be explained through controlling for unobserved worker heterogeneity, as marginal workers switching sector accept lower wages within voluntary organisations.

Our analysis of working hours and overtime in cross-section supports the assertion that workers in the voluntary sector work higher levels of overtime unpaid, while those in the private sector work more paid overtime. Our analysis of the sector switchers in the panel suggests that this difference is driven largely by selection of workers into the voluntary sector. Two alternative explanations for this were suggested. The first – the warm-glow hypothesis – draws on the nonprofit literature to explain higher levels of unpaid overtime in the voluntary sector as being rewarded through intrinsic utility received from participation in a mission-motivated activity. Therefore workers are compensated for their ‘unpaid’ efforts through warm-glow utility.

The second – the gift-exchange hypothesis – comes from the unpaid overtime literature and Akerlof’s gift-exchange model, suggesting that higher basic wages in the voluntary sector compensate for the unpaid overtime. This overtime is not explicitly contracted for, but forms part of the wage bargain and is enforced through organisational norms. This explanation does not require any difference in the

intrinsic motivation of workers between sectors. Instead it relies on different types of employment contract being written between the sectors to explain both the differences in overtime patterns and basic wages.

Our findings for female workers support the warm-glow hypothesis. The higher voluntary sector wages for women are explained by controlling for unobserved heterogeneity in the fixed-effects model. As most workers in the voluntary sector are female, and the majority work in the health & social work industries, this finding would explain why little evidence of female sector wage discounts is found in studies of nonprofit wage differentials in the wider economy. Both unobserved worker heterogeneity and unpaid overtime must be controlled for in order to examine sector differences in effective hourly wages. Adjusting wages for unpaid overtime leads to a significant voluntary sector wage discount for women – evidence of donated labour. This means that the female workers engaged in hours of unpaid overtime are not paid a higher basic wage, and so adjusting wages for the unpaid hours reveals the donated labour in a lower effective hourly wage. We therefore reject the gift-exchange hypothesis of higher basic compensation for unpaid overtime.

For male workers the evidence is less clear. Although controlling for unpaid overtime has an impact on the size of the voluntary sector wage premium in the cross-sectional model, there are no significant sector wage differences after controlling for unobserved heterogeneity even when unpaid overtime is controlled for. The analysis of sector differences in unpaid overtime showed that men in the voluntary sector provided similar levels of unpaid overtime hours to women.

An explanation for this finding is that there could be sorting by gender into job types along characteristics that are not observed in the data. If prosocial motivation were

related to the proximity of the job to the service user even within a nonprofit (e.g. face-to-face caring versus managing the office) then unobserved sorting into jobs by gender would explain the difference. As with other industries men are disproportionately found in management roles, while the front-line care staff are more likely to be female. This gender difference could then reflect differences in the wage contracts written for management versus service workers. Pannenberg (2005) also found gender differences in the compensation of unpaid overtime, with only male workers reaping the long-run benefits of unpaid overtime. Those findings support the assertion that male and female workers have different motives for undertaking unpaid overtime.

The gift exchange hypothesis would allow norms for unpaid overtime to be established within nonprofits, compensated through higher basic pay, to explain the levels of voluntary sector unpaid overtime observed even amongst male workers. While these differences might in part be captured by occupational differences, the low resolution of occupational categories, relatively small sample size, and small number of workers switching occupational category with the period of a year, would make this unobserved job heterogeneity difficult to control for. As such this remains a subject for further research, ideally using data from within organisations.

This chapter provides some evidence for warm glow in the voluntary sector. In particular, it shows the presence of warm glow amongst female workers, a finding absent in many other studies. It also shows the role that unpaid overtime can play in effective wage differences. This highlights the importance of effort as a largely unobserved variable in usual analysis of wage differentials. Hours of unpaid

overtime provide one proxy measure for effort, but more detailed study at the micro-level would be necessary to unpick this relationship.

There is a limit to the extent that we can test hypotheses about wage contracts when we only observe data at the individual worker level. We suggest that there is evidence here of a difference in wage contracts by sector, but further exploration would require the analysis of a matched employer-employee database to capture accurately differences at the organisational level. This is the challenge for voluntary sector research: gathering this level of detailed data on a relatively small sector is not a trivial task. However, the recent growth of the sector, and its increasing role in the provision of public services make it all the more important that these research questions are addressed.

CHAPTER SIX

In Conclusion: Warm Glow and the Voluntary Sector

Introduction

This dissertation has explored employment in the voluntary sector in the UK, and how it has changed in the past ten years. We have outlined the theories of warm-glow wage-setting, and tested these empirically through an analysis of wage differentials and working hours between the private, public and voluntary sectors.

In this final chapter we summarise the key findings from this research, and identify their implications for public policy. In particular, we discuss what they can tell us about the policy of contracting-out public services to the voluntary sector, and the implications for the future of public service reform.

Key Findings

The exploration of the previous chapters has identified a number of research findings. These are:

- The main economic theories of voluntary sector wage-setting rely on some formulation of ‘warm-glow’ utility or intrinsic motivation derived from working for an organisation with a mission shared by motivated employees. This leads to a prediction of lower wages in the voluntary sector;

- The empirical findings in the existing literature have focussed on US data, and the results have been mixed. There are a number of issues with these studies; in particular low sample size and unobserved heterogeneity;
- There is significant movement of workers into and out of the voluntary sector. There is some evidence that the characteristics of these switchers have changed over time: particularly, they are increasingly likely to work in professional occupations and in the health & social work industries;
- Using pooled cross-sectional and panel datasets, we show that there is some evidence of warm-glow wage discounts in the sector for male workers, but these wage differences have been eroded as the sector has grown;
- Although there is not a significant sector wage difference found for women, there is evidence that they have also experienced faster wage growth in the voluntary sector than the private;
- There are significant gender differences in wages between workers in the voluntary sector;
- There are significant sector differences in working hours within the Health & Social Work industries, particularly in overtime working. Workers in the voluntary sector work more hours of unpaid overtime, whilst those in the private sector work more hours of paid overtime;

- Controlling for unpaid overtime has a significant effect on sector wage differentials. In particular, accounting for unpaid overtime results in evidence of a warm-glow wage discount for female workers;

Implications for Contracting-Out Public Services

As we have shown, the levels of public services contracted out to the voluntary sector have grown dramatically over the period studied. Over this time, and as a result of this policy, the sector has also experienced dramatic change. There are a number of implications of these changes for the success of contracting-out.

As discussed, one of the potential benefits of contracting-out was to be efficiency savings. These were due to come, at least in part, from the lower costs of voluntary organisations in a competitive market. We have shown that the result has instead been the faster growth of voluntary sector wages, bringing them above the private sector wage level and closer to the public sector wage level. For many workers in low-paid jobs within the sector this will be a welcome boost. But it has also come at a cost, as jobs are offered on shorter-term contracts, and there is greater uncertainty about job security.

The second rationale for contracting out is the credible provision of quality that is difficult to measure, in the face of information asymmetries between purchaser and provider. For many of the contracted-out services this is a particular problem. There is often a physical separation between the provider (a voluntary organisations), the purchaser (a government body), and the recipient (a member of the public). This creates the potential for market failure if the quality to be provided cannot be contracted over. This problem is aggravated where the recipients of the service are themselves vulnerable, and so may be represented by a fourth party such as their

family. In addition, some purchases may be costly to reverse, for example the decision to move into a residential care home, or may take significant time for the quality to be revealed, such as health care.

The mission-motivation of voluntary organisations, combined with the non-distribution of profits constraint are seen as necessary ingredients for voluntary organisations to be able to credibly provide this unobservable quality. However, this in turn creates a similar moral hazard problem within the voluntary organisation, as it must then employ a staff that also shares this mission. The warm-glow wage discount, where voluntary sector employees receive part of their compensation in utility, is one way to address this and help ensure that the organisation engages motivated workers. As we have seen in Chapter Four however, the rapid expansion of the sector has inflated voluntary sector wages, and reduced the effectiveness of this sorting mechanism. In line with the theory, we would now expect that the average level of mission-motivation in the sector is lower, as a greater number of workers with lower mission motivation have been recruited. Of course, the original high-motivation workers will still choose voluntary sector employment, and remain within the sector. The conventional analysis would suggest that they simply enjoy higher rents: they receive both high levels of warm-glow utility and receive a wage that is not significantly different from what they would expect in the private sector.

The alternative theory of intrinsic motivation, outlined by Bruno Frey (1997) and discussed in Chapter Two, suggests a gloomier picture. If we think of the mission-motivated workers as donating part of their time through lower wages due to their intrinsic motivation, then Frey suggests that we cannot assume that intrinsic motivation and extrinsic motivation (from financial compensation) are simply

additive. In fact they can interact: part of the intrinsic motivation derives from the fact that it is donated. Introducing a payment for this work as sector wages rise could crowd out the intrinsic motivation. This could leave the most motivated workers less motivated than they were before the expansion of the sector, and provide a further dampening of the level of mission-motivation.

The sector differences estimated in this thesis focus on the marginal worker. This means that the estimation of the warm-glow effects through sector wage differentials really provides a lower bound for these effects. To the extent that this provides evidence of warm-glow in the sector, it raises some real concerns for the success of a policy that relies on the presence of that warm glow.

Implications for The Nature of the Sector

Hansmann (1980) provided a four-way categorisation of nonprofit firms, reproduced in Table 32 with examples. In this framework, organisations can be either ‘donative’ or ‘commercial’ in one dimension, and ‘mutual’ or ‘entrepreneurial’ in a second dimension.

	Mutual	Entrepreneurial
Donative	Political clubs	Traditional charities Museums, Art Galleries
Commercial	Credit Unions Cooperatives	Voluntary Sector contractors

*Table 32: A Four-way Categorisation of Nonprofit Firms
(Source: Hansmann (1980))*

The traditional voluntary sector, collecting donations, identifying need and providing services; would reside in the top-right box, of donative entrepreneurial organisations. These are the organisations with a strong mission and popular support, and who have the reputation to provide difficult to measure quality. These are the organisations

that provide the examples on which the government policy of voluntary provision of public services is founded.

The contradiction is that the types of organisation that will be encouraged to enter a market of the sort created to contract-out these services will be more like those in the bottom-right box: commercial and entrepreneurial. Whilst these organisations will also be mission-motivated, they are likely to be very different in culture and approach to the provision of services.²⁸

The growth of these types of voluntary organisation has been alongside, and sometimes in place of, the more ‘traditional’ donative organisations. Many voluntary organisations have had to change their organisational culture to respond to the changing funding landscape.

This raises the possibility of a divide within the sector: into donative voluntary organisations providing additional services and reliant on voluntary donations; and commercial voluntary organisations competing to deliver public service contracts. Working with employee-level data does not allow this distinction to be tested empirically here. However the distinction could have real consequences for employment terms and conditions for the workers within these organisations. It also has implications for the nature of the sector itself.

The Role of Voluntary Organisations in Public Service Reform

This is not to argue that voluntary organisations should *not* be part of public service provision. The rationale for the involvement of voluntary organisations is broad, and their contribution significant. Instead what we are highlighting here is the

²⁸ See also Weisbrod (1997) for a discussion of some of the implications of the ‘commercialisation’ of the nonprofit sector.

unintended consequences of a government policy, and how the scale of the intervention can have an effect on the nature of the sector. Contracting-out services to the voluntary sector is *not* the same as contracting-out services to the private sector. But conversely, neither can the principles of contracting-out be disregarded when dealing with voluntary organisations. When mission-motivation can be crowded in or out by the form of a contractual relationship then this needs to be taken into account in the formulation of policy and practice.

The voluntary sector provides an efficient solution to market failure driven by information asymmetry, though the harnessing of altruistic motives. But those altruistic motives cannot be taken for granted.

Developing a Research Agenda

This dissertation has explored detailed data on employment in the voluntary sector. It has shown some evidence for warm-glow wage effects, but also identified the limits of extending this concept to an employment relation. In doing so we have shed some light on the changes that have taken place while public services were contracted-out and the sector grew. From this we now outline some areas that require further research attention.

The extension of warm-glow theory to employment relations has been most robustly formulated in Besley and Ghatak's (2005) work on motivated agents. While this literature acknowledges the work of Bruno Frey (1997), it has not yet internalised the implications of the interaction between financial compensation and intrinsic motivation. The work of Bénabou and Tirole (2003; 2006) goes some way to

addressing this. However, the empirical work in this dissertation has demonstrated the limits of the current theoretical framework, and further development is required.

The sector is still growing in size, and this expansion looks set to continue in the future. Public service reform, and in particular the localism agenda, is likely to lead to an increasing reliance on the provision of public services from outside the public sector. This increases the importance of understanding both the sector as a whole, and the emerging organisation-types. While there is a significant body of literature within the discipline of nonprofit studies in the US, the institutional setting is extremely important to understand both the incentives facing social entrepreneurs and staff, and the implications for public policy in the UK. This evidence base is growing, driven by the establishment of the ESRC-funded Third Sector Research Centre, but economics is still under-represented in this growing field.

The scope of this type of analysis is growing, as the boundaries between the sectors are blurred. A big expansion in social enterprise, itself a contested term, has produced new organisational forms combining mission-motivation with some level of profit motivation. Is this the professionalisation of altruism? Is it the creation of a new sector? Or is it an attack of for-profits in disguise? Regardless, the key questions will be: what effect will this dilution of the non-distribution constrain have on the voluntary sector, and those employed within it?

Conclusion

In this dissertation we have explored the UK voluntary sector. Difficulties in definitions, sample size and sector selection have been tackled to investigate the terms and conditions of workers within the sector, and relate this to theories of

warm-glow motivation. We have shown how the sector has changed, and is changing. The voluntary sector is an important outlet for altruistic motivated entrepreneurs and workers. At the same time there are many attempts to harness, influence or control this independent sector. Whilst its expansion should be supported, it is critical to ensure that its rapid growth does not remove the very thing that defines it – charity.

APPENDIX ONE

This Appendix explains in more detail the construction of the UK Labour Force Survey (LFS) and Workplace Employment Relations datasets as used in this dissertation.

UK Labour Force Survey: Cross Section

Data from the UK LFS is supplied by the UK Economic and Social Data Service (ESDS)²⁹ in data files for each quarter. Each file contains data on individuals from all five waves of observation.

To construct the dataset used in the analysis, the Wave 1 data from each individual is extracted and merged to produce a one file with one observation on each individual across the ten year period.

The sector indicator variable was derived as per the criteria laid out in Appendix Two.

UK Labour Force Survey: Panel Dataset

Individuals in the UK LFS are not uniquely identified by a single variable, but instead by a combination of identifier variables. This makes constructing a panel dataset challenging. Furthermore, as the LFS is a household survey there is potential for attrition between waves as individuals and families move in. In order to account for this the UK Office for National Statistics produces a panel version of the LFS. This is a balanced panel that has been selected and weighted to provide a

²⁹ <http://www.esds.ac.uk/>

representative sample of the population. The files are supplied by quarter, with individuals' records now containing all five waves of observation in one record.

However, the supplied panel dataset includes only a sub-sample of key variables that omits several of the variables used in this analysis. In order to include proper controls in the estimations, and ensure that comparisons can be drawn between the cross-sectional and panel estimates, these additional variables had to be added to the dataset.

This was achieved by using the nine LFS identifier variables to identify individuals' records in the cross-sectional data files, and importing the missing variables into the panel dataset. This allowed the balance of the panel to be maintained, whilst increasing the number of useable variables. Due to changes in the way that individuals are identified in the UK LFS, this matching operation was only possible for individuals between 1997 and 2003. This means that the panel models estimated are across a smaller time period than the cross-sectional models. This drawback is outweighed by the ability to conduct panel analysis on a rich data in a representative sample of the UK population.

UK Workplace Employment Relations Survey: Cross Section

The data for the UK WERS 2004 were supplied by the UK ESDS. Data files for each of the four questionnaires are provided. Each workplace in WERS has a unique identifier that allows data from the four questionnaires to be combined.

The four datasets were merged based on the unique identifier, and the relevant variables kept for analysis. The attitudinal questions were re-coded with 1 as the lowest category, for ease of interpretation of the results.

APPENDIX TWO

This Appendix explains in more detail the definition and construction of the key variables from the UK Labour Force Survey (LFS) as used in this dissertation.

Identifying Organisations' Sector

Private Sector

The Private Sector includes Public limited companies (PLC), Limited companies (Ltd), and small businesses often owned by one or more individuals.

Public Sector

The Public Sector includes any employer that is owned, funded or run by central or local government.

Voluntary Sector

The Voluntary Sector includes charities, private trusts, housing associations, trade unions, private schools that are registered as charities and other voluntary organisations. In terms of the LFS, they are any employer coded with the LFS variable SECTRO03 coded "7".

Regression Equation Variables

These tables contain the LFS names for the variables used in the regressions, and details of the variables derived from LFS variables.

LFS Variable Name	Description
HIQUAL	Dummy variables for level of highest qualification held, split by National Vocational Qualification (NVQ) level
AGE	Individual Age in Years
EMPMON	No. of months with current employer
SOCMAJM	Major Occupation Category
PTFT	Part-time / Fulltime
JOBTYP	Permanent / Temporary
DISCURR	Disability status
QULNOW	Respondee is currently studying for a qualification
INDSECT	SIC(92) Industry Classification
HOURPAY	Gross Hourly Wage
BUSHR	Basic Usual Weekly Hours
OTTHR	Overtime Usual Weekly Hours
POTTHR	Paid Overtime Usual Weekly Hours
UOTTHR	Unpaid Overtime Usual Weekly Hours

Derived variables	Description and Source Variables
EXPER	AGE minus EDAGE (age at which completed fulltime education)
ORGSIZE	Recode of MPNOR
MARRIED	Recode of MARSTAT and MARSTATATA (marital status)
NUMCHILD	Recode of FDPCH19 (number of dependent children in household)

APPENDIX THREE

HECKMAN SELECTION EQUATION RESULTS

Selection Equations				
Employed	(1) Basic: Male	(2) Basic: Female	(3) Interact: Male	(4) Interact: Female
Age	-0.0372 (0.000259)***	-0.0345 (0.000215)***	-0.0372 (0.000259)***	-0.0345 (0.000215)***
Married	0.888 (0.00866)***	0.472 (0.00623)***	0.888 (0.00866)***	0.472 (0.00623)***
No Children	<i>Reference Category</i>			
One Child	-0.0559 (0.0107)***	-0.211 (0.00875)***	-0.0559 (0.0107)***	-0.211 (0.00875)***
Two Children	0.0462 (0.0114)***	-0.315 (0.00897)***	0.0462 (0.0114)***	-0.315 (0.00897)***
Three Children	-0.271 (0.0176)***	-0.727 (0.0136)***	-0.271 (0.0176)***	-0.727 (0.0136)***
Four to Six Children	-0.756 (0.0272)***	-1.246 (0.0226)***	-0.756 (0.0272)***	-1.246 (0.0226)***
Seven + Children	-1.242 (0.164)***	-2.606 (0.290)***	-1.242 (0.164)***	-2.606 (0.290)***
No Disability	<i>Reference Category</i>			
DDA Disabled & Work-limiting Disables	-1.087 (0.0109)***	-0.766 (0.0101)***	-1.087 (0.0109)***	-0.766 (0.0101)***
DDA Disabled only	-0.892 (0.0125)***	-0.732 (0.0104)***	-0.892 (0.0125)***	-0.732 (0.0104)***
Work-limiting Disabled only	-0.137 (0.0168)***	-0.0362 (0.0167)**	-0.137 (0.0168)***	-0.0362 (0.0167)**
Constant	0.387 (0.0150)***	0.645 (0.0141)***	0.387 (0.0150)***	0.645 (0.0141)***
<i>N</i>	181973	234836	181973	234836

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Probit selection equations of employment status (employed = [0,1])

Table 33: Employment Selection Equation

APPENDIX FOUR

HAUSMAN TEST RESULTS

The Hausman Test compares the fixed effects and the random effects estimates, testing that the difference in the coefficients is not systematic.

The test statistic follows a χ^2 distribution:

$$\chi^2 = (\hat{\beta}_c - \hat{\beta}_e)'[\text{var}(\beta_c) - (\text{var}(\beta_e)^{-1})(\hat{\beta}_c - \hat{\beta}_e)$$

Where β_c is the coefficients from the consistent estimator, and β_e is the coefficients from the efficient estimator.

H₀: The difference in coefficients is not systematic.

The fixed effects estimator is consistent under both H₀ and H_a. The random effects estimator is inconsistent under H_a, but efficient under H₀.

Model	$\chi^2(21)$	Probability	Reject H0?
Unpaid Overtime (Female)	86.36	0.0000	Yes
Paid Overtime (Female)	70.65	0.0000	Yes
Total Overtime (Female)	77.35	0.0000	Yes
Total Hours (Female)	420.99	0.0000	Yes
Unpaid Overtime (Male)	50.32	0.0003	Yes
Paid Overtime (Male)	19.75	0.5370	No
Total Overtime (Male)	16.53	0.7394	No
Total Hours (Male)	49.61	0.0004	Yes

Table 34: Hausman Test Statistics

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