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# **A Multidimensional approach to workless-ness: a matter of opportunities, social factors and individual's idiosyncrasies**

**Gabriella Cagliesi<sup>1</sup>, Denise Hawkes<sup>2</sup>, Max Tookey<sup>1</sup>**

## **Abstract**

The purpose of this study is to adopt the principles of labour economics, behavioural economics (BE) and social economics (SE) to explain an agent's functioning over employment, non-employment and across various inactivity categories in the labour market. An empirical methodological approach has been adopted, where data from the British Household Panel Survey (2009) has been collected to formulate two types of models: the first type explaining non-employment and employment between genders, the second type investigating the subset of non-employed people and different categories of non-employment (such as employment (unemployment, students, disabled, early retired and carers), differentiating for gender and age characteristics).

We found that labour market opportunities, choices and achievements are all affected by the interrelations and interactions of individual's demographic and psychological characteristics (such as age, gender, heuristic, perceptions, beliefs, attitude, goals and ambitions) with external factors (such as geographical, socio- cultural and economic conditions).

This study makes a unique contribution to labour economics as we abandon the traditional welfare approach and use a more general framework of capabilities and refined functioning (proposed by Amartya Sen) to interpret how different types of constraints - ranging from socioeconomic conditions and environmental background to specific features of individual processes of choices and decision making- affect preferences and functionings. The influences of "under-employment" and "career markers" will also be evaluated in the context of this study.

**JEL codes:** J60

**Keywords:** Worklessness, Behavioural Economics, Social Connections, British Household Panel Study

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## Introduction

Developments in Behavioural Economics and in Economic Sociology provide new grounds to interpret economic decisions. Over the centuries economists and social scientists have formalized different explanations to understand and predict human behaviours. The undisputed theoretical framework of mainstream economics assumes that the individuals are rational, atomized, and most importantly totally selfish, so that their behaviour is driven by pure self “interest”. The under-socialized and emotionless robotic homo economicus makes optimal decisions under a series of ad hoc “fortunate” conditions such as: one possesses information on events (at least probabilistically), one understands fully the causality relation between means and ends, and one has the capacity of solving complicated mathematical problems to devise optimal strategies. This approach, based on individualistic theories, has gained large support because it has a very appealing property: it offers precise mathematical predictions on what agents will choose.

Our approach departs from the vision of the traditional economic actor because we take into account two important dimensions of the human race, namely the social and the personal sphere. First of all, in our model, the individual is not referred to as homo economicus but as homo “economicus”, meaning that in making economic decisions one is affected by social relations and by the degree of structural “embeddedness” in their surroundings - all factors that shape and constraint opportunities and independence. Secondly, in our model an individual is also referred to as homo “humanus” - that is one enters into social relations with his/her endowment of capabilities, idiosyncrasies, personality traits, human cognitive biases. Furthermore, one is surrounded by a high degree of uncertainty that innovation and novelty create in a modern society.

Therefore, economic, social and personal factors create constraints and opportunities that interact to affect labour market decisions, and hence, these should be taken into account when designing and implementing effective labour market policies and nudges. Using Sen’s (1980) capabilities approach (CA), which departs from the utilitarian approach, we aim to identify opportunities and functionings<sup>3</sup> that are particularly relevant to labour market decisions. Sen’s approach considers three factors that influence how people convert opportunities into actual achievements: personal characteristics (e.g., physical conditions, gender, skills), social characteristics (e.g., social norms, power of relations, public policies), and environmental characteristics (institutions, infrastructures).<sup>4</sup> In this paper we focus on the social and personal sphere. The next section will provide brief overview of the

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<sup>3</sup> The CA focus on what people are effectively able to do and to be (capabilities). Sen’s defines capabilities as opportunities, advantages or freedom and functionings as achievements. Sen’s (2002) proposes to focus on the individual’s the set of “actual ability to achieve” (e.g., on refined functionings) meaning that any limitations to decision making capacity due to social background and/or psychological factors, or past choices, should be included in the capability set.

<sup>4</sup> As eloquently put in Clark (2006:5) “Sen’s CA has also been praised for broadening the informational base of evaluation, refocusing on people as ends in themselves (rather than treating them merely as means to economic activity), recognizing human heterogeneity and diversity (through different in personal conversion functions), drawing attention to group disparities (such as those based on gender, race, class, caste or age), embracing human and participation (by emphasising the role of practical reason, deliberative democracy and public action in forging goals, making choices and influencing policy), and acknowledging that different people, cultures and societies may have different values and aspirations.”

work done in different discipline showing the need to use unified multidisciplinary approach to offer a richer analysis of labour market statuses.

### **The social sphere (Homo (Econ)-Amicus)**

The socio-economic personalistic approach (Bowles and Gintis, 1998; Fehr and Gächter, 1998; O'Boyle, 1994) identifies two dimensions of human being: the individualistic dimension and the social dimension. The individualistic dimension leads the agent to pursue self-interest and to make *intra-personal* comparisons of one's wants and needs over time. On the other hand, the sociality dimension enables him/her to make *inter-personal* comparisons at any point in time and to re-evaluate decisions based on pure self-interest criteria. The interaction of the two dimensions has interesting implications for the labour market. This is because working is valued beyond its pecuniary currency. O'Boyle (1994) claims that homo socio-economicus as a worker has a need for work as such, not because of work instrumentality but as a consequence of one's need of belonging (teamwork) and of one's need for self-expressions (individual contribution), need that money alone cannot satisfy. Working and non-working decisions are partly determined by social factors that affect sense of identity and "preserve individuality<sup>5</sup>" and, consequently, the benefits and costs associated with employment and non-employment statuses go well beyond the (temporary or permanent) monetary gains and losses.

In an empirical paper, Burchardt and Le Grand (2002) used the British Household Panel Survey (BHPS) data and Sen's CA to study voluntary and involuntary worklessness. Among standard labour economics variables, they include some social variables, and found that after taking into account of "social" constraints, one-tenth of the non-employed sample is unambiguously voluntary. Clark (2001) used BHPS and Akerlof's (1980) approach on social comparison to test the effect of social norms on unemployment status. His findings show that the psychological cost of unemployment is less severe when unemployment is the social comparison of unemployed people, reducing the incentive creating to find work. Moreover, those individuals who were hurt less by the unemployment experience are less likely to search a job and are more likely to preserve their status.

Economists outside mainstream economics have tried to include social influence in labour market theories in various ways, ranging from segmented market theory (Bowles and Gintis, 1976) to human capital theory (Becker, 1976), and job search and information models (Mortenson, 2003). All these approaches share common features in relation to the structural "embedded-ness of relations". For example, they assume that players are anonymous, they abstract from the history and positions of relations, and interpersonal links (ties) are typical and stylized. Granovetter (1985) criticizes this approach because it leads to treat social influence as an external force rather than an on-going loop process in which people are affected and affect their own social environment. His theory of social embedded-ness emphasises the importance of individual's social capital and the role and structure of specific individual's personal relations (social ties) embedding economic life. Social networks and the strength of ties play an important role in labour market decisions and they can affect and agent's

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<sup>5</sup> "Its corollary is accepting the voluntary unemployment of homo socio-economicus as worker in order to assure his freedom and protect his/her individuality" (O'Boyle, 1994: 310).

behaviour in three ways: (i) through the type and quality of information they channel; (ii) through conditioning their members with punishments and rewards (iii) and through expectations of how other members will act (trust). Empirical studies have tested the traditional labour market model alongside network analysis and in general found that: (i) personal contacts are an efficient way of finding jobs; (ii) personal contact are used less often for higher salary jobs; (iii) the presence of a wage premium for jobs found via personal contacts depends on the type of jobs and (iv) mixed evidence in job search models and the strength of ties.<sup>6</sup>

The socio-economic and social networking approaches bring useful insights into the analysis of economic choices. However empirical studies in these fields fail to include the “personal” sphere and the influence of psychological traits, feelings, fears, attitudes, on labour market decisions.<sup>7</sup>

### *Personal sphere (Homo Humanus)*

Mainstream economics assumes rationality, predicting that people make choices in lines with their (known and immutable) preferences, under some well-known constraints. However, a large body of literature from Behavioural Economics and Psychology presents evidence about people’s “inconsistent” choices. Several reasons can contribute to display a perceived “incorrect rationality”. These include: i) decisions not necessarily reflecting true preferences due to constraints that have not been included in the analysis (internal factors such as emotions, perception biases, reduced cognitive abilities, or external factors such as social influence, economic and technological innovations, uncertainty); ii) preferences becoming “adapted” to unwanted/undesirable circumstances and interdependent on social relations; iii) the cognitive reference framework being used by agents to make different decisions from what economists have been assuming, especially under uncertainty, as theorized by Prospect Theory<sup>8</sup> and iv) individual’s responses to subjective well-being and hence decisions, which will vary depending on life circumstances, social comparisons, emotional states, personality traits, and memories of past experience (Kahneman and Krueger, 2006).<sup>9</sup>

An empirical application of Prospect Theory to labour market can be found in Goette et al (2002). In that study the authors use the reference –dependent preferences (RDP) approach to investigate how much loss aversion and diminishing sensitivity can affect workers’ behaviour. They find that higher financial incentives increase labour supply but at the same time can cause workers to put less effort on the job. We believe that labour market status and choices (particularly “inaction”) that economists would consider “irrational” can be explained by referring to some Behavioural

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<sup>6</sup> Due to the endogeneity of social effects (interdependence of preferences) empirical studies of social interactions are challenged by the reflection problem pointed out by Mansky (1993) that reduces the possibility of drawing correct inference from the data. In a recent empirical study, Cappellari and Tatsiramos (2010) took this aspect into account and estimate the effect of social network on job finding rates by using a direct measure of social interactions.

<sup>7</sup> For a review on the theoretical and empirical works about the role of social networks in the labour market see Goyal (2007).

<sup>8</sup> For a review on Prospect Theory see Tversky and Kahneman (2000)

<sup>9</sup> Psychological predispositions influence sociality. Extraverted types have larger groups with more diverse elements, and tend not to be inclusive and not to keep their close network partners separate. On the other hand individualist types, with high level of neuroticism tend to have smaller networks with more weak ties, and tend to keep their close network partners separate. (Kalish and Robins, 2005)

Economics (BE) principles. For instance the decision of being “inactive” (not wanting to participate to the labour market) or long term unemployment can stem from:

1. “Low self-esteem and confidence” reference point. An agent showing this behaviour has expectation of not finding a job or not being good for a job. If the status quo and reference point are aligned (and the individual lack ambitious goals) then the loss aversion principle would reduce the effort to become active to change the status quo because the disutility and psychological costs of exposing himself to the experience of trying without success loom larger than the gains of exposing himself/herself to the experience of trying and finding a jobs.
2. Fears expectations of precariousness of jobs. In this case, pessimism, fatalism, myopic loss aversion, heuristic representativeness and aversion for ambiguity, create an expectation that action (searching for a job) will lead only to a temporary change of status. The reference point to find a precarious job and the high psychological cost attached to frequent job losses make the disutility to lose the status quo higher than the utility of not losing it. Inaction due to status quo bias comes as natural choice.
3. “Attitude”, hedonic adaptation, social factors (conformity to norms), government benefits (economic considerations), perception of having being active, tendency for omission bias (changing status requires an act while keeping it requires an omission, a failure to act). In this case, the expectation is that action can lead to finding a job. If however, the reference point is still the status quo rather than a more ambitious goal, then the results is still a failure to act because the disutility of changing the status quo and being worse is greater than the utility of changing it and be better.

There are situations in which people can be affected by factors coming from all three categories. We identified the above typology, we created some proxy variables from the BHPS and used them in our models to analyse which effect tends to dominate others.

## **1. Methodology, data and model**

To investigate the UK labour market status, we use the British Household Panel Survey data for 2009 and we estimated two types of models: the first type of model explains non employment versus employment statuses differentiating between genders. The second type of model leaves the employed aside and explains different categories of non-employment (unemployment, students, disabled, early retired and carers), differentiating for gender and age characteristics.

The BHPS provides broad and detailed information on personal characteristics and social factors. Some of the variables we used in our models were directly extracted from the Survey’s replies, while some others were created by combining replies to several questions or created as interaction terms. We limit here our presentation of only those variables that turned out to be statistically significant in the Logit and Multinomial Probit Models, referring the interested reader to Tables A1. A.2 of the

appendix of Cagliesi-Hawkes (2013) for a full description of all the variables created from the BHPS.

In line with the CA, we propose to explain labour markets statuses and choices by looking at three main conversion factors, namely: personal characteristics, psychological factors and social factors. These can affect an individuals' real opportunity set (refined functioning set) and thus, ultimately, influence one's achieved functioning's (attainments) by acting either as constraints or opportunities. The first set of factors are grouped under the umbrella of "labour market variables" (LMV). These are human capital factors that are typically included into standard labour marker models such as: age, education, parents' employment and non-employment status, physical condition, marital status, etc. The second set of conversion factors includes variables that capture BE principles (such as preference for status quo, loss aversion), variables that reflect personal beliefs and values, and variables that are related to psychological traits and subjective perception of well-being. The third set refers to the respondents' social characteristics, social capital and strength of embeddedness and social relations. Social norms and "close ties" represent vital additional elements of the analysis. The new identified constraints interact with each other in contributing to shape agent's decisions.

#### *Model*

We use the Logit Model for Male and Female to estimate the probability of being non-employed, controlling sequentially for various constraints and/or opportunities. We proceed further by using a series of simultaneous Multinomial Probit models, each for a different age group of Male and Female, to estimate the probabilities of belonging to some specific category among the non-employed.

The Logit model for non-employment versus employment is of the following form:

$$1) \quad Prob(non - employment = 1) = F(LMV, BEV, SatV, SNV, INTERV)$$

where:

$Prob(non-employment=1)$  is the probability of current non-employment

$F(.)$  is the odds ratio of being non-employed relative to being employed derived from the Logistic distribution function

$LMV$  is a set of labour market variables

$BEV$  is a set of behavioural variables

$SatV$  is a set of subjective well-being variables

$SNV$  is a set of social relations and network variables

$INTERV$  is a set of interaction variables between individual's preferences and social network

The second model we use aims to study different categories of inaction versus unemployment; in this stage we use a Multinomial Probit model of the following form:

$$2) \quad Prob(j = 1) = G(LMV, BEV, SatV, SNV, INTERV)$$

where:

$Prob(j=1)$  is the probability of a non-employed individual to fall into one of the workless categories ( $j$ = retired, unemployed, student, disabled and non-working carer)



$G(\cdot)$  is the cumulative distribution function when assuming that the stochastic error term is  $IN(0, \sigma^2)$

$LMV$  is a set of labour market variables

$BEV$  is a set of behavioural variables

$SatV$  is a set of subjective well-being variables

$SNV$  is a set of social relations and network variables

$INTERV$  is a set of interaction variables

This model is estimated accounting for different age categories (young16-24; mature25-49;old50-64) of non-employment and for the gender difference. The explanatory variables included in the Logit and Multinomial Probit models, with the exclusion of the interaction terms, have been checked for the cross-correlation. Overall with the exception of variables reservation wage and wanting to change, the correlations are not very high and not important in the models for all groups of active and inactive individuals. This fact suggests the correlations are driven by the differences between groups rather than explaining difference within the groups.

## **2. Results LOGIT: non employment versus employment status**

Table 1 reports the predicted probabilities of labour market statuses obtained from the Logit models and Table 2 reports the estimated coefficients of the same models. Table 1 shows the results for gender and for nested stages, by sequentially adding new sets of variables to the traditional labour market variables. First of all, we can notice that our models track the sample mean very closely, and that when we add more dimensions (behavioural, subjective well-being, social influence) we obtain average estimated probabilities for men and female virtually identical to the sample percentages.

Table 1 reports also information about predicted “types” and actual labour market “statuses” of respondents. Each respondent is predicted as being either a type facing “high risk of non-employment” or a type facing “low risk of non-employment” depending on whether his/her individual estimated probability of non-employment falls above or below the estimated (group) average probability of non-employment. The “type” probability is then compared to the individual’s actual labour market status. Four possible outcomes can arise depending on whether predictions and actual statuses are aligned or not. In fact, among individuals with “similar” characteristics in terms of predicted risk of being non employed, there will be some who will actually hold the predicted status, and some others who will not (that is they could be employed against the odds or could be non-employed despite their low risk of non-employment).

In commenting our results from Table 1 one could notice that when we move from model 1 to model 4 (adding more constraints and opportunities) the predicted statuses are more aligned with actual statuses of respondents, suggesting that accounting for more constraints and opportunities helps predicting better high and low probabilities and hence, help identifying more accurately those people whose status is not in line with the predicted status (such as being employed against the odds or being voluntary non employed).

The cases of when the predicted probability of being of a certain type differs from actual status are interesting because this discrepancy can be due either to unaccounted, unobserved constraints <sup>10</sup> or to personal choices and efforts. All the models from 1 to 4 point out to a gender difference: in moving from simpler to richer models, the percentage of men with a high risk of non-employment but actually employed (employed against the odds) is progressively much higher than the correspondent female's percentage (42% for male against, 28% for female in model 4). Therefore, being employed against the odds is more a male than a female characteristic possibly because females constraints are more binding than males' ones (motherhood is an example). It is possible that in our models we may have left more unaccounted constraints for male than for females, but given the closeness between estimated mean and actual sample mean for both genders, we tend to believe that flexibility of constraints plays an important role in labour market gender differences.

The other interesting category is that of those individuals facing a low risk of non-employment (and a high chance of employment) but who are actually non-employed. This category includes the voluntary non employed, meaning those who choose not to work. Again there are some gender differences at play that can offer some good insights into the labour market: the percentage of "voluntary non employed" males is much smaller than the corresponding female's percentage (6% for male against 14% of female). Again, either women are more likely to be voluntary non employed or the model reflects constraints on female status less well. However, by looking at Status columns of table 1 we can see that among the non- employed males, 17.6% are at low risk of non-employment while the percentage of non-employed but "employable" women is much higher (23.21%), confirming that females are more likely to be voluntary non employed than males due to gender role and choices at best , or due to lack of equal opportunities at worst.

**Table 1: Predicted Probabilities Logistic Model**

Logistic Model Male (row percentages)													
	Estimated Mean %		Sample (4480)		Type: High probability of non-employment		Type :Low probability of non-employment		Status: Non-employed		Status: Employed		
	Non Emp l %	Emp l %	Non Emp l %	Emp l %	Non Emp l %	Emp l %	Non Emp l %	Emp l %	Type High %	Type Low %	Type High %	Type low %	
Model 1	21.97	78.03	21.94	78.06	51.05	48.95	7.54	92.46	77.01	22.09	20.76	79.24	
Model 2	21.92	78.08			51.08	48.92	6.79	93.21	79.65	20.35	21.45	78.55	
Model 3	21.94	78.06			53.89	46.11	5.99	94.01	81.79	18.21	19.67	80.33	

<sup>10</sup> This latter point is indeed a limitation: we may not properly "measure" with our data, those variables that could be important in explaining people's labour market status. Despite this and other limitations, we believe that this study pioneers a new interdisciplinary approach and can shed new light on the phenomenon of non-employment.

Model 4	21.9 4	78.0 6			58.4 0	<b>41.6 0</b>	<b>5.59</b>	94.4 1	82.4 0	<b>17.6 0</b>	16.5 0	83.5 0
<b>Logistic Model Female (row percentages)</b>												
	<b>Estimated Mean %</b>		<b>Sample (5419)</b>		<b>Type 1: High probability of non-employment</b>		<b>Type 2: Low probability of non-employment</b>		<b>Status: Non-employed</b>		<b>Status: Employed</b>	
	<b>Non-Emp l %</b>	<b>Emp l %</b>	<b>Non-Emp l %</b>	<b>Emp l %</b>	<b>Non-Emp l %</b>	<b>Emp l %</b>	<b>Non-Emp l %</b>	<b>Emp l %</b>	<b>Type 1 High %</b>	<b>Type 2 Low %</b>	<b>Type 1 High %</b>	<b>Type 2 low %</b>
Model 1	36.2 7	63.7 3	36.1 7	63.8 3	62.7 3	37.2 7	16.1 9	83.0 9	72.9 1	27.0 9	16.9 1	83.0 9
Model 2	36.1 5	63.8 5			67.3 2	32.6 8	14.8 3	85.1 7	75.6 6	24.3 4	14.8 3	85.1 7
Model 3	36.1 9	63.8 1			69.5 4	30.4 6	14.2 7	85.7 3	76.1 7	23.8 3	18.9 1	81.0 9
Model 4	36.1 7	63.8 3			71.9 1	<b>28.0 9</b>	<b>13.6 8</b>	86.3 2	76.7 9	<b>23.2 1</b>	17.0 0	83.0 0

Table 2 reports the estimated odds ratios for Male and Female models. In the odds ratios a coefficient above 1 indicates that the specific factor increases the odds of being non-employed relative to being employed. As expected, ethnicity, limiting health condition, age (being younger or older) and caring responsibilities increase the odds of being non employed, whilst education and having a working partner reduce the odds of non-employment (the benefit system encourages those in couples both to work and or both no to work). The next set of BE variables show an interesting differential effects on gender. For women, the odds of being non employed versus being employed seem to depend on changes in autonomy while for males, the odds depend more on confidence. A gender role can be at play here: losses in autonomy increase the odds of not working, while gains in autonomy enable women to be freer to choose to enter the labour market. Possibly more autonomy is needed to help arrange child care and manage other family responsibilities to maintain successful work-life balance. This point is reinforced by the asymmetric reaction to gain and losses in autonomy: a loss in autonomy creates a constraint bigger than the opportunity created by an equivalent increase in autonomy. Thus, for instance, women are more affected by an additional constraint that reduces autonomy (say having a child) than by the removal of a constraint that increases autonomy, responding to losses more than to gains (in line with BE principles). Males are affected by confidence rather than by autonomy and they show a bigger reaction to losses than to gains than females do (the coefficient of gains in confidence is not statistically significant for males). It seems that losses in confidence may undermine self-esteem increasing the odds of non-employment. A common factor that increases the odds of not working for both male and female is extraversion. This is not an uncommon result as both genders are also markedly affected by the labour market “social norm” of the region they live in and the “social norm” of their close group of friends. Furthermore, being surrounded by high local non employment and having close ties with non-working friends increases considerably the odds of non-employment. For women, the degree of embedded-ness in their neighbourhood adds to effect of the high local non employment in limiting even further the odds of employment. It is very interesting to notice that the influence of close

friends affects labour market statuses in an asymmetric fashion: having strong ties with a group of all non-employed friends produce a much stronger effect on non-employment than having strong ties with a group of friends, all of who are employed . Thus being exposed to a non-working environment is a potent factor. However individual preferences can mitigate or reinforce social influence of friends, as indicated by the interaction term variables. Thus the odds of being employed improve substantially for those males who show a more “attached” attitude to the labour market and have some employed friends (the coefficient of the variable (*DeviateNW*) is much smaller than the coefficient of the variable (*GinterNOTEMPLtie*). Personal attitudes and preferences are important also for women. The social influence of working friends combined with an “attached” attitude to the labour market improves further the odds of employment. The improvement is reduced when women are less attached to the labour market.

**Table 2: Logistic model: odds ratio of being non employed relative to being employed**

<b>Not Employed versus employed</b>	<b>Female odds ratio relative odds of not employed</b>	<b>Male odds ratios relative odds of not employed</b>
number of observations	5419	4480
Pseudo R square	0.391	0.432
<i>Labour market Variables</i>		
Bme	1.481	2.234
Age1624	5.089	10.613
Age5064	2.222	2.10
Gcse	0.612	0.720
Alevel	0.778	0.821(NSS)
Higher	0.578	0.651
Partneremp	0.369	0.315
Responscare	2.539	1.506
Rhlltw	3.524	6.430
Reswage	2.975	
<i>Behavioural Variables and Values</i>		
Optimism(2)	1.129	
Gain autonomy	0.811(*)	
Loss autonomy	1.294	
Gain in confidence		1.02(NSS)
Loss in confidence		1.260
VfamilyLife	1.069	
Vjob	0.718	0.788
Extravert	1.293	1.215
Conscientious	1.000(NSS)	1.000(NSS)
Risk	0.966	
<i>Satisfaction and Capabilities</i>		
Betteoffp	0.529	0.318
Worseoff	1.000(NSS)	1.203(NSS)
Capabilities	0.719	0.636
<i>Social relations and quality of close network</i>		
Morembed	1.233	
GinterNOTEMPLtie	4.851	12.215
GinterEMPLtie	0.532	0.245
Inter30	4.441	4.544

<i>Interaction (preferences/beliefs and social norms)</i>		
DeviateNW		1.448
DeviateW	0.720	
ConformW	0.554	

*The asterisk indicates a 10% level of significance*

**(NSS= non statistically significant)**

### **3.Results PROBIT: across non- employment statuses**

In tables 1 and 2 the focus was on non-employment versus employment. However non employment has a range of non-working statuses with different degrees of attachment to the labour market, ranging from the unemployment status (people actually seeking a job) to an inactive status (people not necessarily seeking working). The “inactive” respondents can fall in one of the following categories: they could be in education and training, they could be disabled or early retired, or – if females- they could have full time caring responsibilities. The next models will analyse various factors affecting these five different categories of non-employment. In doing so we will use one of the findings of the Logit models on the importance of age and use a series of multinomial Probit models for different age groups and genders.

The estimated coefficients of the multinomial Probit models are reported in the appendix (Tables A.1 to A.3). Given the non-linear nature of the Probit model, the estimated coefficients in Tables A.2 and A.3 do not have an easy numerical interpretation because they do not represent the direct effect of the factor on the probability of the status. They can only indicate the direction of the effect produced by a specific factor: a negative (positive) coefficient indicates that the associated controlling factor reduces (increases) the probability of belonging to the specified category. However, even by looking at the signs of the coefficients, it is possible to identify some clear differences between genders and across different age groups, some of which are expected because age and group membership are strongly related. To take some examples: education and ethnicity are important factors for young and old males (making it more likely to be inactive- students or retired- than being unemployed); the presence of limiting disabilities is a relevant factor for mature and old age groups (making it more likely to be or to declare to be inactive rather than unemployed); having young children is an important variable for young and mature females; the degree of satisfaction with job and the satisfaction with family are factors that are more relevant to old males and females than to young and mature people (because they are characteristics more commonly shared by retired people -who had been attached to the labour market- and by a generation of old females who had actually chosen to stay at home); conscientiousness and less satisfaction affect only young people of both genders.

Some other differences are more gender related: value for family and confidence (with gains and losses) are females factors, while males tend to respond more to relatedness (a measure of how often an individual has felt close to other people). It is interesting to notice that while autonomy was an important enabler to help women towards employment, the degree of confidence is a characteristic of those non-working

women who choose their status, so that the lacking confidence is associated with higher chance of being unemployed (with the exception of disabled category).

Social influence affects both genders in a way that confirms the Logit model's results: women are affected by the status of inactive friends (a groups less attached to the labour market) and by embedded-ness in the environment while men are influenced by active friends (a category more attached to the labour market). The variable want to change is the only one that is relevant to all ages and groups and to both gender and it increases the probability of unemployment versus inactive statuses, which is not a surprise because unemployment is most likely not a matter of individuals' choices.

To gain information on the order of magnitude of the effects of each variable on the relevant probabilities we would need to look at the marginal effects reported in Tables 3 and 4. Wanting to change status is among the most important variables, particularly when it comes to young and mature males, who seem to "suffer" more than older males and females from being unemployed. Constraints such as having limiting disability or young children, having no qualification or low level of education, exert also strong effects together with social influence, individuals' preferences and attitudes.

The marginal effects of each variable in each age group are computed by taking the rest of the covariates at their respective (age group) average values. However, different people in the same age group may present values of covariates that are much higher or lower than the age group mean. Thus, for each age group (and gender) we computed the estimated probabilities of some non-employment statuses after controlling for the specific values of covariates instead of taking them at their mean values. Tables 5 -7 report these calculations.

**Table 3. Marginal effects for Males (computed at average values)**

	Young male 16-24 (272)		Mature male 25-49 (225)		Old male 50-64 (291)	
	<i>change in prob. of being a student (183)</i>	<i>change in prob. of being unemployed (77)</i>	<i>change in prob. of being disable (98)</i>	<i>change in prob. of being unemployed (117)</i>	<i>Prob. of being a disable (107)</i>	<i>change in prob. of being retired (146)</i>
Bme					0.39(2.59)	-0.44(-2.73)
Noqual	-0.18(-2.71)	0.21(3.53)			0.12(2.75)	-0.16(-3.93)

Gcse					0.10(1.65) *	-0.14(-2.59)
Responscare			-0.10(-2.00)	0.12(2.47)		
Rhlltw			0.32(8.29)	-0.31(-7.37)	0.26(7.07)	-0.11(-2.72)
Volwork	0.16(3.30)	-0.17(-3.87)				
Lossoptimism						-0.04(-2.93)
Relatedness			-0.08(-3.11)	0.05(1.83)*		
Conscientious		-0.01(-1.96)				
Vjob		0.03(2.35)	-0.02(-1.71)*			
Vwealth			-0.01(1.64)*	0.02(2.92)		
Moresatis		-0.09(-1.82)*		-0.14(-2.03)		
Lesssatis	-0.15(-2.64)	0.10(1.90)*				
Sfamily					-0.02(-3.32)	0.02(4.81)
Wantchange	-0.32(-7.87)	0.35(9.21)	-0.23(-5.19)	0.30(7.01)		-0.18(-4.08)
Capabilities					-0.03(-2.13)	0.05(4.17)
Morembd		-0.07(-1.68)*				
Strenghties						-0.14(-2.55)
GinterINACTtie			-0.25(-1.97)			
GinterACTtie	-0.17(-2.43)	0.16(2.56)				
Inter30						-0.22(-2.20)
Propnetinact						0.19(3.28)
DeviateNW	0.17(2.85)	-0.12(-2.24)			-0.10(-2.14)	
DeviateW						

*The asterisk indicates a 10% level of significance*

**Table 4. Marginal effect for Females (computed at average values)**





#### 4. Probabilities of statuses after controlling for some personal characteristics.

##### 4.1 Non-working young people (16-/24 years old): the female students and the unemployed men.

From Table 5, one can see that a young non-working female has a high estimated probability (55%) of being a student. However, this probability changes when we account for the effects of specific her individual characteristics. So for instance this probability increases to 97% for a “young” female with no caring constraints (no young children), who is happy to keep her status quo, who has strong ties with non-working friends, is happy to conform to this social rule, and is rather conscientious (above average). Conscientiousness in this case, when associated with some specific individual’s characteristics tends to increase the probability of being a student relative to all other categories (despite the negative sign in the “average” estimates).

A young non- working male has a 28% chance to be unemployed and a 72% probability to be inactive. However, when controlling for specific and individual values of factors (rather than for average values) this probability can vary substantially. For instance the probability of being unemployed rather than inactive increases from 28% up to 95% when a young man, with a low/modest level of value for work (below or around 8, which is the average of his peers) and without any qualification, has a desire to change his non-working status, has strong ties with friends who are all attached to the labour market (active) and his preferences reinforce his desire to change and to deviate from the non- employed (albeit active) status of his friends. On the other hand, it is very unlikely to be unemployed (4% probability) if a young male has some qualifications and he is willing to preserve rather than change the non-working status quo. This again confirms that being inactive, differently from being unemployed, is a matter of personal choice and often of enablers (such as education).

The case of a young non-qualified male with 95% probability of unemployment is an interesting situation, because, despite the fact that the factor (*DeviateNW*) has a negative marginal effect on the average probability of being unemployed, the effect of this variable, when considering this specific type of young male, is actually to increase his (individual) probability of unemployment. This case is similar to result of the young female student and the factor conscientious identified above. This means that when we move from mean values of the covariates into individual characteristics, the combination and the absence/presence of values of these specific characteristics can produce predictions that can differ from those obtained when using mean values. Individual idiosyncrasies affect the impacts of factors.

**Table 5. Estimated probabilities after controlling for “individual” factors: Young people**

Male age 16-24: Average estimated probability of being unemployed = 28%					
Controlling for	do not want to change	want to change	want to change and strength of ties with active friends	want to change, strong ties and value work	and preference
no qualifications	20%	81%	66% (no strong ties) 89% (strong ties)	93%(value job<=8) 87%(value job>8)	(when vjob<=8) <b>94%</b> (DeviateNW=1) 92%(DeviateNW=0)
some qualifications	<b>4%</b>	43%	35%(no strong ties) 68%(strong ties)	52%(vjob<=8) 73%(vjob>8)	(when vjob>8) 61%(DeviateNW=1) 85%(DeviateNW=0)
Female age 16-24: Average estimated probability of being student = 55%					
Controlling for	all inactive friends	all active friends	all inactive friends and conscientious	inactive friends conscientious < 17 and preferences	Conscientious > =17 and preferences
no young children and want change	78%	28%	63% (consci >=17) 81% (consci < 17)	84%(ConformNW=0) 72%(ConformNW=1)	no effect
no young children, do not want change	92%	50%	91% (>= 17) 93%(<17)	94%(ConformrNW=0) 83%(ConformNW=1)	90%(ConformNW=0) 97%(ConformNW=1)

(Conscientiousness < 17 is below the average of the young female group which is 15, in the range from 0 to 31; vjob > 8 is above the average of the young male group, in the range 1 to 10).

#### *4.2 Mature (25- 49 years old) non-working people: carers and disabled males*

Table 6 reports that non-working women in this age group have a high chance (62% estimated average probability) of being at home carers. This probability increases to 85% for those women with young children who place very high values to family life and who do not want to change their non-working status. This result is not surprising. However, it is interesting to notice that the probability of being an “at home carer” increases quite substantially (up to 77%) for those women who also have young children and place high value to family life, but who instead of keeping it, want to change their status quo. This category may represent the case of mature women who may have left the job market to choose temporarily a non-working status but who want to resume full or part time work.

For mature non-working men, the average probability of belonging to the disabled category is 44%, while the average probability of being unemployed is 52%. The 44% increases substantially up to 96% when we consider those non-working men declaring to have limiting disabilities, and some other personal characteristics such as: not wanting to change the labour market status, having a low level of relatedness (<3 out of 5), and not placing much value (lower than 13 on a scale from 2 to 20) on wealth.

This high probability is expected. What is less expected is that those mature men who also have low level of relatedness, low value to wealth and limiting disability but who declare instead that they want to change the non-working status (possibly into full or part time job) rather than keeping it, have a 75% probability of belonging to the disabled category. This is a high figure, well above the 44% average which may capture one of the feature of mature male workless-ness status: the tendency, while waiting to find a job, to prefer declaring some disabilities and receiving disability benefits rather than to declare unemployment.

**Table 6. Estimated probabilities after controlling for “individual” factors: Mature people**

Male age 25-49: Average probability of being disabled =44%						
Controlling for	limiting disabilities	no limiting disabilities	no limiting disabilities, high relatedness (>=3) and high value wealth (>=13)	limiting disabilities, high relatedness and high value wealth	limiting disabilities, low relatedness, low value wealth	
want to change	45%	6%	3%	36%		75%
do not want to change	86%	22%	15%	80%		96%
Female age 25-49: Average probability of being non-working carer = 62%						
Controlling for	want change and vfamily >=25	want change and vfamily<25	do not want to change and vfamily=25	do not want to change and vfamily<25	do not want to change, and strength ties with all active friends	want to change strength ties with all active friends
not having young children	42%	31%	52%	38%	vfamily >=25 54%(ginterACTtie=0) 53%(ginterACTtie=1)	vfamily(>=25) 45%(ginterACTtie=0) 24%(ginterACTtie=1)
having young children	77%	60%	85%	69%	vfamily >=25 85%(ginterACTtie=0) 81%(ginterACTtie=1)	vfamily(<25) 67%(ginterACTtie=0) 49%(ginterACTtie=1)  vfamily(>25) 79%(ginterACTtie=0) 73%(ginterACTtie=1)

(Relatedness ....; Value for family life)

#### 4.3 Old (50 - 65 years old) non-working people: early retired males

For this age group qualification, social influence is a factor that plays a crucial role in refining more accurately the probability of early retirement. For instance, while the average of the group is 50%, the probability of retirement jumps to 97% when we consider an old able male (with no limiting disabilities), who has some qualifications (or some level of education) and with all inactive friends. On the other hand, old able people with no qualification and with all active friends, are much more likely to be unemployed than to be retired. Thus old males choosing early retirement are most likely to be those possessing some level of qualification and education which offered them better chances to have well paid jobs and, hence, to afford either to retire at an earlier stage, or to not work and to wait to return to full or part time employment without transiting through unemployment. These people tend to associate themselves and being strongly affected by similarly-minded friends.

**Table 7. Estimated probabilities after controlling for “individual” factors: Old people**

Male age 50-64: Average estimated prob. of being retired = 50%				
Controlling for	limiting disabilities	limiting disabilities and status of friends	no limiting disabilities	no limiting disabilities and status of friends
no qualifications	18%	28% (all inactive) 13%(all active)	48%	81% (all inactive) 41% (all active)
some qualifications	40%	46% (all inactive) 27%(all active)	83%	96% (al inactive) 73% (all active)

Our results indicate that the use of a cross disciplinary approach of labour economics, behavioural economics and social network analysis can generates significant benefits in terms of policy making and policy prescriptions because it provides useful insights into inaction that can better orientate the design of effective labour market policies. For instance a deeper understanding of how social networks and capital impact on labour market perceptions, attitudes and decisions and attitudes, and how they affect social mobility, can have crucial implications for the labour market policies, subsidization of education and decision on unemployment benefits.

### **The influence of “under-employment” and “career markers” on inactivity in the labour market**

The term “under-employment” generally refers to an employment situation where there is a disparity between the qualifications and skills that an employee possesses and the work they carry out (Feldman, 2006). Examples would include holding a part-time job despite desiring full time work, or where an employee has a level of education, skills and experience that is far beyond the requirements of a job – such as a Master’s graduate working as a Barista in *Starbucks*. Consequently, a wide variety of conceptualisations of under-employment have been developed, and terms such as “over-education”, “over-qualification”, “under-utilisation” and “under-employment” tend to be used variably and interchangeably. Furthermore, a range of literature on this subject has recognised how this topic has been associated with two main perspectives – i.e. the objective and the subjective (Khan and Morrow, 1991). The former takes the view that under-employment reflects the utilisation of human capital (in comparison to an accepted standard with their referent group), whereas the latter acknowledges and explores an individual’s perception of their employment situation, with an emphasis on how their abilities and skills are interpreted by themselves and others (Khan & Morrow, 1991; Jones Johnson & Johnson, 1995). While under-employment has yet to enter the domain of research in BE and social influence, one cannot ignore the effect that it is

having on the present job climate in the UK. For example, recent data from the Office for National Statistics (ONS) said there had been an upward trend in the proportion of recent graduates working in non-graduate jobs - up from 37 per cent in 2001 to 47 per cent by 2013, with most of the increase happening since the 2008/09 recession. Furthermore, the pervasive character of under-employment can also be seen in the preponderance of part-time workers who desired to work full time. Recent ONS data highlights that 1.9 million of the underemployed were in part-time jobs and this meant, in turn, that 24% of all part-timers wanted more work (whereas 5.5% of full-time staff said they wanted to work more hours).

So while this study found that BE and social capital play a large role in explaining inactivity in the labour market (taking account of differences between genders, types of inaction and age groups), the influence of under-employment in accounting for labour market inactivity should also be taken into consideration. However, to *understand* the influence that under-employment might have on labour market inactivity, the distinction between objective and subjective perspectives should be taken into account (Khan & Morrow, 1991). While objective measures of this perspective tend to predominate, it should also be recognised that there exist contextual and interpretive frameworks that individuals draw upon to make sense of their present economic situation (Feldman, 1996; Johnston, 2003), and this finding could be applied to the present study. For example, the estimated nested mean model that used to predict the probabilities of being non employed recognised a discrepancy between an individual's employment status and their types of employment probabilities, and it was found that one of the factors in explaining this discrepancy was personal choice and efforts – again reflecting how contextual and interpretive frameworks may be used to make sense of one's present economic situation. So while inactivity in the labour market can be explained by BE principles, it is interesting to observe that the *causality* of labour market inactivity shares similarities with the phenomenon of under-employment.

Furthermore, as this study used social influence and BE to establish that choices and achievements in the labour market are largely affected by an interplay between an individual's psychological characteristics (such as perceptions and beliefs) and prevailing economic conditions, it is interesting to speculate on how inactivity in the labour market can also be influenced by the notion of "career markers".

In a similar vein to the phenomenon of under-employment, there are also objective and subjective markers of career success, where objective career success is strongly correlated with positive life outcomes such as health, well-being, longevity and financial stability (Weick & Berlinger, 1989), whereas subjective markers of career success view careers from the perspective of the individual to capture their sense-making over different situations, over different times (Hughes, 1937). Central to this perspective is the view that a career provides the means through which an individual can link themselves to societal structures (Barley, 1996) and that others can influence individuals' perceptions of their career. This approach moves away from viewing careers along an "objective" trajectory and recognises that individuals will have their own interpretations and views of their current situation – linked to their own "self-identity" (Goffman, 1969). Moreover, from looking at how this study utilises BE variables to account for how gender differences affect employment practices, some interesting insights could be made about how the influence of subjective career

markers might play an important role in engagement in the labour market. For example, it was found that the issue of autonomy enables a woman to be more free when choosing to enter the labour market, whereas, for males, the issue of autonomy decreases engagement with the labour market. Whilst this difference could be attributed to reservations about wages or a willingness to find the right job, the issue of autonomy could also be de-constructed from the perspective of the subjective marker of “career success”, where autonomy could be associated with an interpretation of one’s own career situation which could vary between genders and could reflect how one “socially constructs” (Weick 1995) their own sense of reality through different stages of a career.

So whilst this study utilised some principles of BE and social influence to show some interesting differences in labour market inactivity (across a variety of different demographic variables) the significance of two important strands of research has also been identified, which could be very influential in understanding workless-ness namely under-employment and career markers (and the influence of the “subjective” aspects of these phenomenon). It could be suggested that understanding the bearing of this research could complement the use of BE and social economics in explaining labour market inactivity and open a “black box” for revealing what challenges lay ahead in future research in this area.

### **Policy Evaluation and the Multidisciplinary approach**

Our results suggest that some labour market choices and statuses that economists would consider “irrational” can be explained by referring to some Behavioural Economics (BE) principles, to personal motivation and to social influence. We stress here that the policies play a big role in affecting people’s ability to change these choices because, differently from personal traits, some factors such as loss aversion and the status quo bias are not fixed innate characteristics, and hence, as such they could be influenced by the correct policy and nudges. How can policies achieve this? By creating changes in pressures (internal or external) that would prompt an individual to make an effort to leave his “inert” area (which is the habitual range of effort levels set by the individual and/ or by group norms). Therefore the change in (internal or external) pressure created by the policy ought to be sufficient enough to make the costs of remaining in the area exceed the benefit. Well designed, well framed and well informed government policies can affect an individual’s reference point, his level of social conformity, and motivate to action. Are policies actually designed to nudge an individual to action?

Let us consider for instance three following cases of:

- Non employment due to a “low self-esteem and confidence” reference point. This may be the situation of those young people currently defined in the policy arena as NEET (not in education, employment or training). For these young people, poor school experiences combined possibly with being the second or more generation of workless in the family means these young people have very low expectations of finding employment at all. Policies here need to break the cycle. However the question remains: do the existing suite of policies such as New Deal, Connections and Sure Start actually help to break the cycle or not?

- Non employment or inaction due to fears and expectations of precariousness of jobs (pessimism, fatalism, myopic loss aversion, aversion for ambiguity). Which type of people belongs to this group? This maybe best associated with those who have lost their jobs due to a change in the economy, or those for whom a live course event, such as ill health, has forced them out of the labour market prematurely. These workers may be low skilled workers with low social mobility. These people for instance require and value job protection more than social public expenditure. Policies that support real opportunities to retrain and provision of real flexible working opportunities may help to encourage these discouraged workers to re-enter the labour market. Again the New Deal, Job Centre Plus and the Lifelong Learning Agenda are designed to support these workers. Do these policies actually provide the required support to instil and encourage taking risks?
- Non employment due to (temporary or permanent) personal “attitude” (detachment/ attachment to the labour market) and values, adaptation, social factors (conformity to norms), government benefits (economic considerations) etc. These characteristics maybe the most challenging to address with policy. Groups such as single mothers and those on incapacity benefit, especially those who have an intergeneration experience of these types of workless-ness, or surrounded by workless-ness, may not view work for them. Possibly in order to break this cycle policies must start young with real opportunities for proper work experience throughout school to expose those at risk of this type of workless-ness to the world of work early. It is also thought that this maybe worsened if the person is living in an area of high rate of workless-ness as there is less peer pressure around finding a job. Existing policies do not to be successful here and it is hoped that BE will be able to help us to suggest policies which may prove successful with London’s workless populations.

## **Final conclusions and limitations**

In this empirical study have used a new cross-disciplinary approach among labour economics, behavioural economics (BE) and social economics to explain agents’ functioning over employment, non- employment and across various inactivity categories in the labour market. Based on the framework of capabilities and refined functioning proposed by Amartya Sen we develop and test a model of non-employment that is much broader than those usually estimated within labour economics. We find, in addition to standard labour economic variable, BE and social economics are potentially important in explaining non employment. In addition there are important differences found between the genders, across the different types of inaction and between age groups.

In a paper on labour market inactivity and attachment in Britain, Little (2007) established that a substantial degree of behavioural heterogeneity existed in the behaviour of economically inactive individuals, with the social security system playing a large role in influencing the timing and probability of moving towards different labour market states. In view of this, future research could focus on how BE principles may

play a role in explaining the working culture of social security systems in the UK, and how this influences patterns of labour market activity.

Whilst the analysis presented above should be viewed within the context of some potentially important limitations. Firstly all of the measures used are not collected directly for the purpose but are derived variables constructed from data collected from a large household survey. This means that the data may not be measuring BE biases or does not capture psychological effects. In addition the measures of social influence are very much proxies rather than true measures of embedded-ness. However, the results they present suggest that the collection of such data would be worthwhile, and is indeed the next stage of this project.

Secondly the results clearly need to be considered within the content of the potential of endogeneity. The endogeneity issue of social network variables (is a mirror effect of Mansky) whilst the potential endogeneity of the preference variables is due to the data creation process. Therefore it is wise to think of this study as providing useful insights into additional factors from BE and social influence that may be associated with workless-ness. Having stated this clearly this also points to the potential for additional research in see if these effects could be truly considered as causal effects. Thirdly no financial variables have been included due to simultaneity. At present a proxy for income used that is whether the individual feels better or worse of financially than last year. This can be addressed once we move from the static model to the panel data where lags can be used to attempt to address these issues.

Two main lessons can be drawn from the multidisciplinary approach proposed in this study. Firstly, when we consider different type of individuals' constraints and predispositions, degrees of social influences, and the most common traits of human race (fear of losses), economic agents display a behaviour that can be seen as being economically irrational or "bounded" rational or irrational but that it is for sure more "human" and hence "credible" than the mechanic, mathematically predictable homo economicus. Our agent is not blindly affected nor does he follow obediently social norms and rules of his social network. He does not just internalize and crystallize norms values and rules because he interacts with the environment, and he filters norms and rules according to his predispositions, personal beliefs and inner motives. The picture that we have is a richer portrait of individuals who interact with their environments, shape and are shaped by social relations, can act upon "irrational" emotions. Homo Econ-amicus and Homo Humanus are closer to us than what homo economicus is, and this is a step forward to better understand economic decisions. Secondly these results suggest that the proposed redesign of the benefit system and additional support for those not currently employed needs to allow for a degree of heterogeneity in the client basis. A handful of policies, such as the New Deal and the Tax Credits system, have been designed with this heterogeneity in mind by age and type of inactively. The results above suggest that a consideration of factors wider than the standard labour economic variable when designing labour market policies, may provide fruitful returns.





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APPENDIX

Appendix: Table A.1. Predicted Mean Multinomial Probit

Multinomial PROBIT		MALE			FEMALE		
			Predicted	Sample		Predicted	Sample
Age		Sample	Mean %	Mean %	Sample	Mean %	Mean %
16-24	Unemployed	272	28.29	28.31	342	19.09	19.01
	Students		67.30	67.28		54.85	54.68
	Disabled		4.41	4.41		4.15	4.09
	Carers					21.91	22.22
25-49	Unemployed	225	51.82	51.63	659	10.46	10.47
	Students		4.53	4.65		6.53	6.37
	Disabled		43.65	43.72		20.29	20.33
	Carers					62.72	62.82
50-64	Retired	291	50.27	50.17	631	57.74	57.62
	Unemployed		12.93	13.06		3.33	3.33
	Disabled		36.81	36.77		18.22	18.25
	Carers					20.71	20.79

**Appendix: Table A.2. Multinomial Probit Estimates MALE**

MULTINOMIAL PROBIT MALE MODEL  AGE AND CATEGORIES OF NOT EMPLOYMENT	AGE 16-24		AGE 25-49		Age 50-65	
	Obs=272; Log Likelihood -126 Wald Chi <sup>2</sup> (22) =92. Prob > Chi <sup>2</sup> = 0.0000		Obs=225 Log Likelihood -88.04 Wald Chi <sup>2</sup> (22) =88.69 Prob > Chi <sup>2</sup> = 0.0000		Obs=291 Log Likelihood -136.9 Wald Chi <sup>2</sup> (22) =142.12 Prob > Chi <sup>2</sup> = 0.0000	
	Students relative to Unemployed	Disabled relative to unemployed	Students relative to Unemployed	Disabled relative to unemployed	Retired relative to Unemployed	Disabled relative to unemployed
	Coefficients (Z-values)	Coefficients (Z-values)	Coefficients (Z-values)	Coefficients (Z-values)	Coefficients (Z-values)	Coefficients (Z-values)
<i>Labour market variables</i>						
Bme			-.81(-0.12)	-1.82(-1.66)*	-2.84(-1.71)*	0.95(0.71)
Noqual	-1.47(-3.21)	-1.58(-2.12)			-1.16(-2.49)	0.14(0.31)
Gcse					-1.05(-1.76)*	0.04(0.07)
Higher			4.15(2.13)	-0.47(-0.8)		
Responscare			-1.67(-1.12)	-0.77(-2.21)		
Rhlltw			0.52(0.4)	2.30(6.06)	0.74(1.61)	2.29(5.29)
Volwork	1.23(3.52)	1.15(3.06)				
<i>Behavioural and values variables</i>						
Gainoptimism					-0.04(-0.19)	-0.28(-1.4)
Lossoptimism					-0.34(-2.55)	-0.09(-0.76)
Relatedness	-0.01(-0.03)	-0.77(-2.55)	1.32(1.14)	-0.50(-2.66)		
Conscientious	0.06(1.81)*	0.07(1.33)				
Vjob	-0.21(-2.1)	-0.30(-2)	1.51(1.82)*	-0.06(-0.73)		
Vwealth			-0.44(-2.05)	-0.09(-2.16)		
<i>Satisfaction and Capabilities</i>						
Moresatis	0.61(1.72)*	0.74(1.25)	3.34(1.72)*	0.75(1.51)		
Lesssatis	-0.83(-3.14)	0.32(0.56)	-2.44(-1.07)	0.29(0.78)		
Sfamily					0.17(3.21)	-0.01(-0.05)
Wantchange	-2.51(-6.66)	-2.28(-4.17)	-4.21(-2.64)	-1.85(-4.97)	-2.46(-5.32)	-1.47(-3.64)
Capabilities					0.47(3.41)	0.10(0.83)
<i>Social relations and close network variables</i>						
Morembed	0.36(1.12)	1.72(2.59)	-4.56(-2.12)	0.13(0.32)		
Strenghties					-1.23(-2.3)	-0.23(-0.49)
GinterINACTtie			5.51(1.65)*	-1.49(-1.63)*		
GinterACTtie	-1.22(-2.51)	-0.69(-0.83)				
Inter30					-2.97(-2.68)	-1.75(-1.62)
Propnetinact					2.34(3.33)	1.18(1.8)*
<i>Interaction (preferences/beliefs and social norms) variables</i>						
DeviateNW	0.99(2.45)	-0.14(-0.22)			-0.17(-0.37)	-0.77(-1.82)*
DeviateW			-8.44(-0.01)	-1.04(-1.93)		
Constant	2.27(2.03)	2.66(1.48)	-12.79(-1.2)	2.72(2.66)	-1.40(-1.3)	0.41(0.43)

\*= significant at 10%

**Appendix : Table A.3: Multinomial Probit Estimates FEMALE**

MULTINOMIAL PROBIT FEMALE MODEL  AGE AND CATEGORIES OF NOT EMPLOYMENT	AGE 16-24			AGE 25-49			Age 50-65		
	Obs=342; Log Likelihood = -193.8 Wald Chi <sup>2</sup> (22) =164; Prob > Chi <sup>2</sup> = 0.0000			Obs=659; Log Likelihood = -392.2 Wald Chi <sup>2</sup> (22) =328.9; Prob > Chi <sup>2</sup> = 0.0000			Obs=631; Log Likelihood = -507.3 Wald Chi <sup>2</sup> (22) =219.6; Prob > Chi <sup>2</sup> = 0.0000		
	Students relative to Unemployed	Disabled relative to Unemployed	Carers relative to Unemployed	Students relative to Unemployed	Disabled relative to Unemployed	Cares relative to Unemployed	Retired relative to Unemployed	Disabled relative to Unemployed	Cares relative to Unemployed
	Coefficients (Z-values)	Coefficients (Z-values)	Coefficients (Z-values)	Coefficients (Z-values)	Coefficients (Z-values)	Coefficients (Z-values)	Coefficients (Z-values)	Coefficients (Z-values)	Coefficients (Z-values)
<i>Labour market Variables</i>									
Bme				0.41(0.64)	-1.70(-2.01)	-0.37(-0.76)	-1.28(-1.62)*	-0.81(-0.94)	-0.25(-0.30)
Dadnotwork							-1.45(-2.15)	-2.32(-2.72)	-0.76(-1.10)
Mumnotwork				-1.15(-2.96)	0.06(0.20)	-0.19(-0.82)	-1.06(-2.52)	-1.39(-3.16)	-1.08(-2.51)
Alevels				0.61(1.48)	0.14(0.36)	-0.54(-1.71)*			
Higher	-1.43(-2.40)	-11.03(-0.01)	-2.19(-1.70)*	0.32(0.70)	-0.18(-0.40)	-0.45(-1.31)	-0.16(-0.33)	-0.47(-0.90)	-0.92(-1.83)*
Child012	-0.93(-1.65)*	-0.59(-0.61)	4.04(6.71)	0.60(1.32)	0.15(0.41)	1.25(4.14)			
Loneparent	-0.20(-0.53)	-0.99(-1.01)	3.18(5.73)	0.97(2.15)	-0.41(-1.09)	1.06(3.30)			
Partneremployed				-0.78(-1.54)	-0.21(-0.56)	0.34(1.00)			
Rhlltw				-0.01(-0.02)	2.57(8.23)	0.14(0.49)	0.24(0.59)	2.15(5.01)	-0.02(-0.04)
Volwork	0.82(2.06)	-0.04(-0.05)	0.64(1.28)						
<i>Behavioural Variables and Values</i>									
Optimism							-0.45(-1.89)*	-0.64(-2.53)	-0.66(-2.69)
Relatedness							0.40(1.64)*	0.17(0.66)	0.52(2.06)
Confidence				0.16(2.00)	-0.11(-1.73)*	0.05(0.96)			
Gainconfidence	0.31(2.38)	-0.64(-1.38)	-0.06(-0.33)						
Lossconfidence	0.02(0.14)	0.45(2.32)	-0.22(-1.43)						
Extravert	0.10(0.39)	1.40(2.53)	0.13(0.37)						
Conscientious	-0.06(-2.14)	-0.12(-2.02)	-0.01(-0.36)						
Agreeable	-0.80(-1.99)	-0.90(-0.91)	-0.86(-1.51)						
Vjob	-0.12(-1.14)	-0.27(-2.02)	-0.22(-1.71)*	0.28(3.16)	-0.05(-0.96)	-0.10(-2.03)			

Vfamilylife				-0.06(-1.45)	0.01(0.16)	0.09(2.88)			
Vwealth							-0.05(-0.85)	-0.12(-2.29)	-0.10(-1.88)*
Risk				0.14(2.89)	0.01(0.28)	0.02(0.62)			
<i>Satisfaction and Capabilities</i>									
Moresatis	-0.14(-0.4)	-0.56(-0.76)	-0.08(-0.18)				-0.04(-0.07)	0.31(0.51)	-0.09(-0.16)
Lesssatis	-0.51(-1.24)	-1.51(-2.042)	0.67(1.24)				-0.57(-1.27)	-0.31(-0.66)	-0.87(-1.86)*
Sjob							0.24(2.15)	0.08(0.66)	0.16(1.45)
Wantchange	-1.55(-5.30)	-1.26(-2.29)	-1.17(-3.06)	-1.91(-5.44)	-1.69(-5.73)	-1.46(-6.10)	-1.91(-4.20)	-1.16(-2.43)	-1.01(-2.16)
Capabilities				0.28(2.11)	0.08(0.74)	0.08(0.86)			
<i>Social relations and close network</i>									
Morembd	0.54(1.84)*	-0.52(-0.93)	0.97(2.37)				0.52(1.19)	0.50(1.07)	1.22(2.54)
GinterAC Ttie				-1.58(-2.79)	-0.10(-0.26)	-0.72(-2.30)			
Propnetin act	1.95(4.88)	0.17(0.21)	0.46(0.82)				2.07(2.90)	1.16(1.56)	1.62(2.23)
<i>Interaction (preferences/beliefs and social norms)</i>									
ConformNW	-1.03(-1.79)*	-0.68(-0.81)	-0.39(-0.58)						
DeviatNW							-0.56(0.37)	-0.45(-1.04)	-0.76(-1.81)*
Constant	2.12(2.06)	3.17(1.95)	-0.14(-0.10)	-4.00(-2.77)	0.90(0.80)	-1.20(-1.24)	1.88(1.26)	3.58(2.29)	2.23(1.45)

**Appendix: Table A.4. EXPLANATION OF THE VARIABLES OF THE LOGIT AN PROBIT MODELS**

<b>List of Variables relevant for the estimates of the Female Model</b>	
Age1624	Dummy variable: 1 if aged 16-24, 0 otherwise.
Age5064	Dummy variable: 1 if aged 50-64, 0 otherwise.
Alevel	Dummy variable: 1 if A-level is highest qualification, 0 otherwise.
Betteroffp	Dummy variable: 1 if better off than last year, 0 otherwise (improvement in financial position since last year);
Bme	Dummy variable: 1 if black or minority, 0 otherwise.
Capabilities	Index variable from adding six 0,1 dummies : owner occupier, have access to internet, have access to a car, have a mobile phone, have a satellite/cable TV, have a land line.
Carers	Dummy variable: 1 if not employed as carer , 0 otherwise
Child012	Dummy variable: 1 if have child/children aged 0-12, 0 otherwise.
Disabled	Dummy variable: 1 if not employed as disabled, 0 otherwise.
Disben	Dummy variable: 1 if receive any disability benefits, 0 otherwise.
Employed	Dummy variable: 1 if employed (full or part time) , 0 otherwise.
Gainconfidence	Index scaled 0-5 higher score is more gain in confidence (feel to: have played a more useful role than usual, to have had more ability to face problems than usual, to have believed in the self more than usual, have had no problem at all in overcoming difficulties and to have not lost any confidence at all) .
Gainoptimism	Index scaled 0-5 higher score is more gain in optimism (feel to: be able to concentrate more, enjoy day by day activities more, not suffer from depression or anxieties, or loss of sleep) .
Gcse	Dummy variable: 1 if GCSE is highest qualification, 0 otherwise
GinterACTtie	Interaction term between strength of ties and labour market status of friends: proportion of the three closest friends who are seen most days when the all three closest friends are active (either employed or unemployed)
Higher	Dummy variable: 1 if degree or more is highest qualification, 0 otherwise.
Loneparent	Dummy variable: 1 if a lone parent, 0 otherwise.
Moreembed	Dummy variable =: 1 if reported at least two of the following: feel to belong to the neighbourhood, to have local friends, to be able to seek advice locally and to feel similar to those locally; 0 otherwise.
Moresatis	Dummy variable: 1 if more satisfied, 0 otherwise (taken from life satisfaction index: more satisfied compared to previous year
Mumnotwork	Dummy variable: 1 if mother was not working when respondent was 14, 0 otherwise
Notemployed	Dummy variable: 1 if not employed, 0 otherwise
Notworkf	Dummy variable for not employed female: 1 if any retired, unemployed, education, disabled, parent; 0 otherwise
Notworkm	Dummy variable for not employed male: 1 if any retired, unemployed, education, disabled , 0 otherwise
Optimism	Index variable scaled 1-5 from “well being “questions: have been feeling optimistic about the future often or most of the time
Partneremployed	Dummy variable: 1 if partner is employed, 0 otherwise.
ConformNW	Interaction term between a respondent’s network social norm (the dominant labour market status of his/her closest three friends) and his/her personal views about importance of having a good job. ConformNW is a (0,1) dummy that has a value 1 when a respondent shows a “detached” attitude toward working and has a high percentage of closest friends in non-employment (at least 30% are workless). The name ConformNW indicates that the respondent does not mind conforming (Conform) to a non-working (NW) norm.
ConformW	Interaction between a respondent’s network social norm for labour market and personal view on having a good job. The (0,1) dummy ConformW takes the value 1 when a respondent values a fulfilling job and when all his/her closest friends are employed. The name of the variable indicates that the respondent would like to conform (Conform) to his/her network social norm of working labour market status (W).



Propnetinact	Proportion of the three closest friends (network) who are inactive.
Responscare	Dummy variable: 1 if have caring responsibilities for children, older or disabled people, 0 otherwise (independently of labour market status).
Reswage	Reservation hourly pay.
Retired	Dummy variable: 1 if not employed as retired, 0 otherwise.
Rhlltw	Dummy variable: 1 if have an employment limiting health condition, 0 otherwise.
Risk	Index variable scaled 2-20, higher score means willing to take more risk (take in general risks and take risk in trusting strangers).
Relatedness	Index variable scaled 1 to 5, measuring how often an individual has been feeling close to other people. Higher score means more often.
Sjob	Index variable scaled 1-14, higher score higher satisfaction with job and amount of leisure time.
Students	Dummy variable: 1 if not employed as student (or in training), 0 otherwise.
Swealth	Index variable scaled 2-14, higher score means higher satisfaction with own wealth (satisfaction with house/flat and satisfaction with income of household).
Unemployed	Dummy variable: 1 if not employed as unemployed, 0 otherwise.
Vfamilylife	Index to rank the value attributed to family life, scaled 3-30 (Importance of having children, importance of good friends, importance of having partnership). Higher score higher value.
Vjob	Index to rank the value attributed to a good job, scaled 1-10. Higher score higher value.
Vwealth	Index to rank the value attributed to wealth, scaled 2-20. (Importance of money and importance of owning own home). Higher score higher value.
Wantchange	Dummy variable: 1 if either want to change status (but have not looked actively in the last month) or have actively looked for a job; 0 otherwise.
Worseoffp	dummy variable: 1 if worse off than last year, 0 otherwise
Conscientious	Index scaled 0-30, proxy for conscientiousness in "green" choices (does not leave TV on standby overnight, switches off lights in empty room, does not let run tap when brushing teeth, wears extra layers rather than turn up heating, does not buy because extra packaging, buys local food, takes own bag shopping); higher score is more.
Extravert	Index scaled 0-3, proxy for extraversion (outgoing: frequency in meeting people, attend evening classes/yoga/keeps fit, plays sports/go for walks); higher score is more.

## Appendix 1 – list of variables

### *Labour economics Variables (LMV)*

The standard labour economic variables used in estimates include: *BME* which is 1 if the respondent is black or minority ethnic and 0 otherwise, a set of three age dummies (young workers age 16-24 (*Age1624*), those aged 25-49 (*Age2549*) and older workers aged 50-64 (*Age5064*)), a set of four educational qualifications dummies (no qualifications (*Noquals*), at least one GCSE or equivalent (*Gcse*), at least one A-Level or equivalent (*Alevel*), more than A-levels (*higher*) and dummy variables for having a child under 12 years old (*Child012*), having a partner who is employed (*Partneremp*), having a work limiting health condition (*Rhlltw*) and being a lone parent (*Loneparent*), having any type/degree of caring responsibility for family or neighbours independently of labour market status (*Responscare*), undertaking any voluntary work (*Volwork*). In addition we have included two historical indicators of labour market attachment of the respondent's parents when they were fourteen years old (*Mumnotwork*, *Dadnotwork*) indicating that their mother and father were not attached to the labour market). The variable (*Reswage*) is the declared reservation hourly pay.

### *Values and behavioral variables (BEV)*

The BE variables, proxies for personal attitudes and propension are included in levels and also in terms of pairs of gain and losses to take into account Prospect Theory's principle of asymmetric reaction to losses and gains. Level and changes of the attributes are derived from different sections of the BHPS and higher values indicate a stronger presence of the attribute and of its change. So for instance levels of *Optimism*, *Confidence*, and *Risk* are derived from a set of questions asking how they have felt recently, including: feeling useful, thinking clearly and whether they generally take risk and trust people. The variable *Relatedness* indicates how respondents have felt recently about their connections with others. The variables *Gainoptimism* (*Lossoptimism*) and *Gainconfidence* (*Lossconfidence*) indicate whether respondents have experienced recent improvement (deterioration) in mental and physical well-being and in self-confidence<sup>11</sup> as reported in the well-being section of the questionnaire.

Psychological traits are indirectly derived from a set of questions that allowed us to create indexes for the Big Five Traits. However, only conscientiousness and neuroticism (*Conscientious*, *Extravert* and *Agreeable*) were statistically relevant. Again higher values indicate stronger presence of the trait. Values are derived from a set of questions that ask about the importance of having certain things in life: including: importance of having children, good partnership and good friends (all used to derive *Vfamilylife*), the importance of having a good job (*Vjob*), and the value attributed to wealth (*Vwealth*). The larger the value the greater importance the individual places on this value.

#### *Well-being and capabilities variables (SatV)*

The satisfaction variables are also included in levels and in terms of pairs of gain and losses. All of these variables are derived from the battery of life satisfaction questions and a larger value corresponds to more satisfaction.<sup>12</sup> In terms of levels of satisfaction the measure include: satisfaction with spouse or partner, social life, use of leisure time (*Sfamilylife*) and satisfaction with job and amount of leisure time (*Sjob*). The respondents' general level of satisfaction compared to last year is used to derive whether the individual is more satisfied (*Moresatis*) or less satisfied (*Lesssatis*). The variable (*Wantchange*) is a dummy equal to 1 when a non-working individual indicated either a desire to have a regular paid job or has actively looked for a job in the last month (so the variable shows either a wish or an action towards a change). By converse, a value of this dummy equal to zero indicates that the respondent has not looked and does not have any interest in finding a full or a part time job.

We also use information on whether the individual feels financially better off or worse off than the previous year (*Betteroffp*, *Worseoffp*) and we also included a variable (*Capabilities*) that captures opportunities and capabilities other than financial income.

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<sup>11</sup> In creating and using these variables one has to keep in mind that the responses are subjective and respondents have reference dependent preferences and thus, depending on the position of the neutral status quo, changes can be perceived as gains or losses in a different way by different people.

<sup>12</sup> Here again evaluating while experiencing (living an experience while being affected by current emotions without knowledge how the experience will end) is different from evaluating using memories and this difference has a role in influencing and distinguishing degrees of happiness versus well-being. We used these variables without making such a distinction

This variable is an index created adding five 0-1 dummy variables each one recording current access or ownership of some good and services (access to a car, to the internet, ownership or shared ownership of house, have a mobile phone, satellite and landline).

#### *Social influence and social capital variables (SE)*

Social influence can come from the surrounding environment (region where the respondent lives) and from the more restricted group of friends attended by the respondent. The social influence of the region (regional social norm) is based on the non-employment rate (unemployment and inaction) of the interviewer's geographical area. A regional non employment rate of above 30% can be considered as an indication of an area characterized by a social norm of non-employment. Following Akerloff (1980), the non-employment regional social rule can influence agents' choices and behaviour via a reputational effect, or via a reduction in motivation and efforts in finding employment when the surrounded non employment. The effect of the social norm on an agent's status is captured by the variable *Inter30*. A positive effect shows agent's conformity to the rule (for several reasons). When producing effects, the importance of the rule is proportional to the strength of the rule itself (higher non employment social rule would affect more).

We assume that the effect of regional worklessness can be mitigated or reinforced by the agent's degree of embeddedness one's surroundings. The degree of which an individual is linked to its neighbourhood could influence its perception of the rule. Thus a more embedded individual may become more aware about the social norm and be more exposed to its psychological effects. *Moreembed* is a dummy variable representing those who report being most similar to those within their local neighbourhood, reporting belonging to the neighbourhood, having local friends, obtaining advice locally and feeling similar to their neighbours.

Whilst the local area may have some influences on the individual it is likely that their closest friends may have a stronger influence in terms of employment. The BHPS asks a range of questions about the respondent's three closest friends including how frequently they are in contact with them and whether each friend is employed or not. It is therefore possible to calculate a network social norm derived on the market labour status of the respondent's three closest friends. *Propnetinactive* is the proportion of the reported friends who are inactive (not employed and not unemployed).

#### *Interaction term variables across personal attitudes and social influence (INTERV)*

As with the regional social norm, network social norm can be mitigated or reinforced by two factors: the agent's degree of embeddedness within their friendship group and the agent's preferences, values, motives and beliefs about the network social rule itself. The first factor, how "close" the individual is to its friendship group, influences the extent to which the rule can be perceived by the agent. The variable *Strengthties* uses the data on the frequency of contact with the three friends to create a variable that is the proportion of their friends whom they see often (defined as at least once a week). Thus a more embedded individual, meaning an individual with stronger ties

(higher number of close friends seen more often) may be more exposed to its network social norm and to its psychological effects.

A more embedded individual, meaning an individual with stronger ties (higher number of close friends seen more often) may be more exposed to its network social norm and to its psychological effects. This factor may increase the likelihood for the individual to “conform” to the “working” or “not working” norm of the social network thus affecting its labour market choices and its dispositions of wanting to switch from worklessness into working or from inaction into labour force. A set of variables (created as interaction terms between Strengthties and status of friends) should capture the effect exercised by stronger ties with close friends who are all employed (*GinterEMPLtie*) or all not employed (*GinterNOTEMPLtie*) or with close friends who are all active in the labour market (employed or unemployed (*GinterACTtie*) or friends who area all inactive (*GinterINACTtie*).

The second factor that could influence the respondent’s beliefs in conforming to the network social code is the respondent’s personal view and its working aspiration. For instance, a respondent who attributes little or zero importance to having a fulfilling job is more emotionally detached (or less emotionally attached) to the labour market than a respondent for whom having a fulfilling job is extremely important <sup>13</sup>. This more detached disposition would make it hard to engage this respondent with the labour market <sup>14</sup> particularly so if the individual is surrounded by some or all non-employed friends. In fact the workless status of the friends can reinforce the detached attitude of the individual, making it emotionally less painful for him/her to conform to the non-workless status. This situation is captured by the variable (*ConformNW*) which is one of the four mutually exclusive dummy variables created as interaction terms between personal preferences and status of friends. The dummy (*DeviateNW*) is for a respondent who values a gratifying job and whose social connections are for a high percentage non employed (for example students). The dummy (*DeviateW*) represents that category of those respondents who are emotionally detached from the labour market but have all working close friends. It could be the case of some non-working mothers who may have worked before and chose to be at home. If status quo is not employment it may be difficult to prompt changes into employment. Finally the dummy (*ConformW*) is for the category of respondents who value a fulfilling job and whose closest friends are all employed. The social connection can reinforce their attitude and possibly these respondents would suffer if their status quo were not in line with their attitude, and they would be willing to change it.

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<sup>13</sup> Attributing low importance to a fulfilling job can be explained in terms of personal motivation or in term of low aspiration and self- esteem. For instance, a woman may genuinely not be interested in working because she prefers and finds it more fulfilling to pursue other activities over working, such as for instance looking after children. However, in some other instances, a woman may consider a fulfilling job not to be so important because she perceives she cannot aspire to having a fulfilling job (cognitive dissonance bias).

<sup>14</sup> If the respondent ‘s reference point (emotional attachment or detachment) is in line with her status quo and with a local social norm of non-employment then this respondent would most likely not suffer from conforming to the social rule, and it would be hard to prompt changes of her status quo. On the other hand if a respondent is emotionally attached to the labour market (one attributes high importance to a satisfying job) and his/her status quo is non-employed and local social rule is high worklessness, the respondent would suffer from adhering to the social norm and hence one would be more disposed to changes the status quo into employment.

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