**Department of Economics**

**HENLEY**
**UNIVERSITY OF READING**

# Why Care? Social Norms, Relative Income and the Supply of Unpaid Care

**by**
**Marina Della Giusta,**
**Nigar Hashimzade**
**and Sarah Jewell**

# Why care? Social norms, relative income and the supply of unpaid care.

Marina Della Giusta, Nigar Hashimzade and Sarah Jewell

July 4, 2011

## Abstract

We focus on the role of conformity with social norms and concern with relative income in the decision to supply unpaid care for parents. Individuals have different propensities to be influenced by both relative income and social norms, and face a time constraint on the provision of both paid work (which increases their income) and unpaid care. We estimate our model with a sample drawn from the British Household Panel Survey to assess these effects empirically, estimating both the supply of unpaid care and the effect on utility of different preferences for relative income and unpaid care. We find that providing care decreases individual utility: long care hours are bad for carers (and care recipients). Women feature disproportionately amongst care providers and their motivations for care provision differ to men's, both in respect to the importance attached to relative income and to conformity with social norms. After controlling for other factors, men are more envious than women (attach more weight to relative income) and indifferent to social norms in relation to caring, whereas the opposite holds for women, so status races are bad for the supply of care within families and particularly men's supply. This is an issue as caring (in right amounts) can be good for carers too if they agree with caring norms, even when they prefer paid work to caring (as men do). We discuss implications for care provision and working arrangements.

Key words: care, unpaid work, social norms, relative income

JEL classification numbers J22, Z13, D01, D13

# 1    Introduction

Care is becoming increasingly important in policy debates, both because of the sheer costs associated with providing for the needs of children and of an ageing population (by 2030 it is estimated that one quarter of the pupulation will be over 65 in both Europe and the US), and of the problems associated with monitoring quality of service provision (Folbre, 2001). Demographic changes, such are low fertility and higher life expectancy, and socio economic changes, such as the increase in female participation reducing the availability of unpaid

1

care provision within the household (men's provision of unpaid care not matching the shortfall) are usually put forward as the two explanations for the 'care crisis'. Time use surveys show that in both developing and developed countries women perform a larger proportion of unpaid work (all non remunerated work activities) than men (the gender gap ranges between 1.47 hours to 4.57 hours per day) and whilst a proportion of all unpaid work is connected to market activities, most of the gap constitutes either direct caring or provision of intermediate inputs into caring for both dependants and adults (Antonoupoulos, 2008). The quesion why care is thus rethorical in the sense that considerable amounts of caring are obviously necessary both for the reproduction of the human species and of work in the paid economy that is made visible by national accounts (Mies, 1986; Warying, 1988; Folbre, 2001). Care regimes vary widely across countries: Bettio and Plantenga (2004) show that across Europe the share of women involved in unpaid care work in 1996 varied between 60 and 86 per cent. Furthermore, the norms and motivations pertaining to elder care are likely to differ to those connected to child care, as the latter is also connected to investment in the accumulation of human capital (Beckerand Tamura, 1990; Folbre and Nelson, 2001; Backer and Jacobsen, 2007; Casarico and Sommacal, 2008). When it comes to caring for other dependent family members (not children), Britain is characterised by relatively high outsourcing by the family to the private sector, as state provision is low (Bettio and Plantenga,2004). Social care in the United Kingdom employs between four and six percent of the labour force, it is extremely reliant upon women who want to combine part time paid employment jobs with other family or caring responsibilities, and demand is steadily increasing (for a recent discussion in the news see BBC, 15 Sept 2009 and related articles). The outsourced care sector is no heaven: the UK Migration Advisory Committee Recommendations (Moriarty et al, 2008) note that longstanding recruitment and retention problems exist (which is why it is a key target for immigration policy), as this is the third largest low-paying sector in the UK economy with over a million jobs being paid at or around the level of the minimum wage (Low Pay Commission, 2008) and evidence that rates of stress and burnout are high. Data from the British Household Panel Survey shows that between 1996 and 2007 between 14% and 19% of respondents were caring for a sick, disabled or elderly relative. Even in the home, this work can be quite stressful especially for those who do it for extended hours, as our data will show. MacDonald et al (2005) reviewing a large body of empirical evidence and reporting their own results for Canada show that intensity and combination of hours of market and non market work are related to stress and poor health, with women's greater hours of unpaid work contribute to women experiencing more stress than men, and the hours spent on eldercare and housework being more stressful than those spent on childcare.

The choice between paid employment and unpaid caring is also determined by the opportunity cost of caring: as Himmelweit illustrates the relational nature of caring makes for limited productivity increases relative to paid work so that the opportunity cost cost of care time increases with the increased productivity

of paid employment (Himmelweit, 2007). From the perspective of the individual, paid employment becomes thus more attractive as his or her own expected wage increases, relative to the cost of outsourcing care. The evidence on caregivers labour supply is mixed: studies of caregivers labour supply in the US find that participation is generally similar though the hours supplied are unsurprisingly connected with the amount of caring they do (Lilly et al, 2007 ), but controlling for caregiving intenstity Lilly et al (2010) find that in Canada the effect is mostly on labour market participation rather than hours supplied or wages. Casado-Marin et al (2008) find that across Europe caregiving has an effect on entry into the labour market of women who were out of the labour market at the onset of caregiving; and Heitmuller (2007) and Heitmuller and Inglis (2007) find that in the UK but those who co-reside with cared-for are significantly less likely to participate in the labour force and earn significantly lower wages. Clearly the decision to provide unpaid caring and hours to the paid labor market are joint ones: using instrumental variables Graves (2010) finds that in the US caring for elderly parents has a negative effect on their daughters' labor supply and that the use of market care has positive and significant effects on hours worked in the labor market.

Here we want to consider a further set of motivating factors that might explain both women's and men's choices in relation to their allocation of time between unpaid caring for their parents and paid labour, and namely the roles of conformity with social norms and concern with relative income. Social norms and values have long featured in explanations of individual and group behaviour by economists, from the early work on social norms and conformism by Akerlof (1980) and Jones (1984) to the recent contributions by Akerlof and Kranton (2002, 2005) and Corneo and Jeanne (2009, 2010). A key feature of caring is that both social and personal norms determine both who needs caring for, who is responsible for caring for them and how (Himmelweit, 2007) and global trends in gender norms show that women are both expected to care and to feel fulfilled in doing so (Seguino, 2007). The extent to which this expectation is complied with will obviously be partly individual, however evidence from experimental economics suggests that gender plays a role and although women are not necessarily more altruistic than men, they are more likely to be affected by social clues on appropriate behaviour (Croson and Gneezy, 2009). Another motivating factor is the desire to work and earn, and the literature on status suggest that relative rather than absolute income is an important motivating factor in effort and time allocation decisions (Frank, 1985; Ferrer-i-Carbonell, 2005; Besley and Ghatak, 2008), so rather than focusing on the effect of wage in our model and empirical estimation we consider relative income as a motivating device: a loss of utility results from ones' income being lower than that of a reference group and from not conforming with the prevailing norms on care provision. We assume that individuals have different propensities to be influenced by both relative income and social norms, and face a time constraint on the provision of both paid work (which increases their income) and unpaid care. We use a sample drawn from the British Household Panel Survey to assess these effects empirically, estimating both the supply of unpaid care and the effect on utility

3

of different preferences for relative income and unpaid care. We also examine gender differences in both unpaid care provision and in the degrees of envy and conformity with social norms, controlling for various individual factors that likely affect economic opportunities and for household income.

## 2 The model

An economy is populated by individuals indexed by $i$. Individual $i$ is characterized by preferences with respect to $i$'s relative income and his or her attitude to volunteering care (this can be care for elderly within $i$'s family). We denote income with $y_i$, and the fraction of time devoted to unpaid care with $c_i$. Preferences are described by a utility function, $U_i(y_i, c_i)$ which we assume to be separable in the two variables,

$$U_i(y_i, c_i) = \theta_i u_i(y_i) + (1 - \theta_i) v_i(c_i),$$

where $\theta_i$ is the relative weight the individual attaches to his or her satisfaction with relative income. It would not be difficult to consider a more general case in which preferences with respect to status and care are interpependent.

An individual's satisfaction with his or her relative income depends on how his or her income compares to a certain level of income $y^*$, which represents the income of a relevant reference group. In our empirical estimates we develop two measures of reference income: labour income when we model the supply of care and household income when we model utility (because not everyone works). In particular, we assume

$$u_i(y_i) = \frac{y_i - \psi_i y^*}{y^*} - \frac{\alpha_i}{2} \left( \frac{y_i - \psi_i y^*}{y^*} \right)^2, \ \psi_i \geq 0, \ \alpha_i \geq 0.$$

It is not unreasonable to consider only those configurations of parameters for which the utility is increasing in income, according to traditional approaches, – unless condition

$$\alpha_i \frac{y_i - \psi_i y^*}{y^*} < 1 \tag{1}$$

holds, the chosen functional form makes it possible for satisfaction to fall with income at the higher end, which, however, may not be entirely implausible. We will discuss the consequences of this possibility later on. Note that for incomes below $\overline{y}_i \equiv y^* (\psi_i + 1/\alpha_i)$ satisfaction increases with income.

Parameter $\psi_i$ measures the degree of aspiration: $\psi_i = 0$ means that for $i$ the external standards of lifestyle do not matter, $\psi_i$ less (greater) than one implies that $i$ aspired to achieve lower (higher) standards. Parameter $\alpha_i$ reflects the degree of envy: observe that as the economy-wide living standard increases, $u_i$ falls, as long as $i$ derives more satisfaction from higher income (condition (1)

4

holds), and it falls more the larger $\alpha_i$ is, when $i$ is below his or her aspired level:

$$\frac{\partial u_i}{\partial y^*} = -\frac{y_i}{y^{*2}}\left[1 - \alpha_i \frac{y_i - \psi_i y^*}{y^*}\right] < 0 \text{ for } y_i < \overline{y}_i,$$

$$\frac{\partial^2 u_i}{\partial \alpha_i \partial y^*} = \frac{y_i}{y^{*2}} \frac{y_i - \psi_i y^*}{y^*} < 0 \text{ for } y_i < \psi_i y^*.$$

An individual's attitude to the voluntary provision of care consists of two components. Firstly, there is a disutility from providing care (putting in physical effort, having to perform unpleasant procedures, etc.). We assume this disutility is linear in $c_i$. Secondly, there is an economy-wide social norm regarding volunteered care, say, regular visits and help to one's elderly parents, etc., measured by $c^*$. The degree of conformity with the norm is however individual (or, alternatively, an individual perception of what the norm should be may be different). We assume that the disutility of not conforming to this norm depends on the distance between $c_i$ and the individually perceived norm, $\phi_i c^*$. Thus, we define

$$v_i\left(c_i\right) = -\varepsilon_i \frac{c_i}{c^*} - \frac{\delta_i}{2}\left(\frac{c_i - \phi_i c^*}{c^*}\right)^2, \ \varepsilon_i > 0, \ \delta_i > 0, \ \phi_i > 0.$$

The larger $\varepsilon_i$, the more disutility $i$ incurs from providing an additional hour of care. The larger $\phi_i$, the stronger is the social norm regarding volunteered care in $i$'s perception, and the larger $\delta_i$, the more $i$ is willing to conform with this perceived norm. To summarize, individual $i$ is characterized by a vector of parameters, $\mathbf{\Gamma}_i = (w_i, \theta_i, \alpha_i, \psi_i, \varepsilon_i, \delta_i, \phi_i)$, whereas the economy is described by $\mathbf{\Lambda} = (y^*, c^*)$.

An individual divides his or her time (normalized to unity) between paid work and unpaid care to maximize his or her satisfaction with achieved income, by means of labour income, and with compliance with social norms, by providing unpaid care. In the optimum no time is wasted, so $i$ solves

$$\max_{c_i \in [0,1]} U_i = \theta_i u_i\left(w_i\left(1 - c_i\right)\right) + \left(1 - \theta_i\right) v_i\left(c_i\right).$$

Note that we allow for zero labour income: here we abstract from individual consumption as well as other standard components of a general equilibrium model, in order to focus on the issue of care provision. However this framework can be easily incorporated into a more general framework, where, for example, consumption is shared within a household, so some members of household may have zero labour income and positive consumption.

The optimal choice of care is described by the following:

$$c_i^o\left(\mathbf{\Gamma}_i, \mathbf{\Lambda}\right) = \max\left\{\min\left\{0, c\left(\mathbf{\Gamma}_i, \mathbf{\Lambda}\right)\right\}, 1\right\},$$

where

$$c\left(\mathbf{\Gamma}_i, \mathbf{\Lambda}\right) = \frac{\alpha_i\left(w_i/y^* - \psi_i\right) + \left[\left(1 - \theta_i\right)/\theta_i\right] y^*\left(\delta_i \phi_i - \varepsilon_i\right)/\left(w_i c^*\right) - 1}{\alpha_i w_i/y^* + \left[\left(1 - \theta_i\right)/\theta_i\right]\delta_i y^*/\left(w_i c^{*2}\right)}.$$

Clearly, $c$ is increasing in both $\delta_i$ and $\phi_i$, and decreasing in both $\varepsilon_i$ and $\psi_i$. In other words, the individuals that tend to provide more unpaid care are those who perceived the social norm as stronger, are more willing to comply with it, experience less disutility from providing an extra hour of care, and have humbler aspirations with regards to their income.

Furthermore,

$$\frac{\partial c}{\partial \theta_i} = -\frac{1}{\theta_i^2} \frac{(1/\theta_i + \alpha_i \psi_i)\, \delta_i y^* / \left(w_i c^{*2}\right) + \left[\delta_i \phi_i - \varepsilon_i \left(1 - c^*\right)\right] \alpha_i / c^*}{\left[\alpha_i w_i / y^* + \left[(1 - \theta_i)/\theta_i\right] \delta_i y^* / \left(w_i c^{*2}\right)\right]^2}.$$

This is negative, unless $\varepsilon_i$ is sufficiently large, so that the second term in the numerator is negative. This, however, would lead to $c$ being negative, so that optimal choice of care is zero and comparative statics do not apply. (Indeed, when the disutility cost of providing care is very high, no care will be provided.) Thus, a larger weight on social status leads to lower care provision.

Below we provide some illustrations of the relationship between the utility-maximizing level of care provision and the degree of envy, captured by parameter $\alpha_i$. We present some interesting cases in the figures below. In both figures we used $y^* = 50$, $c^* = 1/4$, $\phi_i = \psi_i = 1$, $\varepsilon_i = 1/10$, $\delta_i = 1/2$; the marginal utility of income is positive along the curves.
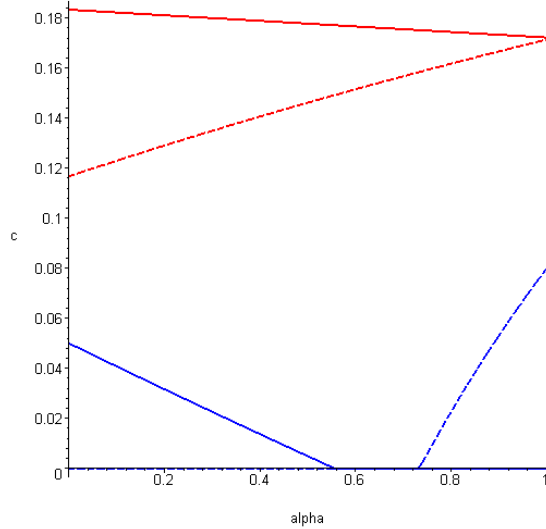
Figure 1: Care and wage
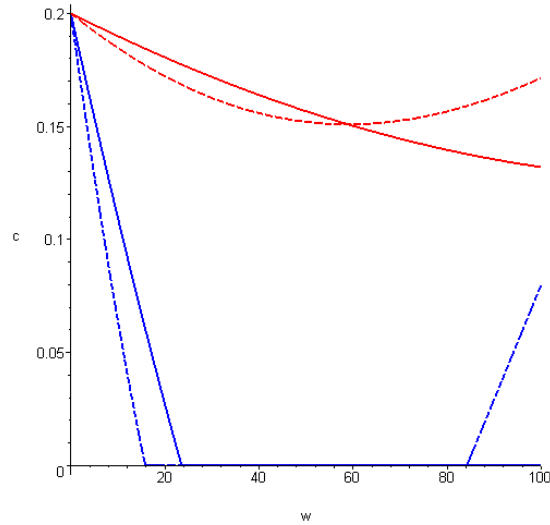


Care and wage: $\theta = 1/4$ (red) and $3/4$ (blue),
$\alpha = 1/4$ (solid) and $1$ (dash).

Figure 2: Care and envy

Care and envy: $\theta = 1/4$ (red) and $3/4$ (blue),
$w = 20$ (solid) and $100$ (dash).

The left panel shows how care provision changes with wage for two values of $\alpha_i$; the solid lines correspond to $\alpha_i = 1/4$ and the dash lines correspond to $\alpha_i = 3/4$. As wage starts increasing from zero, care provision falls monotonically for $\alpha_i = 1/4$, and it becomes zero when the weight of relative income is relatively high. For $\alpha_i = 3/4$ care provision changes non-monotonically with wage: it falls for low wages and rises for high wages. The right panel illustrates the same phenomenon, now looking at care as function of $\alpha_i$ for two values of $w$: solid lines correspond to $w_i = 20$, and dash lines correspond to $w_i = 100$. When the wage is low, care provision falls as $\alpha_i$ increases, whereas the converse is true when the wage is high.

In the simulations illustrated in this set of figures the level of care norm was fixed exogenously. According to Akerlof's theory of social custom (Akerlof, 1980), the fact that people may tend to generally believe or disregard any social code, and the existence of a range of social codes, together may imply that multiple equilibria exist, each corresponding to a different social code. So social norms are endogenously determined and affect individual utility. In our context caring norms differ in different societies, and changing social attitudes towards it can therefore be expected to produce different market equilibria. The reputation function in Akerlof depends on the individual's obedience of the code and the proportion of the population who believe in that code, and accordingly we now assume that in equilibrium the care norm equals the average provision of care across the agents in the economy. The following set of figures shows how the equilibrium care norm and the resulting utility level depend on the reference income.

Figure 3: Care norm and reference income
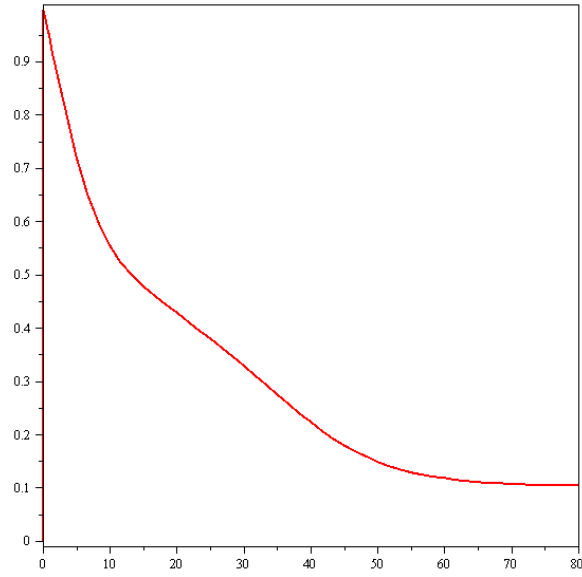


Care norm and reference income: $w_L = 20$,
$w_H = 100$, $\delta_L = 1/2$, $\delta_H = 3/2$, $\alpha = \psi = \varphi = 1$,
$\varepsilon = 1/10$.

Figure 4: Well being and reference income
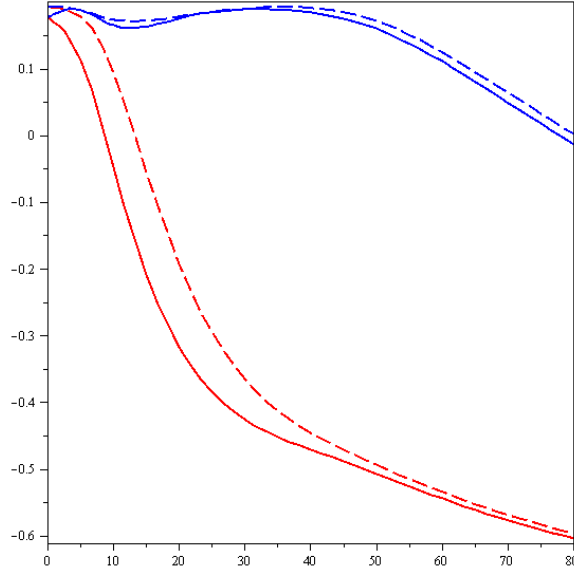
Well-being and reference income: $w_L = 20$ (red),
$w_H = 100$ (blue), $\delta_L = 1/2$ (dash), $\delta_H = 3/2$
(solid), $\alpha = \psi = \varphi = 1$, $\varepsilon = 1/10$.

These simulations illustrate the outcome in an economy with four different types of agents: with lower and higher wage rate, and with lower and higher compliance with social norms, assuming negative correlation between the wage rate and the compliance (specifically, there are equal proportions of the agents with the lower and higher wage rates, the fraction of highly compliant agents in the first group is $3/4$, whereas in the second group it is $1/4$). This reflect the empirical observation that women, on average, have lower wage rates and are more sensitive to social norms, compared to men. The left panel shows that the equilibrium care norm in this society falls as the reference income increases. The right panel shows that the utility level for the low-wage group (red curves) falls as the reference income increases, while for the high-wage group (blue curves) the utility level changes non-monotonically.

Finally, we assume that the reference income is also determined endogenously, as the average income across all agents in the economy. To illustrate the predictions of the model we now assume that there are equal proportions of agents with lower and higher sensitivity to the care norm. All agents in the first group have the same wage rate, $w$, and in the second group the wage rate of the rest is $\chi \cdot w$. In the figures below we show how the unpaid care provision and the labour income change as $\chi$ increases. In the left panel the red curve shows the equilibrium care norm, and the blue (green) curve shows the equilibrium care provision by agents with higher (lower) sensitivity to care norm. As the wage rate of the compliant group increases, the care provision in both

9

groups falls, and so does the care norm: the income effect dominates. Once the wage rate for the compliant group exceeds that of the less compliant group, for the former the substitution effect starts dominating, and care provision by the more compliant group starts rising. This drives up the care norm, and the less compliate group also starts providing more care. However, the more compliant group always provides more care than the less compliant group. The pattern in labour income for the two groups and the reference income are illustrated on the right panel. The simulations suggest that an increase in the opportunity cost of the unpaid care in a society will always result in a fall in care provision and deterioration of the care norm, unless the agents' sensitivity to the social norms in care provision increases. In other words, the emphasis should be on instilling higher compliance with social norms in unpaid care provision, e.g. though education system, mass media, etc.
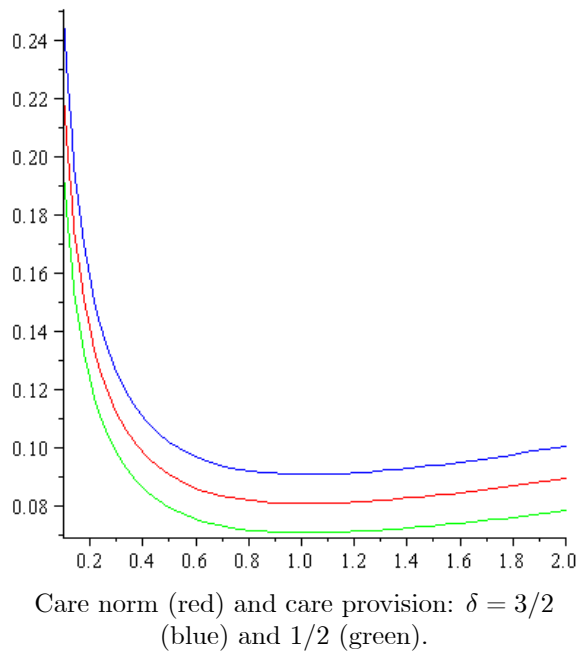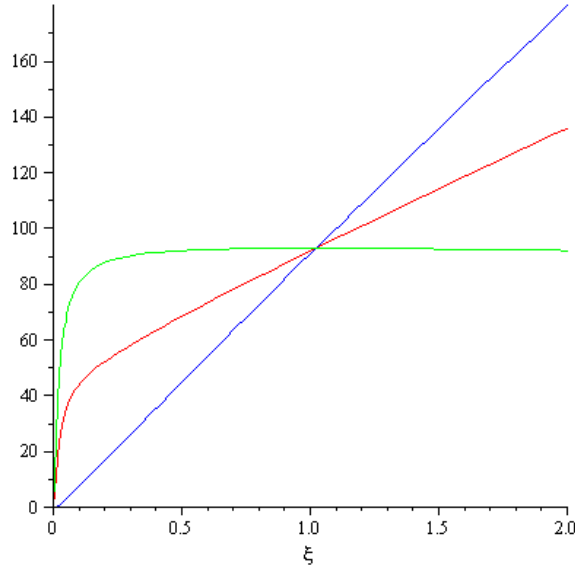
Figure 5: Care norm and care provision



Care norm (red) and care provision: $\delta = 3/2$
(blue) and $1/2$ (green).

Figure 6: Reference income and labour

Reference income (red) and labour earnings for
$\delta = 3/2$ (blue) and $1/2$ (green).

# 3 Data and Empirical Strategy

We now take our model to data in order to see whether the parameters of interest to our analysis are significant and whether they differ systematically by gender, once controlling for other individual factors. We utilise data from the British Household Panel Survey (BHPS, see for information UK Data Archive), a longitudinal study of around 5,500 households and over 10,000 individuals which began in 1991 and collects annual data on social and economic variables at the individual and household level. We use all respondents of working age (adults over 16 years of age and under 65) who responded to the survey at least twice between the years 1996 (wave 6, when life satisfaction questions were first asked) to 2007 (wave 17) which leads to a sample size of 19,320 individuals (10,292 women and 9,028 men) with 2-12 years worth of data (132,198 person years).

Individuals are asked whether they care for people within and outside of the household, and their relation to the person. We utilise only those who care for a parent to reflect the social norm question is in relation to caring for parents. Between 1996 and 2007 between 7% and 10% of respondents were caring for a sick, disabled or elderly parent. 10% of women compared to 7% of

men undertake some caring for parents, and women are more likely to be doing longer hours of caring (see Table 3).

In order to proxy the social norm in relation to care, we use answers to the question "Adult children should care for parents" which is asked in every other wave (1996, 1998. 2000, 2002 and 2004, 2006 in our dataset) on the scale of strongly agree, agree, neither agree/disagree, disagree, and strongly disagree. The responses to this question are reasonably stable over time so we fill in the years where this question was not asked with the previous wave's response. Around 38% (strongly) agree with this statement, 30% are neutral and 31% (strongly) disagree. As seen in Table 1 males are more likely to agree or agree strongly than women with the question, with females more likely to disagree or disagree strongly compared to men. As would be expected there is a higher agreement among those who care for their parents.

Table 1: Care norm: responses to statement that "Adult children should care for parents" by gender

We model both the supply of care and life satisfaction. We model care supply $(H_c)$ in conjunction with employment hours$(H_e)$ since these are likely to be a joint decision, and use seemingly unrelated regression (SUR) (Zellner, 1962) which allows the error terms from both the care and hours worked regressions to be correlated, as tests show to be the case for our model. We concentrate on respondents who care for parents and the years in which they cared for them, and select a sample of individuals who have worked at some point (either whilst, before or after caring) to avoid the possibly that those who would not otherwise be employment may have more time available to care. Hours worked include all hours devoted to the labour market including usual hours and hours from self employment, secondary employment and overtime. In the BHPS care is measured in intervals (0-4, 5-9, 10-19, 20-34, 35-49, 50-99, 100+ hours per week) so we use the midpoint of each category to create a continuous variable. Our regressions models are as follows with X a vector of control variables, INC a vector of variables in relation to income and CAR a vector of variables in relation to caring. We explain the variables in detail below.

$$H_c = X\beta_c^x + INC\beta_c^{inc} + CAR\beta_c^{car} + \varepsilon_c$$
$$H_w = X\beta_e^x + INC\beta_e^{inc} + \varepsilon_e$$

SUR regression assumes the errors in the individual equation are homoskedastic and independent of time but the allows ther errors from the two equations to be correlated. In order to ascertain the utility/disutility from care, we investigate the effect of care on life satisfaction. Our dependent variable is overall life satisfaction (which provides a proxy for utility), with respondents in the BHPS asked "How satisfied or dissatisfied are you with your life overall?", with answers provided along a seven point scale with 1 being not satisfied at all

and 7 being completely satisfied. Due to comprehensive health questions asked in that wave the BHPS omitted this question in 2001 so we exclude this year from our life satisfaction analysis, we includes both carers (for parents) and non-carers. Although the responses to the life satisfaction question are ordered we treat the variable as continuous in order to exploit the panel nature of the data. Past research has shown that results differ little by whether the variable is treated as continuous or an ordered variable but controlling for fixed effects is important ( Ferrer-i-Carbonell and Frijters, 2004; Clark et al., 2008; Mentesoglu and Vendrik, 2009). Fixed effects allow us to control unobserved attributes such as personality which is increasingly being accepted as playing a big part in an individual's well-being. However we do have some information on individual personality traits, so we run both fixed and random effects model of life satisfaction, as follows for individual i in period t :

$$LS_{it} = X_{it}\beta + INC_{it}\beta + CAR_{it}\beta + \alpha_i + u_{it}$$

X is a vector of control variables, INC a vector of income related variables and CAR a vector of caring variables - with details of the variables explained below. $\alpha_i$ is an unobserved individual effect and $u_{it}$ is the error term. .

In both the SUR and the life satisfaction models we include a number of controls (see appendix 1 for variable definitions): age group, whether living with a partner or spouse, the number of children of certain age ranges, religion, qualifications, region and wave dummies. For the hours cared (but not the hours worked) equation we include their responses to the caring for parents social norm question as well as a control for whether the parent lives in the household (since we expect those who care within the household will do more hours) and a control for if they care for others besides their parents (since the hours cared questions relates to all caring). We are also able to include controls for personality traits since the BHPS collected data on personality using a shortened version of the five factor model (see Taylor et al, 2010 for details), which consist of five factors of personality: agreeableness, conscientiousness, extraversion, neuroticism and openness to experience. Personality questions were asked in the 2005 wave, but we make the assumption as others have done that they are fixed (e.g. Wichert and Pohlmeier, 2010). 85% of women and 82% of men in our sample answered these questions in 2005. The questions were asked on a Likert scale of 1 "does not apply" to 7"applies to me, with these questions not ordered by personality factor. See appendix 2 for the an overview of the questions asked with a total score for each factor obtained by summing the responses to the three questions for that trait (with negative questions reverse coded).

In the SUR models we also include attitudes to family life. Individuals are asked a set of questions on attitudes to family life, which are asked in alternate waves (so we use the previous wave's responses for waves without this question). People are asked to state their opinion on a scale of 1 (strongly agree) to 5 (strongly disagree) with the following questions:

A -Pre-school child suffers if mother works

B - Family suffers if mother works full-time

C - Women and family happier if she works

D - Husband and wife should both contribute to the household income

E – Full time job makes women independent

F – Husband should earn wife stay at home

In order to obtain an overall attitude we simply take an average across the six questions (we reverse coded questions A, B and F), and therefore a higher score would reflect views more in line with traditional gender roles. Past studies (e.g. Berrington et al., 2008, Schober, 2009) have taken a similar approach, using factor analysis to demonstrate that the responses to these questions represent an underlying attitude.

In the life satisfaction models we include hours spent caring in categories of: none, 0-9 hours, 10-34 and over 35, as well as including the social norm for those who care, an indicator of whether they are employed in the labour market, housework hours, marital status, with personality traits and other time invariant controls in the random effects model.

Reference income is defined differently in the supply of care/work hours and the life satisfaction models. We use all members of the BHPS in a wave to create reference groups for each wave, since the BHPS is representative of the UK population. In the supply of care models we use reference labour income, since we are interested in only those who are or were employed at some point. Each individual's reference group is defined by their occupation and gender and the average labour income is taken across all members of that group in that wave. Therefore this reference labour income can be interpreted as a opportunity cost of not working. We also include additional household income in the supply models, a measure of the other resources in the household, calculated as total household income excluding the individual's labour income, adjusting for the number of adults and children (weighted by 0.5). In the life satisfaction models we use household reference income across age, gender and qualification (since we are interested in all not just those in employment) and this is defined at the individual level so this compares household income across people with similar characteristics (since different individuals in the household may have different reference groups). Again we use all members of the BHPS in that wave to calculate household reference income. We utilise the rank of household income within the reference group rather than the reference income since this has been shown to be more important (Boyce et al., 2010).

## 3.1   Empirical Results

**Supply of Care**   We start by examining our SUR models of hours supplied to care and the labour market, as outlined in our data section. Firstly we note the Breusch Pagan tests demonstrate that the errors from our care and labour supply models are correlated, which implies the SUR model approach will provide more efficient results.

Table 2: Seemingly Unrelated Regressions of Care and Employment Hours

Our results indicate that opportunity costs, social norms, positionality and personality all play a role in determining the supply of unpaid care. Income clearly plays a role as witnessed by the fact that those without qualifications supply more care and less work, as are those living with a partner (once controlling for children). However people clearly choose to do fewer hours of work and more hours of care if additional household income increases. Total household income (adjusted for number of adults and children in the household) is higher for those who care for parents - £12,445 compared with £11,795 for those who do not – as is additional household income (£7873 compared with £7545). Descriptive statistics indicate that those who care on average have higher additional household income, lower reference labour income and higher reference household income, suggesting on the one hand that the opportunity cost of caring is not very high and that they choose to do so as the household could afford to outsource the care.

Social norms clearly matter and their impact differs by gender: Catholic and other religions are likely to devote more care hours than Christians and non-religious individuals, but the effect is weaker when split by gender. Reference income matters and reduces care hours, but much more so for men than women. This finding could reflect that on average men hold more traditional values and may feel they should be the main breadwinner (men have an average score of 2.90 compared to 2.77 for women on the attitudes to family life questions). We explore this effect in more detail when looking at life satisfaction. Attitudes to family life influence both care and work hours for females, with females who hold more traditional values of family life supplying more care hours and fewer work hours, but has no influence on men.

Personality has an impact on the supply of unpaid care too: those more open to experience (e.g. more willing to try new things and possible more risk loving) are likely to both work and care fewer hours. Being more extravert also reduces the supply of unpaid caring. More conscientious people, more agreeable women, and more extravert men work longer hours. Women who are more neurotic are instead likely to work fewer hours. The presence of children makes women less likely to work (but not men), and women with children aged three and above are more likely to supply more care hours. As is commonly reported women on average do less work hours than men: women work on average 33 hours (32 hours if they care for parents) and men on average 45 hours (regardless of if they care for parents or not).

Women are generally more likely to care for their parents and also do more care hours (table 3), which provides a possible explanation for the fact that the effect of agreeing with the caring norm is also different by gender: men agreeing with the caring norm provide more hours, but women who strongly disagree with the norm also provide more hours. In the 2006 wave a set of questions were asked for those who have parents alive outside of the household about the

15

tasks undertaken on behalf of their parents. . Table 4 compares the tasks done by males and females for those individuals who stated they cared for a parent outside of the household in 2006 and responded to these questions. Men and women also perform different caring tasks, as shown in table 4 below Women tend to do more unpleasant tasks such as helping with personal needs. We investigate the implications of these findings modelling the effect of care on life satisfaction.

Table 3: Distribution of Caring and Hours Cared For by Gender

Table 4: Tasks performed for parents by those who care for parents outside of household

**Life Satisfaction**   We now turn to examining the effect of caring on life sat-

isfaction, using both fixed effect and random effect models. It is clear from the random effect models the impact of personality traits on life satisfaction with more agreeable, conscientious and extravert individuals reporting higher levels of satisfaction, whilst more neurotic and open to experience individuals report lower levels.

Table 5: Life Satisfaction Models

As found in the literature, relative income matters more than actual income for life satisfaction and we find that those who are ranked higher within their reference group are happier. We also find that men are more envious than women as rank of income seems more important to men than women for life satisfaction. The effect of caring hours differs by gender: hours spent caring reduce life satisfaction for women and this effect is increasing as hours increases, however there is no significant for men, which may be due to the different tasks they perform: as shown in table 4 earlier women are much more likely to cook meals, wash, iron or clean and to help with personal needs, whilst men are more likely to help decorate, help with the garden or repairs.

Caring norms also matter and in ways that differ by gender: those who strongly agree or agree are more likely to do longer hours, with longer hours reducing life satisfaction. Looking at the interaction between the norm and caring, we find that the effect of lower satisfaction from caring is reduced if the person strongly agrees or agrees with caring for parents, however there is no significant effect for men. Again these gender differences could reflect the different tasks performed by gender. Males are more likely to agree strongly or agree that children should look after parents, women more likely to disagree (or disagree strongly). As would be expected among those who care for parents a higher proportion agree or strongly agree with the statement. It is possible of course that men may be more willing to state that adult children should look after parents as they do "nicer" tasks and expect the women to do the  caring.

16

# 4  Discussion

Policy informing care provision needs to be based on both the projected caring needs of the poulation and on an understanding of the factors motivating unpaid care provision within households. Our model provides a simple representation of two important motivating factors in the decision to provide unpaid care: the importance of relative income and of conforming with social norms in relation to care. Our findings suggest that the supply of unpaid care for parents is heavily influenced not just by direct and opportunity costs, but also by social norms in a number of different ways which vary by gender. Our theoretical model suggests that reducing gender earning gaps can increase the proportion of men willing to supply unpaid care, subject to their relative conformity with caring norms and status. Our empirical analysis supports that by showing that as men are more envious than women the effect will also depend on their individual propensity to be affected by status races. As for women, they are clearly affected by caring norms as well as gender norms when deciding to supply unpaid care for their parents and therefore the effect of the opportunity cost from not being in the labour market will always be partly hampered by norms.

Of course it can be argued that reducing gender earning gaps requires in an of itself changing social norms pertaining to the gender division of labour so the effect of norms is indeed quite fundamental to the provision of unpaid care within families, in addition to the costs of outsourcing care and the quality of the provision available. Our empirical estimates using data from the BHPS

confirm that providing care decreases individual utility as we find as expected that satisfaction decreases as the number of hours spent caring increases: long care hours are bad for carers (and care recipients. Again as expected we find that women feature disproportionately amongs care providers; however we also find that their motivations for care provision differ to men's, both in respect to the importance attached to relative income and to conformity with social norms. After controlling for other factors, men are more envious than women (attach more weight to relative income) and indifferent to social norms in relation to caring, whereas the opposite holds for women) so status races are bad for the supply of care within families and particularly men's supply. This is an issue as caring (in right amounts) can be good for carers too if they agree with caring norms, even when they prefer paid work to caring (as men do). The implications for both care provision outside families and for current working arrangements (both working hours and flexible working) are in line with those put forward in relation to childcare, but given that a productivity link (via the effect of care on human capital accumulation) cannot be established for eldercare, it is easy to see why the scenarios for the evolution of care policy in the UK envisaged by Himmelweit may look so bleak (Himmelweit, 2007): the marginalization of unpaid carers in both income and utility terms is indeed likely to continue unless radical policies of direct support to unpaid carers are envisaged alongside more widely avaliable and affordable external care provision.

# References

[1]  Akerlof, G. (1980) 'A Theory of Social Custom - of which Unemployment may be One Consequence,'Quarterly Journal of Economics 94 (4): 749-775.

[2] Akerlof, G.A. and R.E. Kranton (2002) 'Identity and Schooling: Some Lessons for the Economics of Education'Journal of Economic Literature 40: 1167-1201.

[3] Akerlof, G.A. and R.E. Kranton (2005) 'Social divisions within schools: how school policies can affect students'identities and educational choices,'in: Barrett C.B. (Ed.), The social economics of poverty, pp. 188–213. Routledge: New York.

[4] Antonopoulos,R. (2008) 'The Unpaid Care Work–Paid Work Connection' Working Paper No. 541 The Levy Economics Institute Bard College.

[5] Baker, Matthew J.& Joyce P. Jacobsen (2007) 'Marriage, Specialization, and the Gender Division of Labor.' Journal of Labor Economics, University of Chicago Press, vol. 25, pages 763-793.

[6] Becker, Gary S & Murphy, Kevin M & Tamura, Robert (1990) 'Human Capital, Fertility, and Economic Growth,' Journal of Political Economy, University of Chicago Press, 98(5):S12-37,

[7] Besley, Timothy and Maitreesh Ghatak, (2008) 'Status incentives,'American Economic Review 98 (2): 206-211.

[8] Berrington, A., Yongljian, H., Smith, P. & Sturgis, P. (2008) A graphical chain model for reciprocal relationships between women's gender role attutides and labour force participation. Journal of the Royal Statistical Society: Series A (Statistics in Society), 171, 89-108.

[9] BBC 15 Sept 2009 'Looming care crisis' http://news.bbc.co.uk/1/hi/england/london/3109222.stm

[10] Bettio and Plantenga (2004) 'Comparing Care Regimes in Europe', Feminist Economics, 10 (1): 85 - 113.

[11] Boyce, C. J., Brown, G. D. A., & Moore, S. C. (2010). Money and happiness: Rank of income, not income, affects life satisfaction, Psychological Science.

[12] Casado-Marin D., P. Garcia-Gomez and A. Lopez-Nicolas (2008) Labour and income effects of informal caregiving across Europe: an evaluation using matching techniques' HEDG WP 08/23, University of York.

[13] Casarico, A and A. Sommacal (2008) Labor Income Taxation, Human Capital and Growth: The Role of Child CareCEsifo wp 2363

[14] Clark, Andrew, Ed Diner, Yannis Georgellis and Richard E. Lucas. 2008. "Lags and Leads in Life Satisfaction: A Test of The Baseline Hypothesis." Economic Journal, 118 (526): F222-243

[15] Clark, Andrew E., Paul Frijters, and Michael A. Shields (2008) 'Relative Income, Happiness, and Utility: An Explanation for the Easterlin Paradox and Other Puzzles.' Journal of Economic Literature 46 (1): 95-144.

[16] Clark, A.E. and C. Senik (2009) 'Who compares to whom? The anatomy of income comparisons in Europe '

[17] Corneo, G. and O. Jeanne (2010) 'Symbolic values, occupational choice, and economic development.' European Economic Review, 54(2): 237-251.

[18] Corneo, G. and O. Jeanne (2009b) 'A theory of tolerance,'Journal of Public Economics 93(5-6): 691-702.

[19] Croson, R. and U. Gneezy (2009) 'Gender Differences in Preferences' Journal of Economic Literature, 47(2): 448-474.

[20] Ferrer-i-Carbonell, A. (2005) 'Income and well-being: an empirical analysis of the comparison income effect' Journal of Public Economics 89 () 997–1019.

[21] Ferrer-I-Carbonell, Ada and Paul Frijters. 2004. How Important is Methodology for the Estimates of the Determinants of Happiness? The Economic Journal, 114, 641-659.

[22] Folbre, N. (2001) The Invisible Heart: Economics and Family Values New York: The Free Press.

[23] Folbre, N. and J. A. Nelson (2000) 'For Love or Money—Or Both?' Journal of Economic Perspectives 14(4):123–140.

[24] Folbre, N (1994) Children as Public Goods The American Economic Review, Vol. 84, No. 2, Papers and Proceedings of the Hundred and Sixth Annual Meeting of the American Economic Association (May, 1994), pp. 86 -90

[25] Frank, R.H. (1985). Choosing the Right Pond Human Behavior and the Quest for Status. Oxford: Oxford University Press.

19

[26] Graves, J. (2010) 'Care Provision to Elderly Parents and Women's Hours Worked in the Labour Market' Paper presented at the ASSA Meeting 2011.

[27] Heitmuler, A. (2007) 'The Chicken or the Egg? Endogeneity in Labour Market Participation of Informal Carers in England' Journal of Health Economics, 26(3):536-559.

[28] Heitmuler,A. and K. Inglis (2007) 'The Earnings of Informal Caregivers:Wage Differentials and Opportunity Costs'Journal of Health Economics, 26(3):821-841.

[29] Himmelweit, S. (2007) 'The prospects for caring: economic theory and policy analysis.' Cambridge Journal of Economics, 31(4), pp. 581–599.

[30] Jones, Steven R.G. (1984) The Economics of Conformism. Basil Blackwell: Oxford, New York

[31] Kan, Man-Yeeand J. Gershuny (2006) 'Human Capital and Social Position in Britain: creating a measure of wage earning potential from BHPS data, 1991-2004.' ISER Working Paper, Colchester: University of Essex.

[32] Lilly, M.B., A. Laporte and P.C.Coyte (2010) 'Do they care too much to work? The influence of caregiving intensity on the labour force participatio of unpaid caregivers in Canada' Journal of Health Economics, 29: 895-903.

[33] Lilly, M.B., A. Laporte and P.C.Coyte (2007) 'Labor Market Work and HOme Care's Unpaid Caregivers: A Systematic Review of Labor Force Participation Rates, Predictors ofd Labor Market Withdrawal and Hours of Work' The Milbank Quarterly, 85(4): 641-690.

[34] Low Pay Comission (2007) National Minumum Wage, Low Pay Commission Uk Government.

[35] MacDonald, Martha , Shelley Phipps, and Lynn Lethbridge (2005) 'Taking its toll: the influence of paid and unpaid work on women's wellbeing' Feminist Economics 11(1): 63 – 94.

[36] Mies, M. (1986) Patriarchy and Accumulation on a World Scale, London: Zed Books

[37] Moriarty,J., J. Manthorpe, S.Hussein, and M. Cornes, (2008) 'Staff shortages and immigration in the social care sector', Migration Advisory Committee.

[38] Seguino, S. (2007) Plus ca Change? Evidence on Glbal Trends in Gender Norms and Stereotypes Feminist Economics 13,2:1-28.

[39] Schober, P. (2009) The parenthood effect: what explains the increase in gender inequality when British couples become parents? GENet conference. University of Cambridge

[40] Taylor, M. F., Brice, J., Buck, N. & Prentice-Lane, E. (2010) British Household Panel Survey User Manual Volume A: Introduction, Technical Report and Appendices. Colchester, University of Essex.

[41] Waring, Marilyn J. (1988) Counting for nothing : what men value & what women are worth Allen & Unwin/Port Nicholson Press, Wellington.

[42] Zellner, A. (1962). "An efficient method of estimating seemingly unrelated regression equations and tests for aggregation bias". Journal of the American Statistical Association 57: 348–368

**4.1**