

The new supplementary indicators to unemployment rate; an
alternative interpretation of the labour market

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1 Introduction

The principal question the present article deals with is: can labour market statuses have a wellbeing interpretation? In the present article a theory is proposed about constructing and mapping different levels of labour wellbeing proxies with the different labour status profiles. One of the main aims of the proposed theory is to show how the Labour Force Survey (LFS) can help the stake-holders to monitor the labour market and its slacks from a social point of view. Wellbeing, even in reference to the labour market, is multidimensional (Sen A. (1987, 1993), Martinetti E. (2000), Clark D.A. (2009))¹ and strictly connected to the labour underutilization, ie skill mismatch, low earnings (Clark et all (2013), Sen (1998))². In the article the concept of wellbeing is limited to objective measured quantitative values³.

A second question concerns the multidimensionality of the wellbeing its reduction and the objectivity of the wellbeing measures⁴: in which dimensions the analysis may focus regarding wellbeing and work whereas using objective measures? Belonging or being excluded from a group of persons, that an individual desire to belong to is an objective measure of a wellbeing⁵. Moreover the labour-leisure time allocation is also an objective measure of the wellbeing⁶. Using as a reference definitions and principles proposed through the years from ILO⁷ and OSCE's Employment Outlook⁸ a new theoretical approach and interpretation of the labour market statuses can be established to analyze as important part of the wellbeing of the population 15 years old and beyond. The strength of the new approach is that it is based on realistic and objective principles and measurements. The new theoretic approach takes the labour force survey's definitions and principals for mapping the wellbeing proxies so that the correspondence is almost one to one. After constructing the theory and the subdivision of the different wellbeing levels, the article pass to an empirical exercise on the LFS population, as divided, according to the ILO and Eurostat definitions

¹Sen A.K. (1987), in *The standard of living* , Martinetti E. (2000) in *A Multidimensional assessment of well-being based of Sen's functioning approach*, Clark, D.A., (2009) in *Adaptation, Poverty and Well-Being: Some Issues and Observations with Special Reference to the Capability Approach and Development Studies*

²ILO 18th ICLS, Chiappero Martinetti E. (2000) in *A Multidimensional assessment of well-being based of Sen's functioning approach*

³ILO 13th resolution

⁴In academic litereture the wellbeing/poverty measurement is mainly referred in subjective terms. see Clark (2009) in *Adaptation, Poverty and Well-Being: Some Issues and Observations with Special Reference to the Capability Approach and Development Studies*

⁵Indagine Famiglia e soggetti sociali, ISTAT

⁶Use of Time Survey from ISTAT has a main subject the measuring the time allocation of the Italians respecting the objectivity principal that most official statistics must respect, moreover in the Labour Force Survey for Italy the maximum working hours declared are 46 per week

⁷*visible underemployment* term in Hussmanns et all (1990) in *Surveys of economically active population, employment, unemployment and Underemployment. An ILO manual and methods.*

⁸1995 Employment Outlook: *Supplementary Measures of Labour Market Slack: An Analysis of Discouraged and Involuntary Part-time Workers*

and its main characteristics, ie average age, gender and education. In particular it is investigated the Italian labour market with the longitudinal dataset produced by the LFS. In the second part of the empirical application, the proposed theory is applied to two models: a simple logit, satisfied vs unsatisfied plus the structural variables and a multi-logit model that express the multi-wellbeing status with the related structural variables.

This paper is divided in three main paragraphs. In the first paragraph, the main questions that this article aims to answer are posed. The second and main paragraph, is divided into the theoretical part with the construction of the new approach and the empirical part with the application of the theory to the Italian labour force longitudinal data. The empirical part has two main topics: the analysis of the Italian labour force market data and the application of the proposed theory. The conclusions close the paper with the main findings and proposals for new analysis and further investigations.

2 Theory for a Labour Status Wellbeing

On 2011 Eurostat proposed the supplementary to unemployment indicators as a tempt for better measuring the labour market slacks.⁹ In this paragraph an answer is proposed to the current need of the economic stakeholders for work and wellbeing indicators expressed through the question: can something be said about the labour wellbeing and the integration in the working world of the population of 15 years old and beyond? As the wellbeing dimensions are multiple¹⁰, with the assist of a second question, the problem is easier to manage: which dimensions should be focused regarding the wellbeing and work but using objective measures? Using the LFS definitions a new approach is used for constructing corresponding wellbeing statuses as presented in the coming subsection.

2.1 ILO and Eurostat definitions - a base for a new approach

For better answering the questions posed in the introduction, here the new labour status classifications will be firstly presented as defined by Eurostat on November 2011. The ILO traditional labour statuses (employed, unemployed and inactive) are still the main official reference indicators of the labour market. However as the labour market complexities increase, the need for a better comprehension also increase and thus to sharpen the labour market statuses. For this reason Eurostat, following the ILO indications (18th ICLS), decided to step ahead and refine the employed and inactive statuses of Labour Force. Thus

⁹In previous elaborations using the Italian Labour Force survey, longitudinal data, has been proved that the proposed profiles are not only significantly different but also they persist in time.

¹⁰in the Chiappero Martinetti E. (2000) in Appendix are taken into consideration five main dimensions while in the BES indicator are 30 da verificare

the new Labour Force status became six, defined as follows: ¹¹

Employed: In the context of the LFS, an employed person is a person aged 15 and over (or 16 and over in Iceland and Norway) who during the reference week performed work - even if just for one hour a week - for pay, profit or family gain. Alternatively, the person was not at work, but had a job or business from which he or she was temporarily absent due to illness, holiday, industrial dispute or education and training. This definition follows guidelines of the International Labour Organization (ILO).

The above definition is valid for all the employed but Eurostat decided to further divide this aggregate in two subsets: Under-employed part time workers and Other employed where the latter should represent the "standard" employed while the first represent a "not fully satisfactory working situation". These concepts are formally defined as follow: Underemployed part time working, Other: employed not in Underemployed part time working.

Under employed part time worker An underemployed part-time worker is a person aged 15-74 working part-time who would like to work additional hours and is available to do so. Part-time work is recorded as self-reported by individuals. This statistical indicator covers persons who, in spite of being employed, do not work full-time and lack a sufficient volume of work, which is somewhat similar to being unemployed. The part-time requirement in the definition is important because the people who work full-time and still want to work more hours have a different profile: in spite of working many hours they have insufficient income; underemployed part-time, on the other hand, highlights situations of insufficient volume of work and underutilized labour among persons already employed. Regarding this definition is important to highlight that are involuntary Under employed part time worker.

Unemployed An unemployed person is defined by Eurostat, according to the guidelines of the International Labour Organization, as:

- *someone aged 15 to 74 (in Italy, Spain, the United Kingdom, Iceland, Norway: 16 to 74 years);*
- *without work during the reference week;*
- *available to start work within the next two weeks (or has already found a job to start within the next three months);*
- *actively having sought employment at some time during the last four weeks.*

The unemployment rate is the number of people unemployed as a percentage of the labour force.

¹¹definitions in italics are from the Eurostats' glossary

Inactive An active person is a person that is not in Employment and not in Unemployment.

Again the new Eurostat definitions are obtained by splitting the existing aggregate of the Inactives' in three subsets trying to catch more homogeneous groups with respect the attachment to labour market.

Jobseekers alias *Persons seeking work but not immediately available are the sum of persons aged 15-74 neither employed nor unemployed who:*

- *are actively seeking work during the last 4 weeks but not available for work in the next 2 weeks;*
- *found a job to start in less than three months and are not available for work in the next 2 weeks;*
- *found a job to start in three months or more;*
- *are passively seeking work during the last 4 weeks and are available for work in the next 2 weeks.*

Passive job search is e.g. waiting the results of a job interview. The first of those 4 groups is the biggest by far. The three latter groups are included in this indicator for completeness as they are not ILO unemployed but have many common characteristics with people in the first group. This indicator describes jobless people who do not qualify for recording as unemployed because of their limited availability to start a new job.

Want to work alias *Person available to work but not seeking = Persons available to work but not seeking are persons aged 15-74 neither employed nor unemployed who want to work, are available for work in the next 2 weeks but do not seek work. This indicator covers jobless people who do not qualify for recording as unemployed because they are not actively looking for a job. It includes, among others, discouraged Jobseekers and persons prevented from job seeking due to personal or family circumstances. The sum of the two groups persons seeking work but not immediately available and persons available to work but not seeking is called the Potential Additional Labour Force (PAF). Persons in the PAF are not part of the standard labour force, which is the sum of employed and unemployment persons. However persons in the PAF have a stronger attachment to the labour market than other economically inactive persons.*

Inactive Hard are all the persons over 15 years old that do not want or seek to be employed. In other words are the persons that are neither Employed nor Unemployed nor Jobseekers nor in Want to Work .

The new Eurostat definitions create, de facto, a 6 labour statuses items taxonomy of the population, even though Eurostat never directly quote this overall taxonomy.

Eurostat created the definitions for Under-employed part time, Jobseekers and Want to work”, identifying them as ”Unemployment halos”, having as a reference the two root principles of the LFS framework. The first principle refers to the distinction between identifying the economically active persons and the not economically active while the second principle refers to the discrimination, within the economically active persons between the employed and the unemployed.

The first principle¹² is the **Activity Principle** : *”determined on the basis of what the person was actually doing during the specified reference period (activity principle). The purpose of the Activity Principle is to make measurement of the labour force as objective as possible.”*

The second principle is the **Attachment to Labour Market**:¹³ A person has a **kind of attachment to the labour market** if satisfies one of the following three criteria:

- Being employed
- Looking actively for a work
- Available within 2 weeks to start working

The second principle is the complement of the first principle and is the one more useful, as a tool for the identification of the l.status but also for the express of the desire of a person to belong to the Working World.

The reason for referring to the two principles is that they are the base of the theory proposed in the present article. The new wellbeing definitions are stated using the two principals as identification criteria.

2.2 The New Approach

In reference to the above two principals and to the new Eurostat definitions it is possible to one can arrive in to the following conclusions:

¹²regarding the first principle: ”Measurement of employment, unemployment and underemployment - Current international standards and issues in their application by *Ralf Hussmanns (ILO Bureau of Statistics)*

¹³(Hussmanns, R.; Mehran, F.; Verma, V. (1990): Surveys of economically active population, employment, unemployment and underemployment: An ILO manual on concepts and methods, ILO, Geneva, 1990, chapter 5 .

- (a) the "Other employed" labour status: the persons belonging in this status can be considered "happy" regarding their job-leisure wellbeing. Moreover it can be claimed that they feel satisfied regarding their integration in the working world.
- (b) the "Inactive Hard" labour status: the people belonging to this status are not economically active and they do not satisfy non of the two principles. Their choice to belong to this status, ie not to seek and not want a job, shows that they are happy regarding their non-integration into the working word and their job-leisure well-being is in a satisfying for them. ¹⁴

Together with the above considerations it can be supposed that in terms of working world integration (second principe) and in terms of job-leisure time division wellbeing, the six labour statuses categories can be ranked, placing at the top the "Other employed" as they are fully integrated in the working word and they obtain a satisfactory level of job-leisure time allocation. At the bottom are ranked the "Inactive Hard" as are out of the working world, but happily with their job-leisure wellbeing regime.

Second ranked is the "Under employed part-time" as they are part of the working world but they work less hours than full time and hours the aim to work. Thus the integration with the working word is satisfied (they have a job) but the job-leisure wellbeing is not so much satisfying.

Third ranked are the people belonging to the "Unemployed" labour status. They are not integrated to the labour world and their job-leisure wellbeing is not well since satisfying as they seek for working and thus according to the "attachment at the labour market" are strongly attached to the labour word.

The fourth ranked labour statuses are the "Jobseekers", as the persons belonging to this group are actively looking for a job (thus the first principle is satisfied and one of the three items of the second principle is satisfied) however, the fact that are not immediately available (within 2 weeks) to start a job puts them out of the working world.

The fifth ranked labour status is the "Want to work" as they are immediately available to take over a job however they they did not look for a job in the last four weeks before the interview. Thus the first principle is not satisfied and from the second principle is only satisfied one of the three items. Thus the "Want to work" are the last group indicating also people with the looser attachment to the woking word.

2.2.1 Labour Status Wellbeing Ranking

Full integrated in the working world \Leftarrow **Other Employed** \Rightarrow optimal Job-Leisure time distribution

Not fully integrated in the working world \Leftarrow **Part Time Underemployed** \Rightarrow non-optimal Job-Leisure time distribution

¹⁴tab: non looking for a job in the previous four weeks before the interview date is a choice.

Not integrated in the working world \Leftarrow **Unemployed** \Rightarrow non-optimal Job-Leisure time distribution

Not integrated in the working world \Leftarrow **Jobseekers** \Rightarrow non-optimal Job-Leisure time distribution

Not integrated / Out of the in the working world \Leftarrow **Want to work** \Rightarrow non-optimal Job-Leisure time distribution

Out of the working world \Leftarrow **Inactive Hard** \Rightarrow optimal Job-Leisure time distribution

Two possible dynamic behaviors of the six labour statuses are expected: a long term one and a short term one:

The short term (one year horizons) behavior is expected to be characterized by inertia passing from one status to another while for the long term behavior the expectations are different. Considering "Other Employed" and "Inactive Hard" as the two poles of attraction, the first one as the fully attached and integrated in the labour market world and the second pole as the one of the zero attachment and not at all integrated, nor interested to be part of the labour force. The intermediate labour statuses may be attracted toward the nearest of the two poles. The forces that push people in the intermediate labour statuses towards the two poles is the search of happiness and the need of satisfying the job-leisure personal equilibrium. Of course the above consideration holds under the usual rationality hypothesis. This theory is named as *Attraction of Poles* and is to be demonstrated together with the short term behavior hypothesis in the next paragraph using the Italian LFS longitudinal data.

3 The data

In this section the above theory of Work Status Wellbeing will be implemented using the longitudinal data from the Italian LFS ran by ISTAT. The question to be answered is: Do the new labour statuses have different attitude regarding the structural variables as age, behaving in different ways among them? The question has been partially answered by Eurostat with the article published on Statistics in Focus: New measures of labour market attachment; 3 new Eurostat indicators to supplement the unemployment rate. For proving that each profile behaves in a significant different way, there were used quarterly time series data of the European Labour Force Survey. A longitudinal data structure is more indicated for attitudinal analysis gives more robust results to the fact that the different labour profiles are significantly different and the differences persist throughout the years.

3.1 Analysis of the dynamic behavior of the Italian Labour market

Before passing in the multi-variable analysis and individualizing the idiosyncratic differences among the labour statuses, it is given their short and long term dynamic behavior of the Italian labour market.

The **short term dynamic behavior** is observed using the one year transition matrix; in this case can be used the 2009-2010 transition matrix graph placed in the appendix. The histogram that plots the transition matrix indicates that the highest percentage of each labour status it is its own labour status meaning that after one year is most probable, that a person aged 15-74, remain within the initial labour status. In terms of matrix representation means that the principal diagonal holds the higher percentages of the labour status transition rates.

The **long term dynamic behavior** is made visible using the dynamic transition matrix¹⁵. In the appendix the long term result is given following: $P=P1*P2*P3*P4*P5*P6$. Then the steady state analysis is run by $P(n)=P^n$ per $n=1,2 \dots$. If $P(n)$ became stable from a certain n then the steady state transition matrix exists and has been found. In our case the steady state transition matrix is obtained after only 3 iterations of the six years dynamic matrix of the Italian labour market; indicating a quite fast convergence to the steady state. From the graph is clear that the Other Employed and the Inactive Hard behave like attraction poles and almost eliminate the intermediate labour statuses.

3.2 Analysis of the structure variables of the Italian Labour market

The aim of this section is to put in evidence the usefulness of the new labour statuses as defined by Eurostat and reinforcing the result of the previous cited article by using a longitudinal data and proving that each of the 6 statuses cover different propensities towards labour, unemployment and inactivity conditions. Using the Italian LFS longitudinal data

¹⁵Pellegrini (2007), Quah (1997)

from 2004 to 2010, for the population aged 15-74, rates of transition to labour, unemployment and inactivity have been extracted (Table 1). It can be seen that each profile of the six different labour statuses is significantly different with respect the others (Table 2). Moreover using a simple proportion test, which is a chi-square test good also for small matrices, has been used in order to compare the profiles that have transition behavior most similar; thus have been tested: other employed vs. part-time underemployed, want vs. hard inactive, jobseekers vs. unemployed. The results, that can be found in the appendix (Prospective 2), proof that behavioral profiles are different, confirming that each of these definitions are useful to catch a new and different spot of the labour market.

Besides the different attitude of the six labour statuses regarding the transition propensities, there are significant differences in aspects like average age of each labour status group, gender and education. These features are identified as structural characteristics and will be analysed below. Some facts must be appointed:

- The six years total average population of the aged 15-74 years old, are: 21 million 413 thousand for men and 22 million 55 thousand for women, summing up to a total of 43 million 468 thousands.
- The average age of the reference population in the six years is around 44 years old
- The "median" person of the population universe has low education level mainly corresponding to : Licenza media (ISCED 97: 2), 33%. The second biggest group (around 30%) has the Diploma Superiore which corresponds to a medium education level (ISCED 97: 3). A smaller group (15%) has the Primary diploma (Licenza Elementare, ISCED 97: 1) which is considered a low education level. ¹⁶

Per profile¹⁷:

Other Employed¹⁸ = On average over 21 million persons belong at the "other employed" labour status of which the 91.6% of them usually remain after one year in the same status. Gender seems to be a strong explicative variable on both dimensions, integration in

¹⁶12 items Italian classification: "01 - Nessun titolo" "02 - Licenza elementare" "03 - Licenza media (o avviamento professionale)" "04 - Diploma di scuola superiore di 2-3 anni che non permette l'iscrizione all 'Universit'" "05 - Diploma di scuola superiore di 4-5 anni che permette l'iscrizione all'Universit" "06 - Diploma di Accademia Belle Arti, Istituto Superiore Industrie Artistiche, Accademia di arte drammatica, Perfezionamento Accademia di Danza, Perfezionamento Conservatorio, Perfezionamento Istituto di Musica Pareggiato, Diploma accademico di alta formazione artistica e musicale" "07 - Diploma universitario di due/tre anni, Scuola diretta a fini speciali, Scuola parauniversitaria" "08 - Laurea di 3 anni di primo livello (nuovo ordinamento)" "09 - Laurea specialistica di 2 anni di secondo livello (nuovo ordinamento)" "10 - Laurea di 4 anni o pi (vecchio ordinamento o nuova laurea specialistica a ciclo unico)" "11 - Specializzazione post-laurea (compresi master di 1o e 2o livello)" "12 - Dottorato di ricerca"; correspondence from 12 to 3 items, SG24 to edu, that is in 3 items: from 1-4=low, 5-8=medium, 9-12=high)

¹⁷see the tables placed in the annex

¹⁸The author prefers to refer to them as "happily employed"

the working world and Job-Leisure time distribution, as there are more registered men than women in this category. The probability to belong to the "other employed" after one year regardless the initial labour status is on average 60,7% if being a man¹⁹ but only 37,7%²⁰ for a woman. Moreover the probability being in the labour status "other employed" and to remain after one year in the same status is 93,8% for men while for women is 90,7%. The overall 6-year average transition probability for an "unemployed" to become "other employed" is 34% for men and 27% women.

The average age of the other employed profile is 41 years old. The most common education level of the "other employed" is low (on average 47%) while around 70% of the high education level belong to the "other employed"- "other employed" cell.

Under-employed part-time: On average, over the 6 years period, around 350 - 400 thousands persons belong to this labour status. The probability remaining in this status after one year is approximately 20%. On the contrary of the previous labour status, here women count more than men²¹ while the transition from the present probability to any other labour status is 75% for men ; 81% for women. This indicates that for men is more difficult to fall in this group but once they are in is more difficult to move to another labour status with respect the women. The 6 years average age is 38. People belonging to "time under-employed" as entry cell has for 55% the lower education and only 10% the high education level. The present labour status represents only 1% of the total population and the same percentage remains in the 3 education levels.

Unemployed: The unemployed persons are, over the 6 years, in average, 1,8 millions, while the probability being unemployed and after one year still to be unemployed is 32,6%. Men count around 848 thousands while women count around 914 thousand. The transition probabilities clearly indicate that the gender component influence the well-being probability and the integration in the working world: men have 34% probability to become after one year, employed; 36% to remain unemployed and 11,7% to become inactive hard. The women have 37% probability to become employed after a year; 29,4% to remain unemployed and 20% to become inactive hard. The 6 years average age is 33 for this status. 55% of the unemployed have low education level and only 8,3% have higher education level. Around 4% of the high educated population belong in this group and 5% of the medium level, while this labour status absorbs the 3,7% of the low educated population.

Jobseekers: Around less than 1% (129 thousand) of the reference population belong to this group. The particularity of this group is that has the highest transition probability to become "other employed" after one year (around 30% - slightly higher than the unemployed which is 27,8%). The average age is 35 and a half. Around 52 thousand are men

¹⁹equals to 12.999 thousand

²⁰equals to 8.314 thousands

²¹approx. 260 thousand women vs 126 thousand men

and 76 thousands are women. The transition probabilities of men being after one year other employed is 44% while for women is 24%. The transition probability of becoming inactive hard after one year is, in average, 21.5% for men and 33.6% women. The jobseekers distribution per education is 55% low level, 35% medium level and 9,9% high level.

Want to Work = Around 11% of the reference population (2,225 thousand) belong to this group. The average transition probability to remain within the economically inactive status after one year is 71.5%. Men sum up to, in average, 746 thousand per year while women to one million 479 thousand. The transition probability of becoming, after one year, "other employed" is 42.5% if you are a man and 9.5% if you are a woman. The six years average age is 37. The "want to work" distribution per education is, on average, 64% low education level, 32% medium and 4,6% high. The education distribution per labour status gives the following results regarding the specific labour status: 13% of the low educated, 15-74 population, belong in this group; only 4,6% of the higher educated level belong in this group.

Hard Inactive = On average 17 million 549 thousand persons belong to this alias, representing the 39,75% of the 15-74 Italian residents. The probability to be and to remain after one year in the current status is 94%. The six years average totals indicate that men are around 6 million 580 thousand while women are 10 million 970 thousands. The probability to remain at the same status after one year is 93.4% for men and 94.6% for women; thus for both sex can be concluded that once you enter in this labour status is very hard to abandon it. The average age is 51. The Inactive Hard labour status is composed as following regarding the three education levels: 77% belong to the low education level; 20% to the medium one and 3% to the high level. Out of the total of low education level population 15-74, 51% belongs to the present labour status; 26% of the medium level educated population belongs to this labour status and the percentage for the high level educated people is 17%.

General observations²²

- Regarding gender:

Gender is a significant variable regarding the satisfied people in terms of working world integration and Job-leisure time. 92% of men aged 15-74 belong to the satisfied labour statuses (61% are "other employed" + 30.7% are inactive hard) while only the 88% of the women belong to the satisfied labour status (37.9% other employed + 49.7% inactive hard). Thus women have less probabilities to belong to the satisfied group; moreover it appears that among the satisfied, women mainly belong to the Inactive Hard group, indicating the different needs in respect to men regarding integration in the work world and job-leisure time organization.

- Regarding age:

Regarding the age characteristic, in overall, conclusions can be that younger persons have higher probabilities to belong to the unemployment halos. In fact the average age of unemployed halos group is 36 years old while the average age of the satisfied is 46.

- Regarding education:

From the higher educated level, 15-74 population, the 89.59% belongs to the satisfied labour status (76.32% + 13%). Thus having at least a university degree, that permits you to access a competition as a public officer job, increase significantly the Labour Status Well-being. Within the lower education level, 15-74 population, the 81.33% are satisfied working persons (38.56+42.78%). The remaining 18.67% belong to the non satisfied. Within the medium education level population the 84.72% belong to the satisfied (62.53%+21.71%), while the remaining 15.76% belongs to the non satisfied regarding their working life. The latent dynamics suggests a strong relation of the personal need to invest in knowledge and the will to take advantage of this investment by being compensated with a higher income and feeling self - completed with being fully integrated in the working word.

3.3 Modeling and testing the Work Status Wellbeing approach

A logit model is applied in order to compare the two main groups composing the 15-74 Italian population: the satisfied one and the people that belong to the unemployment halos, alias the unsatisfied labour group. A second econometric application will be presented comparing each of the individual labour statuses that compose the unemployment halos: time under-employed, unemployed, job-seekers and want to work, using, as a comparing labour status, the satisfied labour status.

3.3.1 Logit

The analysis of the first model start with its specification following the most significant outcomes .

For the specification of the model the following notation is used:

$$\begin{aligned} \ln\left(\frac{P(status=Unsatisfied_t)}{P(status=Satisfied_t)}\right) &= b_o + \\ + b_1 * \ln\left(\frac{P(status=Unsatisfied_{t-1})}{P(status=Satisfied_{t-1})}\right) &+ \\ + b_2 * \ln\left(\frac{P(status=Women)}{P(status=Men)}\right) &+ b_3 * age + \end{aligned}$$

$$+ b_4 * \ln\left(\frac{P(\text{status}=\text{WithUniversityDegree})}{P(\text{status}=\text{WithoutUniversityDegree})}\right)$$

Results:²³

The convergence criterion is satisfied for all the six years. The hypothesis testing of the model with all the explicative parameters equals to zero (Ho BETA=0) is rejected at 99.9% confidence level, proofing that the above model, as a whole, fits in a significant better way with respect the empty model. The model's maximum likelihood estimates: the initial labour status (l.s.) "unsatisfied" has a positive sign for the probability to belong at the final labour status of "unsatisfied" after one year and this result confirms the stiff behavior to remain in the initial l.s. as it is observed in "satisfied" l.s.²⁴. The relative log odds of being in the unsatisfied status vs. the satisfied status increase on average by 2.68.

The variable "age" has a negative sign indicating that growing older increase the probability to belong to the satisfied group.²⁵ - A one unite increase of the variable age produce a decrease of the log odds of being in the "unsatisfied - unemployment" halos group of 0.04 (six years average).

The gender has a positive sign in all the years of the considered period, indicating that being a woman increase the probability to belong to the unsatisfied group. Actually increase the log odds probability by 0.34.

The university degree variable has a negative sign, in all six years. Having a university degree decreases the log odds to belong to the unsatisfied status by 0.34. The bachelors degree shows the same although opposite effect, as being a woman in terms of wellbeing.

The individual positive effect of the input variables significantly improve the model fit for all the years as listed in the "Type 3 Analysis of Effects".

As this is a simple logit model the Relative Risk Ratios are equivalent to the Odds Ratios and confirm the above results.²⁶

- The relative risk ratio of being unsatisfied vs satisfied, at the begin of the period and given the other variables constant, increase by a factor of 14.72 (exp(2.68)) to remain after one year at the same status.
- This is the relative risk ratio for a one unit increase in variable age, given that the other variables in the model are held constant. Increasing the age by one unit/year, the relative risk for being unsatisfied is expected to decrease by a factor of 0.96 (exp(-

²⁴This result express the inertia observed with the initial graphical analysis placed in the annex and two groups are rather close to the new eventual members

²⁵This can be deduced as the satisfied group has a much higher, six years average age, in respect to the six years unemployment halos group age average (36)

²⁶even though is a kind of repetition of the above exposed results, visualizing them in terms of Odds Ratio gives a better sense of how much the predictors weight.

0.04)). More generally, we can say that if a subject were to increase her age, they'd be expected to fall into satisfied compared to unsatisfied.

- the odds ratio for being woman respect to man, in all six years, increase by a factor of 1,41 ($\exp(0.34)$) for belonging to the unsatisfied group.
- having a bachelors degree, given that the other variables in the model are held constant, reduces the relative risk of being in the unsatisfied group by 0.72 ($\exp(-0.34)$) times. In relative terms the education level influence much more the chances to belong to the satisfied or unsatisfied group than the variable age.

Regarding the evaluation of the first model, the predicted probabilities associated to the observed responses has an average 85 % correspondence over six years. The performance of the model can be considered very satisfying giving robust results. Aiming a more refined model for applying the Work Status Wellbeing Theory in the following subsection is given the multi logit model.

3.3.2 Multi-logit

The second application focuses on the inner labour status of the unemployment halos, alias unsatisfied status; thus there are four models to be analyzed thorough a multinomial regression. The rational of these models is to understand the different profiles of the three unemployed halos and eventually the different dynamic path belonging to each of them vs. belonging to the satisfied statuses.

The notation of the models is as follows:

1.
$$\ln\left(\frac{P(\text{status}=\text{Jobseekers}_t)}{P(\text{status}=\text{Satisfied}_t)}\right) = b_o +$$

$$+ b_2 * \ln\left(\frac{P(\text{status}=\text{Jobseekers}_{t-1})}{P(\text{status}=\text{Satisfied}_{t-1})}\right) +$$

$$+ b_3 * \ln\left(\frac{P(\text{status}=\text{TimeUnderEmployed}_{t-1})}{P(\text{status}=\text{Satisfied}_{t-1})}\right) +$$

$$+ b_4 * \ln\left(\frac{P(\text{status}=\text{Unemployed}_{t-1})}{P(\text{status}=\text{Satisfied}_{t-1})}\right) +$$

$$+ b_5 * \ln\left(\frac{P(\text{status}=\text{WantToWork}_{t-1})}{P(\text{status}=\text{Satisfied}_{t-1})}\right) +$$

$$+ b_6 * \ln\left(\frac{P(\text{status}=\text{Women})}{P(\text{status}=\text{Men})}\right) + b_3 * \text{age} +$$

$$+ b_7 * \ln\left(\frac{P(\text{status}=\text{WithUniversityDegree})}{P(\text{status}=\text{WithoutUniversityDegree})}\right)$$
2.
$$\ln\left(\frac{P(\text{status}=\text{TimeUnderEmployed}_t)}{P(\text{status}=\text{Satisfied}_t)}\right) = b_o +$$

$$+ b_2 * \ln\left(\frac{P(\text{status}=\text{TimeUnderEmployed}_{t-1})}{P(\text{status}=\text{Satisfied}_{t-1})}\right) +$$

$$\begin{aligned}
& + b_3 * \ln\left(\frac{P(status=Jobseekers_{t-1})}{P(status=Satisfied_{t-1})}\right) + \\
& + b_4 * \ln\left(\frac{P(status=Unemployed_{t-1})}{P(status=Satisfied_{t-1})}\right) + \\
& + b_5 * \ln\left(\frac{P(status=WantToWork_{t-1})}{P(status=Satisfied_{t-1})}\right) + \\
& + b_3 * \ln\left(\frac{P(status=Women)}{P(status=Men)}\right) + b_3 * age + \\
& + b_4 * \ln\left(\frac{P(status=WithUniversityDegree)}{P(status=WithoutUniversityDegree)}\right) \\
3. & \ln\left(\frac{P(status=Unemployed_t)}{P(status=Satisfied_t)}\right) = b_o + \\
& + b_2 * \ln\left(\frac{P(status=Unemployed_{t-1})}{P(status=Satisfied_{t-1})}\right) + \\
& + b_3 * \ln\left(\frac{P(status=TimeUnderEmployed_{t-1})}{P(status=Satisfied_{t-1})}\right) + \\
& + b_4 * \ln\left(\frac{P(status=Jobseekers_{t-1})}{P(status=Satisfied_{t-1})}\right) + \\
& + b_5 * \ln\left(\frac{P(status=WantToWork_{t-1})}{P(status=Satisfied_{t-1})}\right) + \\
& + b_3 * \ln\left(\frac{P(status=Women)}{P(status=Men)}\right) + b_3 * age + \\
& + b_4 * \ln\left(\frac{P(status=WithUniversityDegree)}{P(status=WithoutUniversityDegree)}\right) \\
4. & \ln\left(\frac{P(status=WantToWork_t)}{P(status=Satisfied_t)}\right) = b_o + \\
& + b_2 * \ln\left(\frac{P(status=WantToWork_{t-1})}{P(status=Satisfied_{t-1})}\right) + \\
& + b_3 * \ln\left(\frac{P(status=TimeUnderEmployed_{t-1})}{P(status=Satisfied_{t-1})}\right) + \\
& + b_4 * \ln\left(\frac{P(status=Unemployed_{t-1})}{P(status=Satisfied_{t-1})}\right) + \\
& + b_5 * \ln\left(\frac{P(status=Jobseekers_{t-1})}{P(status=Satisfied_{t-1})}\right) + \\
& + b_6 * \ln\left(\frac{P(status=Women)}{P(status=Men)}\right) + b_3 * age + \\
& + b_7 * \ln\left(\frac{P(status=WithUniversityDegree)}{P(status=WithoutUniversityDegree)}\right)
\end{aligned}$$

All models run using as a benchmark for the response variable the satisfied Working status as a wellbeing proxy: other employed and inactive hard. In the appendix a selection of the results (mainly due to the fact that they are very similar) can be found.

The model is a Generalized Logit with Fishers Scoring optimization technique. From the 65,474 records used over the six years average, the 91% belong to the satisfied working

world class²⁷. The smallest class is the Jobseekers and the small size of this group created some modelling problems, as it can be seen: for the 2004 initial status, the Jobseekers has 0 sample units.

Some quality modelling facts: convergence of the models has been obtained in all 6 years. Regarding the global null hypothesis, ie. the model with no predictors ($\beta=0$), it has been rejected for all 6 year for 99% confidence level against all full models. The results in the tables "Type 3 Analysis effects" indicate that the overall effect on the models of the variables are significant however the only variable that may give some problems is the "university degree".

As it can be noted from the previously mentioned tables (in the appendix) in the 2004 initial distribution of the labour statuses there are no jobseekers while in the 2005 response labour status, the underlining sample contains some of them.

For this reason 2004-2005 tables of the Max. Likelihood Estimation have all the crossing cells with jobseekers initial labour status missing.

Regarding the overall results of the four models' Analysis of the Maximum Likelihood estimation, some patters worth to be noticed:

- - "Involuntary Time-Underemployed" becoming "Jobseekers", and vice-versa cells, are not significant in most of the cases; this is mainly due to the low flows among the two groups.
- - The gender is not significant when analyzing the statuses Jobseekers and Unemployed. Particularly interesting for the case of Unemployment.
- - "Having at least a bachelors degree" is only significant for the "Want to Work" status at 99% confidence level. The most evident reason is that people having university degree and being long run unemployed, refuse the idea of being "inactive hard", highlighting, in this way, the will to remain attached to the labour market.

Entering in a more detailed analysis of the results, OR and MLE:

the Intercept has negative sign for all "unemployment halos"; meaning that "neutralizing" all the predictor variables, is most probable to belong in to the satisfied status.

Involuntary Time Underemployed vs Satisfied l.s. Belonging at the beginning of the period in this group, the odds for remaining after a year in the same group are 42.9, holding the rest of the predictors constant. This result indicates that this is the more "stiff" class of the unemployment halos; once you belong in this group is very difficult to get out of it. In terms of wellbeing this indicates that the subject that belong in this group have low chances for improving their wellbeing.

Jobseekers vs Satisfied l.s. is the group that has the most uncertain results however the Odds Rate of Jobseekers to satisfied l.s. predictor to Jobseekers outcome is significant

²⁷summing up the mean column of the Response profile table

for all six years and has a 6 years average 30.9, placing it as the second most inertial group. **Unemployed vs satisfied l.s.** The most interesting result is that the odds for becoming Want to Work is 13.8 and Jobseekers is 13 - results that can be considered high; from the MLE it can be seen that the results are significant in all six years. In terms of wellbeing these results makes us understand that the chances for improving a subjects' wellbeing belonging in this group, in overall do not change; even worst the attachment to the Working World has high chances to get looser.

the Want to Work vs satisfied l.s. the odds for remaining in the same group are relatively low 17.8 while the odds for becoming unemployed are 12.3. Both results are significant for all six years. In terms of work wellbeing concerning the second data it can be deduced that there are good chances that some of subjects belonging in this group increase their attachment to the labour market, implying an increase of being optimistic regarding the future.

the age This variable is neutral in fact the odds for belonging in each of the unemployment halos is 1. Age is always significant.

the Women vs Men the odds rate of Unemployed is neutral ie 1 but the result in not significant for the panels 04-05, 06-07, 08-09 while for Involuntary Time Underemployed the odds are 1.9 and this average is significant for the all years.

with university degree vs without university degree is significant for the Want to Work l.s. in all 6 years and its average odds rate is 0.6. For the outcome Unemployed the coefficients are significant at 95% corresponding to 0.8 a 6 years average odds rate. For the jobseekers and involuntary time under employed the results are not significant. In terms of wellbeing having a bachelors degree significantly improves the chances of the subjects of the Want to Work group in favor of the Satisfied group.

The application of the Work Status Wellbeing approach though a multi-logit model gives us a valid instrument of interpretation and understanding of the wellbeing related to work. The results express the inner dynamics among the Unemployment Halos against the Satisfied labour status and the wellbeing implications.

4 Conclusions

In the the present article, the Work Status Wellbeing approach is proposed using as reference the integration to the working world and the job-leisure time allocation. For constructing the approach, the ILO and Eurostat definitions and principals for LFS have been used.

In particular the question posed is: can labour market statuses have a wellbeing interpretation?

Thus the approach regards the constructing and mapping labour wellbeing proxies using as a reference the profile characteristics of the new six labour status, as proposed by Eurostat on 2011. One of the main aims is to show how the LFScan help the stalk-holders to monitor the labour market and its slacks from a social point of view. Wellbeing, even in reference to the labour market, is still multidimensional and is strictly connected to the labour underutilization, ie skill mismatch, low earnings etc. Here the concept of wellbeing is limited to objective measured quantitative values.

A second question is posed: in which term the wellbeing can be referred? Belonging or to be excluded from a group of persons that a person desires to belong to is an objective measure of wellbeing. Moreover the labour-leisure time allocation is also an objective measure of the wellbeing. Thus using as a reference the definitions and the principles proposed throughout the years from ILO and OSCE, a new theoretical approach and interpretation of the labour market statuses can be proposed as measure of the wellbeing of the population 15 years old and beyond. The strength of the new approach is that it is based on realistic and objective principles and measurements. The new theoretic approach takes the labour statuses and translates them into proxies of the wellbeing statuses. Once constructing the theory and the subdivision of the different wellbeing levels the article pass to an empirical evidence of the population 15 -75 years old. In particular the Italian Labour market is investigated through the longitudinal dataset and its structural characteristics, ie. average, gender and education. In the second part of the empirical application the proposed theory is applied on two models: a simplified one, modeling satisfaction vs. unsatisfaction over some structural variables, and a second multi-logit model expressing the theory proposed together with the structural variances.

GENERAL NOTE: The reason why the six years panel has not been merged is due to the fact that in the years 2007-2008 the economic crisis occurred. Moreover I personally found more interesting to focus on the evolution of the new phenomena, year after year. Actually the fact that the odds table results are quite bad can be seen and this is one of the reasons why the odds table results must be seen year after year, having a track of the crisis and its consequences to the deterioration of the labor market flexibility.

Bibliography

International Labour Office (ILO)

The Sixth International Conference of Labour Statisticians, Studies and Reports, New series No. 7. Geneva, Part 4 pp. 9-25 and 52-60

The Eighth International Conference of Labour Statisticians, 1954 Geneva p62.

-1957, Resolution concerning the measurement of underemployment, The Ninth International Conference of Labour Statisticians, pp 82-85

-1966 *Resolution concerning the measurement and analysis of underemployment and underutilization of manpower*, The Eleventh International Conference of Labour Statisticians, pp 33-36.

-Thirteenth International Conference of Labour Statisticians, October 1982 - appendix *Resolution concerning statistics of the economically active population, employment unemployment and underemployment* , Bulletin of Labour Statistics , Geneva 1983.

-Fourteenth International Conference of Labour Statisticians, Report of the conference, Geneva.

-1990 Hussmanns R., Mehran F. and Verma V. , *Surveys of economically active population, employment, unemployment and Underemployment. An ILO manual and methods.*

- Chiappero Martinetti Enrica, 2000, *A Multidimensional assesment of well-being based of Sen's funtioning approach*, Rivista internazionale di Scienze Sociali, n.2, 2000

- A. Clark, C. dAmbrosio, S. Ghislandi, 2013, *Poverty and wellbeing: Panel evidence from Germany* , August 2013, Ecole Deconomie de Paris

- G. Pellegrini, May 2000 , *Proximity and Growth Distribution Dynamics*

- D. Quah, Jan 1997, *Empirics for growth and distribution: Stratification, polarization and convergence clubs*

Organization for Economic Co-operation and Development (OECD)

-1993 Employment Outlook, pp 179 - 193 Paris

-1995 Employment Outlook: *Supplementary Measures of Labour Market Slack: An Analysis of Discouraged and Involuntary Part-time Workers*, pp 43- 97 Paris

European Union Official Journal

-Official Journal of the European Union, 13.12.1998 Commission Regulation No 1897/2000 of 7 September 2000, implementing Council Regulation No 577/98 on the organization of a labour force sample survey in the Community concerning the operational definition of unemployment.

-Official Journal of the European Union, 26.04.2008 Commission Regulation No 377/2008 of April 2008 implementing Council Regulation No 577/98 on the organization of labour force sample survey in the Community as regards codification to be used for the data transmission from 2009 onwards, the use of a sub- sample for the collection of data on structural variables and the definition of reference quarters.

Eurostat

-Eurostat Invited paper to the 18th ICLS Geneva, *The concepts of employment and unemployment as set out by the 13th ICLS - Is there a need for revision? Some remarks from a European perspective.*

-Eurostat Publications regarding the New Supplementary Indicators: -Statistics in Focus publication "8.5 million underemployed part-time workers in the EU27 in 2010"

-Statistics in Focus publication "New measures of labour market attachment" - Press release "Among part-time employed in the EU27, 21% would like to work more hours and are available to do so".

- Labour market glossary - Statistics Explained (2014/3/1)

Data Analysis Reference

Sas Data Analysis Examples; Multinomial Logistic Regression www.ats.ucla.edu/stat/sas/dae/mlogit/htm
SAS Annotated Output; Ordered Logistic Regression www.ats.ucla.edu//stat/sas/output/sas_ologit_output.htm

- Joseph E. Stiglitz , Amartya Sen , Jean-Paul Fitoussi, 2010, *Mismeasuring Our Lives: Why GDP Doesn't Add Up*, ISBN 978-1-59558-519-6, The New Press

- Rapporto Bes 2013: *Il benessere equo e sostenibile in Italia*, CNEL and Istat, 2013

- Clark, A.E., Y. Georgellis and P. Sanfey, (2001), *Scarring: the Psychological Impact of Past Unemployment*, *Economica*, 68, 221241

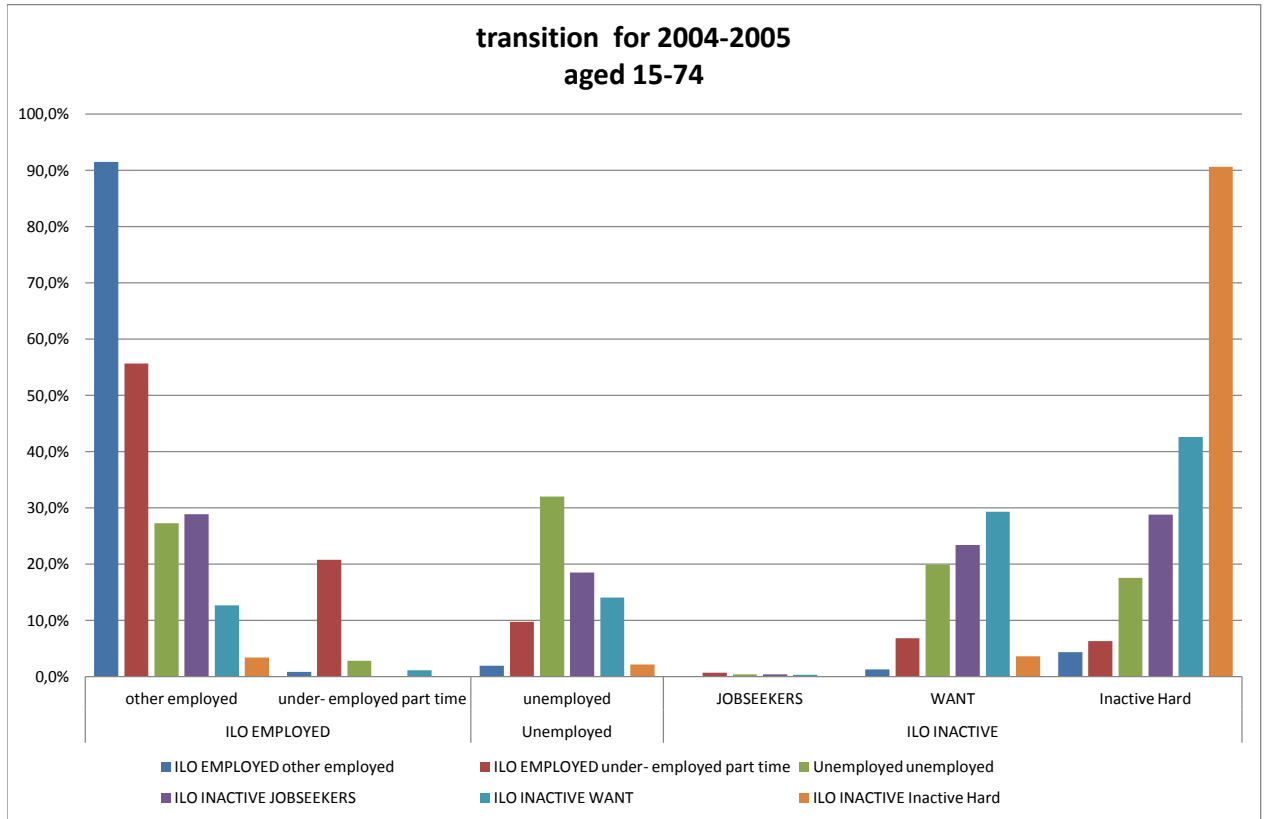
- Clark, D.A., (2009), *Adaptation, Poverty and Well-Being: Some Issues and Observations with Special Reference to the Capability Approach and Development Studies*, *Journal of Human Development and Capabilities*, 10, 2142.

-Di Tella, R., J. Haisken-De New and R. MacCulloch, (2010), *Happiness Adaptation to Income and to Status in an Individual Panel*, *Journal of Economic Behavior and Organization*, 76, 834852.

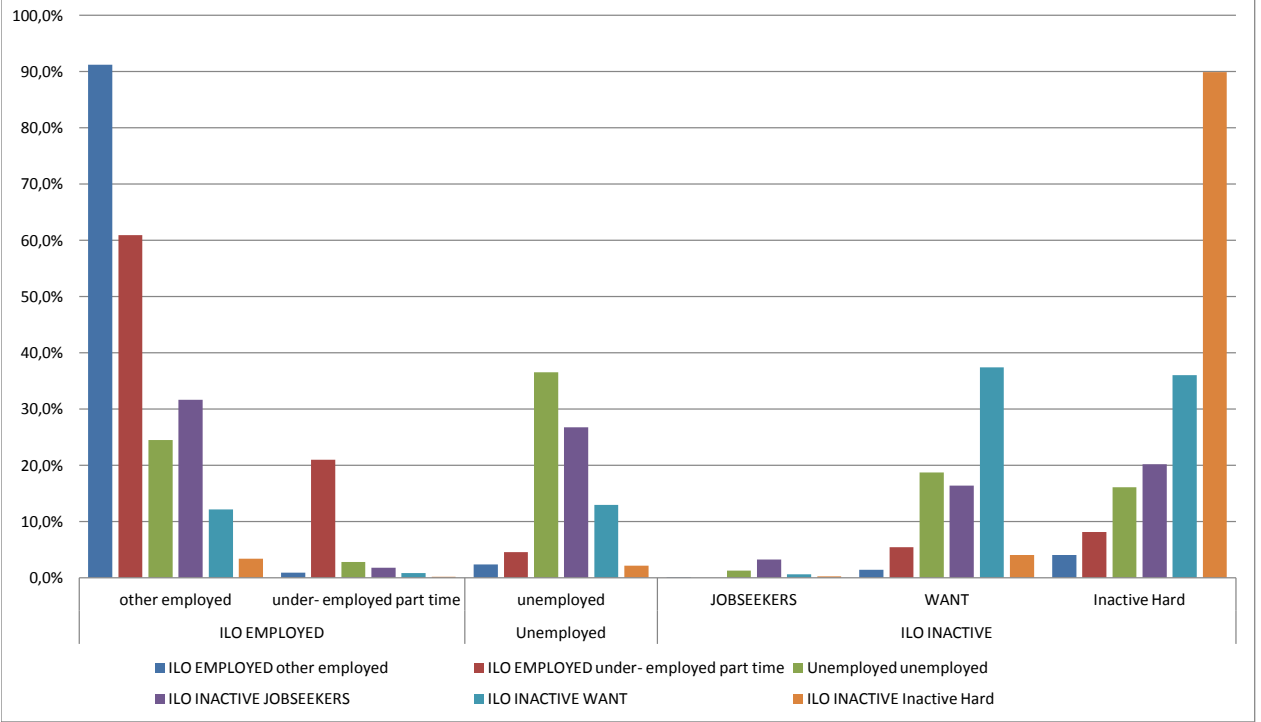
-Knabe, A. and S. Ratzel, (2011), *Scarring or Scaring? The Psychological Impact of Past Unemployment and Future Unemployment Risk*, *Economica*, 78, 283293.

- Atkinson A. B., Bourguignon F. (1982), *The comparison of multi-dimensioned distributions of economic status*, in *Review of Economic Studies*, 49, pp. 183-201.
- Brandolini A., DAlessio G. (1998), *Measuring well-being in the functioning space* , Banca d'Italia, Rome, Italy.
- Erikson R., Aberg R. (eds.) (1987), *Welfare in transition. A survey of living conditions in Sweden ,1968-1981*, Clarendon Press, Oxford .
- Schokkaert E., Van Ootegem L. (1990), *Sens concept of the living standard applied to the Belgian unemployed*, in *Recherches economiques de Louvain*, 56, 3-4, pp. 429-450.
- Sen A.K. (1987), *The standard of living*, Cambridge University Press, Cambridge.
- Sen A.K. (1993), *Capability and well-being*, in Nussbaum M., Sen A.K. (eds), pp. 30-53.
- van Praag B.M.S. (1993), *The relativitiy of the welfare concept*, in Nussbaum M., Sen A.K. (eds), pp. 362-385.

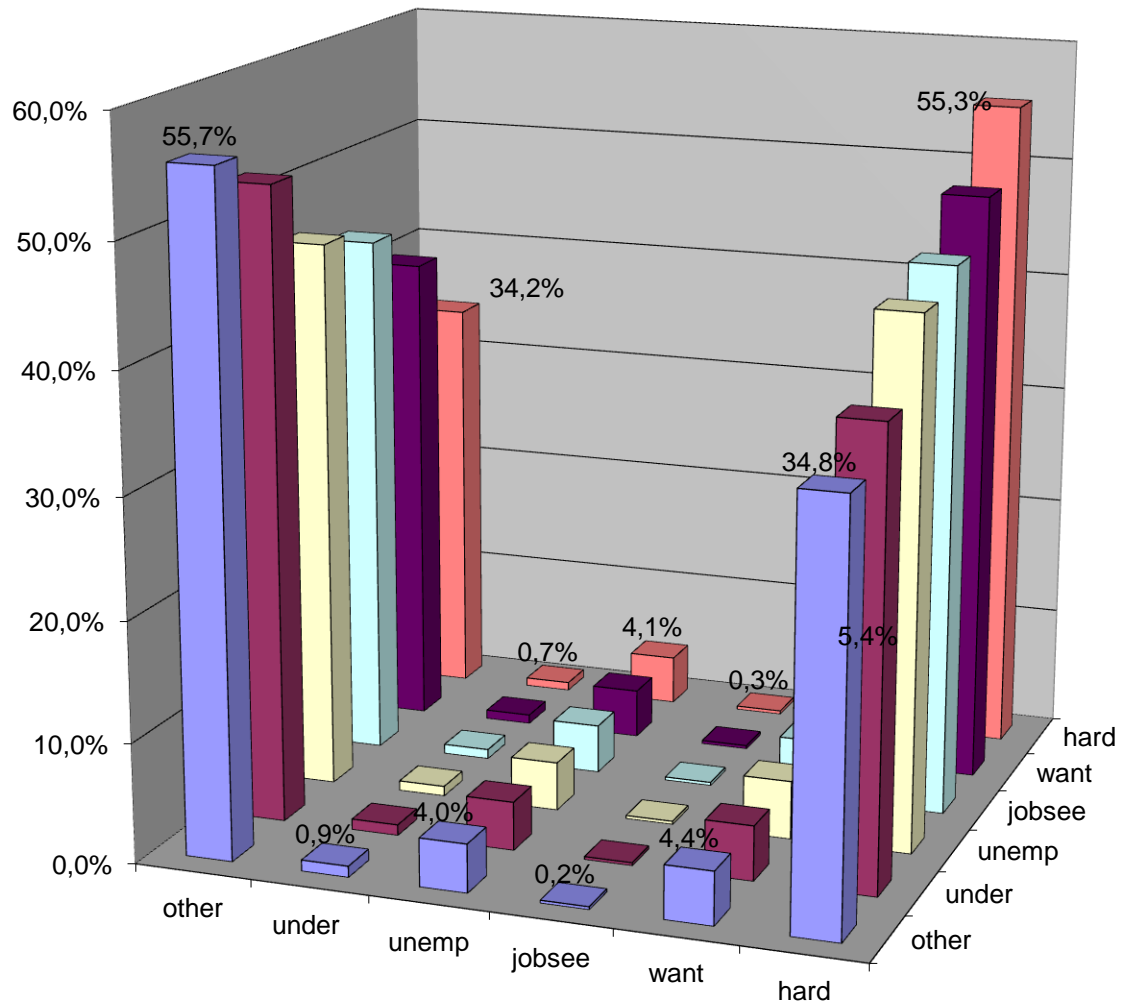
5 ANNEX- THE TABLES



**transition % for 2009-2010
aged 15-74**



Transition matrix in steady state



		ILO Employed														Annual Average Under- employed
		other employed							Annual Average O.Employed	under-employed involuntary part time						
		04 05	05 06	06 07	07 08	08 09	09 10	04 05		05 06	06 07	07 08	08 09	09 10		
m a l e	Other Employed	93,1%	93,9%	93,7%	93,3%	92,9%	92,6%	93,3%	0,5%	0,5%	0,5%	0,7%	0,4%	0,5%	0,5%	
	Involuntary part-time	57,6%	56,2%	58,9%	51,3%	54,3%	61,3%	56,6%	19,1%	15,9%	16,3%	25,4%	24,6%	21,4%	20,5%	
	Total Employed	92,7%	93,5%	93,4%	92,9%	92,5%	92,3%	92,9%	0,7%	0,7%	0,6%	0,9%	0,6%	0,7%	0,7%	
	UNEMPL OYED	32,7%	35,3%	34,3%	35,0%	28,8%	26,5%	32,1%	2,2%	2,7%	0,7%	1,7%	1,8%	2,0%	1,9%	
	Inactive Hard	4,5%	5,2%	4,7%	4,9%	3,9%	3,8%	4,5%	0,1%	0,2%	0,1%	0,2%	0,1%	0,1%	0,1%	
	Jobseekers	52,0%	34,9%	41,3%	44,2%	44,9%	37,8%	42,5%	-	-	1,2%	2,4%	2,3%	3,6%	2,4%	
	Want	21,5%	26,2%	18,9%	23,9%	20,8%	19,3%	21,8%	1,8%	1,1%	0,7%	0,8%	1,0%	0,9%	1,0%	
	Total Inactive	6,1%	7,1%	6,2%	7,4%	6,2%	5,9%	6,5%	0,2%	0,3%	0,2%	0,3%	0,2%	0,3%	0,2%	
	Total males	60,2%	61,3%	61,4%	61,2%	60,5%	59,6%	60,7%	0,6%	0,6%	0,5%	0,7%	0,5%	0,6%	0,6%	
	f e m a l e	Other Employed	89,0%	89,0%	89,2%	89,1%	88,5%	89,0%	89,0%	1,4%	1,8%	1,5%	2,0%	2,0%	1,6%	1,7%
Involuntary part-time		54,8%	58,4%	60,7%	56,7%	63,8%	60,7%	59,2%	21,5%	17,4%	14,9%	22,6%	13,2%	20,8%	18,4%	
Total Employed		87,7%	88,2%	88,4%	88,3%	87,8%	88,1%	88,1%	2,2%	2,3%	1,8%	2,5%	2,3%	2,3%	2,2%	
UNEMPL OYED		22,6%	23,6%	24,1%	26,3%	24,5%	22,3%	23,9%	3,3%	2,9%	1,9%	4,0%	2,9%	3,7%	3,1%	
Inactive Hard		2,8%	3,4%	3,3%	3,6%	3,0%	3,1%	3,2%	0,1%	0,3%	0,3%	0,3%	0,1%	0,2%	0,2%	
Jobseekers		17,0%	12,9%	20,1%	34,1%	24,1%	27,5%	22,6%	-	3,8%	-	0,7%	4,5%	0,5%	2,4%	
Want		8,8%	10,9%	9,3%	11,7%	8,1%	8,1%	9,5%	0,8%	1,4%	0,4%	1,3%	1,1%	0,8%	0,9%	
Total Inactive		3,5%	4,2%	4,0%	4,9%	3,8%	3,9%	4,1%	0,2%	0,4%	0,3%	0,4%	0,3%	0,3%	0,3%	
Total females		36,7%	37,4%	37,7%	38,2%	38,2%	37,9%	37,7%	1,1%	1,3%	1,0%	1,3%	1,2%	1,2%	1,2%	

		ILO Employed							Unemployed							
		total employed						Annual Average Employed	Totale unemployed						Annual Average Unemployed	
		04-05	05-06	06-07	07-08	08-09	09-10		04-05	05-06	06-07	07-08	08-09	09-10		
m a l e	E M P L O Y E D	Other Employed	93,6%	94,4%	94,2%	94,0%	93,3%	93,1%	93,8%	1,8%	1,7%	1,5%	1,4%	2,1%	2,4%	237
		Involuntary part-time	76,7%	72,1%	75,2%	76,7%	79,0%	82,7%	77,1%	10,1%	10,5%	11,1%	7,9%	9,4%	6,8%	12
		Total Employed	93,4%	94,2%	94,0%	93,8%	93,1%	93,0%	93,6%	1,9%	1,7%	1,6%	1,4%	2,2%	2,5%	249
	UNEMPL OYED	Total Unemployed	35,0%	38,0%	35,0%	36,7%	30,6%	28,5%	34,0%	35,7%	33,0%	32,4%	35,0%	38,2%	41,5%	306
	NON LABOUR FORCE	Inactive Hard	4,5%	5,3%	4,8%	5,1%	4,0%	3,9%	4,6%	2,5%	1,8%	1,8%	1,9%	1,9%	2,2%	133
		Jobseekers	52,0%	34,9%	42,5%	46,6%	47,2%	41,3%	44,1%	17,2%	16,9%	14,8%	17,9%	11,7%	35,0%	10
		Want	23,3%	27,3%	19,6%	24,7%	21,8%	20,2%	22,8%	20,0%	21,4%	15,8%	17,3%	17,9%	16,6%	135
		Total Inactive	6,3%	7,4%	6,3%	7,6%	6,4%	6,2%	6,7%	4,1%	3,6%	3,1%	3,8%	3,9%	4,2%	277
	Total males		60,8%	61,9%	61,9%	62,0%	61,0%	60,2%	61,3%	4,1%	3,7%	3,3%	3,4%	4,1%	4,7%	832
	f e m a l e	E M P L O Y E D	Other Employed	90,4%	90,9%	90,7%	91,0%	90,5%	90,6%	90,7%	2,1%	1,9%	1,2%	1,8%	2,3%	2,3%
Involuntary part-time			76,3%	75,9%	75,6%	79,3%	77,0%	81,5%	77,6%	9,6%	9,9%	7,7%	4,3%	12,6%	3,5%	21
Total Employed			89,9%	90,5%	90,3%	90,8%	90,1%	90,3%	90,3%	2,4%	2,1%	1,4%	1,9%	2,6%	2,3%	184
UNEMPL OYED		Total Unemployed	25,9%	26,5%	26,0%	30,3%	27,4%	26,0%	27,0%	28,9%	33,3%	26,6%	27,6%	28,6%	31,5%	269
L A B O R F O R C E		Inactive Hard	2,9%	3,7%	3,6%	3,9%	3,2%	3,3%	3,4%	2,0%	2,0%	1,6%	2,0%	1,9%	2,2%	215
		Jobseekers	17,0%	16,7%	20,1%	34,7%	28,5%	28,0%	24,2%	19,2%	22,0%	12,2%	20,9%	21,4%	21,2%	15
		Want	9,6%	12,2%	9,7%	13,0%	9,1%	8,9%	10,4%	11,4%	14,5%	8,7%	14,3%	11,4%	10,9%	176
		Total Inactive	3,7%	4,7%	4,3%	5,2%	4,1%	4,2%	4,4%	3,1%	3,4%	2,4%	3,7%	3,3%	3,4%	405
Total females		37,9%	38,7%	38,7%	39,5%	39,4%	39,1%	38,9%	4,1%	4,2%	3,1%	3,8%	4,0%	4,1%	858	

		ILO Inactive														Annual Average Want
		Jobseekers						Annual Average Jobseekers	Want to work							
		04 05	05 06	06 07	07 08	08 09	09 10		04 05	05 06	06 07	07 08	08 09	09 10		
m a l e	EMPLOYED Other Employed	0,1%	0,1%	0,1%	0,2%	0,2%	0,1%	0,1%	1,1%	1,0%	1,1%	1,3%	1,2%	1,2%	1,1%	
	EMPLOYED Involuntary part-time	-	1,2%	-	1,0%	0,7%	-	1,0%	9,2%	8,5%	6,2%	6,5%	7,4%	3,9%	6,9%	
	EMPLOYED Total Employed	0,1%	0,1%	0,1%	0,2%	0,2%	0,1%	0,1%	1,2%	1,1%	1,1%	1,4%	1,3%	1,2%	1,2%	
	UNEMPLOYED Total Unemployed	0,3%	1,4%	1,3%	1,8%	1,7%	1,0%	1,3%	15,9%	15,9%	19,9%	16,7%	17,4%	16,8%	17,1%	
	NON-LABOUR FORCE Inactive Jobseekers	0,1%	0,3%	0,2%	0,3%	0,2%	0,3%	0,3%	2,5%	2,8%	3,9%	3,9%	3,2%	2,7%	3,1%	
	NON-LABOUR FORCE Want	0,1%	1,6%	1,5%	0,8%	1,1%	0,5%	0,9%	6,0%	18,3%	8,5%	12,2%	18,0%	7,0%	11,7%	
	NON-LABOUR FORCE Total Inactive	0,1%	0,5%	0,3%	0,4%	0,3%	0,4%	0,3%	4,5%	4,7%	6,1%	7,3%	6,5%	6,8%	6,0%	
	Total males	0,1%	0,3%	0,2%	0,3%	0,3%	0,2%	0,2%	2,9%	2,9%	3,5%	3,9%	3,7%	3,8%	3,5%	
	f e m a l e	EMPLOYED Other Employed	0,1%	0,3%	0,2%	0,2%	0,1%	0,1%	0,2%	1,5%	1,8%	1,7%	1,7%	1,8%	1,7%	1,7%
		EMPLOYED Involuntary part-time	1,0%	0,2%	0,1%	-	-	-	0,5%	5,7%	7,3%	5,9%	9,4%	6,1%	6,1%	6,8%
EMPLOYED Total Employed		0,1%	0,3%	0,2%	0,2%	0,1%	0,1%	0,2%	1,7%	1,9%	1,8%	1,9%	1,9%	1,9%	1,8%	
UNEMPLOYED Total Unemployed		0,5%	2,6%	1,2%	1,6%	1,0%	1,6%	1,4%	23,3%	18,5%	25,9%	22,8%	21,2%	20,7%	22,1%	
NON-LABOUR FORCE Inactive Jobseekers		0,1%	0,3%	0,3%	0,3%	0,2%	0,2%	0,2%	4,3%	5,4%	6,5%	6,1%	5,4%	4,9%	5,4%	
NON-LABOUR FORCE Want		0,6%	5,0%	0,6%	2,1%	3,6%	3,9%	2,6%	32,3%	19,9%	13,7%	14,1%	18,0%	22,8%	20,1%	
NON-LABOUR FORCE Total		0,4%	0,8%	0,9%	0,6%	0,9%	0,7%	0,7%	31,1%	30,2%	31,8%	36,7%	34,8%	37,4%	33,7%	
NON-LABOUR FORCE Total Inactive		0,1%	0,4%	0,3%	0,4%	0,3%	0,3%	0,3%	7,6%	8,2%	9,2%	9,9%	9,3%	9,1%	8,9%	
Total females		0,1%	0,4%	0,3%	0,4%	0,3%	0,3%	0,3%	6,1%	6,2%	7,1%	7,2%	6,8%	6,7%	6,7%	

		ILO Inactive														Annual Average Inactive
		Inactive Hard						Annual Average Inactive Hard	Total Inactive ILO							
		04 05	05 06	06 07	07 08	08 09	09 10		04 05	05 06	06 07	07 08	08 09	09 10		
m a l e	E M P L O Y E D	Other Employed	3,5%	2,9%	3,1%	3,2%	3,2%	3,2%	3,2%	4,5%	4,0%	4,3%	4,7%	4,6%	4,5%	4,4%
		Involuntary part-time	4,1%	7,7%	7,5%	8,0%	3,5%	6,6%	6,2%	13,2%	17,4%	13,7%	15,5%	11,6%	10,5%	13,6%
		Total Employed	3,5%	2,9%	3,2%	3,2%	3,2%	3,2%	3,2%	4,6%	4,1%	4,4%	4,8%	4,7%	4,5%	4,5%
	UNEMPL OYED	Total Unemployed	13,1%	11,6%	11,4%	9,7%	12,0%	12,2%	11,7%	29,4%	29,0%	32,6%	28,3%	31,2%	30,0%	30,1%
	NON LABOUR FORCE	Inactive Hard	94,6%	89,7%	89,4%	88,9%	90,7%	90,9%	90,7%	93,0%	92,8%	93,4%	93,0%	94,1%	93,9%	93,4%
		Jobseekers	24,8%	19,7%	30,0%	17,6%	22,4%	14,3%	21,5%	30,8%	48,2%	42,7%	35,5%	41,2%	23,6%	37,0%
		Want	31,5%	26,5%	33,8%	23,3%	27,9%	25,3%	28,1%	56,8%	51,3%	64,6%	58,0%	60,3%	63,2%	59,0%
		Total Inactive	91,4%	83,9%	84,1%	80,9%	82,8%	82,5%	84,3%	89,6%	89,0%	90,6%	88,6%	89,7%	89,7%	89,5%
	Total males		46,1%	31,1%	31,0%	30,4%	31,0%	31,1%	33,4%	35,0%	34,4%	34,8%	34,7%	35,0%	35,1%	34,8%
	f e m a l e	E M P L O Y E D	Other Employed	5,9%	5,2%	6,2%	5,2%	5,3%	5,3%	5,5%	7,5%	7,2%	8,1%	7,1%	7,1%	7,1%
Involuntary part-time			7,3%	6,7%	10,7%	7,0%	4,4%	8,8%	7,5%	14,1%	14,2%	16,8%	16,5%	10,4%	14,9%	14,5%
Total Employed			5,9%	5,2%	6,3%	5,2%	5,2%	5,4%	5,6%	7,7%	7,4%	8,3%	7,4%	7,2%	7,3%	7,6%
UNEMPL OYED		Total Unemployed	21,3%	19,0%	20,3%	17,7%	21,7%	20,1%	20,0%	45,1%	40,2%	47,4%	42,1%	43,9%	42,5%	43,5%
NON LABOUR FORCE		Inactive Hard	94,3%	88,6%	88,1%	87,6%	89,2%	89,4%	89,5%	95,2%	94,3%	94,8%	94,1%	94,9%	94,5%	94,6%
		Jobseekers	30,9%	36,3%	53,4%	28,2%	28,4%	24,1%	33,6%	63,8%	61,3%	67,7%	44,3%	50,1%	50,8%	56,3%
		Want	47,5%	42,3%	48,9%	35,4%	43,8%	42,1%	43,3%	79,0%	73,3%	81,7%	72,7%	79,5%	80,3%	77,7%
		Total Inactive	90,6%	83,4%	83,7%	80,8%	83,0%	83,0%	84,1%	93,1%	91,9%	93,2%	91,1%	92,6%	92,4%	92,4%
Total females		63,4%	50,5%	50,9%	49,1%	49,5%	49,8%	52,2%	58,0%	57,1%	58,2%	56,7%	56,6%	56,8%	57,2%	

Table of transition working rates and three education levels for population aged 15-74
2007 - 2008 Rates on each of the total education levels

	EMPLOYED						UNEMPLOYED		
	Other Employed's education level			Involuntary part time's education level			Total Unemployed		
	low	medium	high	low	medium	high	low	medium	high
Other Employed	34,8%	58,6%	71,1%	0,5%	0,7%	0,7%	0,7%	0,9%	0,6%
Involuntary part time	0,4%	0,5%	0,7%	0,2%	0,2%	0,3%	0,1%	0,0%	0,1%
Total Employed	35,2%	59,0%	71,7%	0,7%	0,9%	1,0%	0,8%	0,9%	0,6%
Total Unemployed	0,8%	1,4%	1,2%	0,1%	0,0%	0,2%	0,9%	1,3%	0,9%
Inactive Hard	1,3%	2,2%	2,3%	0,1%	0,1%	0,2%	0,7%	1,0%	0,6%
Jobseekers	0,1%	0,2%	0,1%	0,0%	0,0%	0,0%	0,1%	0,1%	0,1%
Want to work	0,7%	1,2%	0,7%	0,1%	0,0%	0,1%	0,8%	1,0%	0,4%
Total Inactive	2,1%	3,7%	3,1%	0,2%	0,1%	0,2%	1,7%	2,0%	1,0%
2008	38,1%	64,1%	76,0%	1,0%	1,0%	1,4%	3,4%	4,2%	2,6%

	INACTIVE									Totals x edu		
	Inactive Hard's education level			Jobseekers' education level			Want to work education level					
	low	medium	high	low	medium	high	low	medium	high	low	medium	high
Other Employed	1,9%	1,9%	2,2%	0,1%	0,1%	0,0%	0,8%	0,7%	0,4%	38,9%	62,9%	75,0%
Involuntary part time	0,1%	0,0%	0,1%	0,0%	0,0%	0,0%	0,1%	0,0%	0,1%	0,7%	0,8%	1,1%
Total Employed	2,0%	2,0%	2,3%	0,1%	0,1%	0,0%	0,9%	0,7%	0,4%	39,6%	63,7%	76,1%
Total Unemployed	0,4%	0,5%	0,4%	0,0%	0,1%	0,0%	0,7%	0,7%	0,5%	3,0%	3,9%	3,3%
Inactive Hard	46,8%	20,5%	13,4%	0,1%	0,1%	0,1%	2,2%	2,4%	0,8%	51,2%	26,3%	17,5%
Jobseekers	0,1%	0,1%	0,1%	0,0%	0,0%	0,0%	0,0%	0,1%	0,1%	0,4%	0,4%	0,3%
Want to work	1,8%	1,7%	1,1%	0,0%	0,0%	0,0%	2,3%	1,6%	0,6%	5,8%	5,6%	2,9%
Total Inactive	48,7%	22,3%	14,6%	0,2%	0,2%	0,2%	4,6%	4,1%	1,5%	57,4%	32,4%	20,6%
2008	51,1%	24,8%	17,3%	0,3%	0,4%	0,2%	6,1%	5,5%	2,5%	100,0%	100,0%	100,0%

Table of transition working rates and three education levels for population aged 15-74
2008 - 2009 Rates on each of the total education levels

	EMPLOYED						UNEMPLOYED		
	Other Employed's education level			Involuntary part time's education			Total Unemployed		
	low	medium	high	low	medium	high	low	medium	high
Other Employed	34,5%	57,7%	73,6%	0,5%	0,6%	0,7%	1,0%	1,3%	1,0%
Involuntary part time	0,5%	0,7%	0,7%	0,2%	0,1%	0,2%	0,1%	0,2%	0,0%
Total Employed	35,0%	58,4%	74,3%	0,6%	0,7%	0,9%	1,1%	1,5%	1,1%
Unemployed	0,7%	1,4%	1,3%	0,1%	0,1%	0,1%	1,1%	1,5%	1,1%
Inactive Hard	1,2%	1,5%	1,6%	0,0%	0,1%	0,0%	0,7%	0,9%	0,5%
Jobseekers	0,1%	0,1%	0,1%	0,0%	0,0%	0,0%	0,0%	0,1%	0,0%
Want to work	0,6%	1,0%	0,6%	0,1%	0,1%	0,1%	0,7%	1,0%	0,5%
Total Inactive	1,9%	2,6%	2,3%	0,1%	0,1%	0,1%	1,4%	2,0%	1,0%
2009	37,6%	62,4%	77,9%	0,8%	0,9%	1,1%	3,6%	5,1%	3,1%

	INACTIVE									Totals x edu		
	Inactive Hard's education level			Jobseekers' education level			Want to work education level					
	low	medium	high	low	medium	high	low	medium	high	low	medium	high
Other Employed	1,9%	2,2%	1,9%	0,1%	0,1%	0,0%	0,7%	0,9%	0,4%	38,7%	62,8%	77,7%
Involuntary part time	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,1%	0,0%	0,0%	0,8%	1,1%	1,1%
Total Employed	1,9%	2,3%	2,0%	0,1%	0,1%	0,0%	0,8%	0,9%	0,4%	39,4%	63,9%	78,8%
Unemployed	0,6%	0,8%	0,5%	0,1%	0,0%	0,1%	0,8%	0,7%	0,5%	3,3%	4,6%	3,6%
Inactive Hard	46,7%	21,1%	12,3%	0,1%	0,1%	0,0%	2,0%	1,7%	0,7%	50,8%	25,4%	15,2%
Jobseekers	0,1%	0,0%	0,0%	0,0%	0,0%	0,0%	0,1%	0,1%	0,0%	0,3%	0,3%	0,2%
Want to work	2,4%	2,1%	0,6%	0,1%	0,0%	0,0%	2,3%	1,6%	0,5%	6,2%	5,8%	2,3%
Total Inactive	49,2%	23,3%	13,0%	0,2%	0,1%	0,1%	4,4%	3,4%	1,3%	57,2%	31,5%	17,7%
2009	51,8%	26,3%	15,4%	0,3%	0,3%	0,2%	5,9%	5,0%	2,2%	100,0%	100,0%	100,0%

Table of transition working rates and three education levels for population aged 15-74

2009 - 2010

Rates on each of the total education levels

	EMPLOYED						UNEMPLOYED		
	Other Employed's			Involuntary part time's			Total Unemployed		
	low	medium	high	low	medium	high	low	medium	high
Other Employed	34,4%	56,5%	70,1%	0,4%	0,5%	0,5%	1,0%	1,5%	1,3%
Involuntary part time	0,5%	0,7%	1,1%	0,2%	0,3%	0,1%	0,1%	0,0%	0,0%
Total Employed	34,8%	57,2%	71,2%	0,6%	0,8%	0,6%	1,1%	1,5%	1,3%
Unemployed	0,8%	1,3%	1,0%	0,1%	0,2%	0,0%	1,4%	1,8%	0,9%
Inactive Hard	1,1%	1,6%	1,7%	0,1%	0,0%	0,0%	0,9%	1,0%	0,5%
Jobseekers	0,1%	0,2%	0,1%	0,0%	0,0%	0,0%	0,1%	0,1%	0,1%
Want to work	0,6%	0,8%	0,5%	0,0%	0,1%	0,1%	0,8%	0,8%	0,3%
Total Inactive	1,8%	2,6%	2,3%	0,1%	0,1%	0,1%	1,7%	1,9%	0,9%
2010	37,5%	61,1%	74,5%	0,8%	1,1%	0,7%	4,2%	5,2%	3,1%

	INACTIVE									Totals x edu		
	Inactive Hard's education			Jobseekers' education			Want to work education			low	medium	high
	low	medium	high	low	medium	high	low	medium	high			
Other Employed	1,8%	2,1%	2,4%	0,1%	0,0%	0,1%	0,7%	0,7%	0,6%	38,3%	61,4%	75,0%
Involuntary part time	0,1%	0,1%	0,0%	0,0%	0,0%	0,0%	0,1%	0,0%	0,0%	0,8%	1,1%	1,3%
Total Employed	1,9%	2,2%	2,5%	0,1%	0,0%	0,1%	0,7%	0,8%	0,6%	39,2%	62,5%	76,2%
Unemployed	0,6%	0,7%	0,8%	0,1%	0,1%	0,0%	0,7%	0,9%	0,6%	3,8%	5,0%	3,4%
Inactive Hard	46,9%	22,0%	13,7%	0,1%	0,1%	0,1%	1,8%	1,6%	0,8%	50,9%	26,3%	16,9%
Jobseekers	0,1%	0,1%	0,0%	0,0%	0,0%	0,0%	0,1%	0,0%	0,1%	0,3%	0,4%	0,4%
Want to work	2,0%	2,3%	1,2%	0,0%	0,0%	0,0%	2,4%	1,8%	1,1%	5,9%	5,7%	3,2%
Total Inactive	49,0%	24,3%	15,0%	0,1%	0,2%	0,2%	4,3%	3,4%	1,9%	57,0%	32,5%	20,4%
2010	51,5%	27,2%	18,2%	0,2%	0,3%	0,2%	5,7%	5,1%	3,2%	100,0%	100,0%	100,0%

Output of the first logistic analysis: Comparison unsatisfied vs satisfied labour status

Response profile													
Ordered	labour status after a year	Frequency Totals											
Value		04	05	05	06	06	07	07	08	08	09	09	10
1	satisfied	62259	60874	57039	59924	61023	57640						
2	unsatisfied	5592	5894	5069	5948	5959	5620						

Information on the levels of classification		
Variables	Class	Values
initial labour status	satisfied	0
	unsatisfied	1
gender	Women	1
	Men	0
degree	with university degree	1
	without university degree	0

Model Convergence Status
Convergence criterion (GCONV=1E-8) satisfied

Hypothesis testing Null global: BETA=0									
Test	Chi-Square							DF	Pr > ChiSq
	2004	2005	2005	2006	2007	2008	2009		
Likelihood ratio		10483	10032	8402	10466	10766	10817	4	<.0001
Score		15863	14831	12520	15717	15867	16393	4	<.0001
Wald		8849	8640	7310	8907	9020	9045	4	<.0001

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Type 3 Analysis of Effects								
Effect	DF	Wald Chi-Square						Pr > ChiSq
		2004	2005	2006	2007	2008	2009	
Istatus	1	6660,04	6314,2	5081	6506,5	6759,7	7023,3	<.0001
age	1	1732,59	1656,7	1603	1692,5	1830,6	1561,9	<.0001
SG11	1	78,6577	215,35	137,15	159,01	78,409	40,84	<.0001
degree1	1	46,3868	25,149	40,563	64,108	47,299	20,706	<.0001

Analysis of maximum likelihood estimates							
2004 2005							
Parameters	Istatus_051	DF	Estimates	Standard Error	Chi-Square Wald	Pr > ChiSq	
Intercept	unsatisfied	1	-1,2448	0,0509	597,4665	<.0001	
Istatus_041	unsatisfied	1	2,7292	0,0334	6660,0426	<.0001	
eta_04	unsatisfied	1	-0,0455	0,00109	1732,586	<.0001	
SG11_041	Women	1	0,2914	0,0329	78,6577	<.0001	
degree1_041	with university degree	1	-0,2266	0,0333	46,3868	<.0001	

Analysis of maximum likelihood estimates							
2005 2006							
Parameters	Istatus_061	DF	Stima	Errore standard	Chi-Square Wald	Pr > ChiSq	
Intercept	unsatisfied	1	-1,3417	0,0499	723,8464	<.0001	
Istatus_051	unsatisfied	1	2,6183	0,033	6314,1669	<.0001	
eta_05	unsatisfied	1	-0,0425	0,00104	1656,741	<.0001	
SG11_051	Women	1	0,4692	0,032	215,3523	<.0001	
degree1_051	with university degree	1	-0,1644	0,0328	25,1494	<.0001	

Analysis of maximum likelihood estimates							
2006 2007							
Parameters	Istatus_071	DF	Stima	Errore standard	Chi-Square Wald	Pr > ChiSq	
Intercept	unsatisfied	1	-1,3252	0,0484	750,4447	<.0001	
Istatus_061	unsatisfied	1	2,5188	0,0353	5080,9569	<.0001	
eta_06	unsatisfied	1	-0,043	0,00107	1602,9854	<.0001	
SG11_061	Women	1	0,3968	0,0339	137,1491	<.0001	
degree1_061	with university degree	1	-0,4355	0,0684	40,5631	<.0001	

Analysis of maximum likelihood estimates							
2007 2008							
Parameters	Istatus_081	DF	Stima	Errore standard	Chi-Square Wald	Pr > ChiSq	
Intercept	unsatisfied	1	-1,3131	0,0463	805,9996	<.0001	
Istatus_071	unsatisfied	1	2,7048	0,0335	6506,4744	<.0001	
eta_07	unsatisfied	1	-0,0412	0,001	1692,5442	<.0001	
SG11_071	Women	1	0,4048	0,0321	159,0092	<.0001	
degree1_071	with university degree	1	-0,4864	0,0607	64,108	<.0001	

Analysis of maximum likelihood estimates							
2008 2009							
Parameters	Istatus_091	DF	Stima	Errore standard	Chi-Square Wald	Pr > ChiSq	
Intercept	unsatisfied	1	-1,2273	0,0461	710,161	<.0001	
Istatus_081	unsatisfied	1	2,6925	0,0327	6759,7144	<.0001	
eta_08	unsatisfied	1	-0,0431	0,00101	1830,6399	<.0001	
SG11_081	Women	1	0,2824	0,0319	78,4088	<.0001	
degree1_081	with university degree	1	-0,423	0,0615	47,2991	<.0001	

Analysis of maximum likelihood estimates							
2009 2010							
Parameters	Istatus_101	DF	Stima	Errore standard	Chi-Square Wald	Pr > ChiSq	
Intercept	unsatisfied	1	-1,3017	0,0486	716,2177	<.0001	
Istatus_091	unsatisfied	1	2,842	0,0339	7023,3448	<.0001	
eta_09	unsatisfied	1	-0,0415	0,00105	1561,9414	<.0001	
SG11_091	Women	1	0,2115	0,0331	40,8395	<.0001	
degree1_091	with university degree	1	-0,3125	0,0687	20,7057	<.0001	

Odds Ratio Estimates									
Effect		Point estimate						6 years average	
		Istatus_05	Istatus_06	Istatus_07	Istatus_08	Istatus_09	Istatus_10		
initial Istatus	unsatisfied vs satisfied	unsatisfied	15,32	13,71	12,41	14,95	14,77	17,15	14,72
age		unsatisfied	0,96	0,96	0,96	0,96	0,96	0,96	0,96
Women vs Men		unsatisfied	1,34	1,60	1,49	1,50	1,33	1,24	1,41
degree: with university degree vs without		unsatisfied	0,80	0,85	0,65	0,62	0,66	0,73	0,72

Association of predicted probabilities and observed responses 2004 2005			
percentage in agreement	85,8	D di Somers	0,723
percentage discordant	13,5	Gamma	0,728
percentage bound	0,7	Tau-a	0,109
couples	348.152.328	c	0,862

Association of predicted probabilities and observed responses 2005 2006			
percentage in agreement	84,6	D di Somers	0,699
percentage discordant	14,7	Gamma	0,705
percentage bound	0,8	Tau-a	0,113
couples	358.791.356	c	0,85

Association of predicted probabilities and observed responses 2006 2007			
percentage in agreement	84,2	D di Somers	0,691
percentage discordant	15,1	Gamma	0,696
percentage bound	0,7	Tau-a	0,104
couples	289.130.691	c	0,846

Association of predicted probabilities and observed responses 2007 2008			
percentage in agreement	84,9	D di Somers	0,705
percentage discordant	14,4	Gamma	0,71
percentage bound	0,7	Tau-a	0,116
couples	356.427.952	c	0,852

Association of predicted probabilities and observed responses 2008 2009			
percentage in agreement	85,4	D di Somers	0,715
percentage discordant	14	Gamma	0,719
percentage bound	0,6	Tau-a	0,116
couples	363.636.057	c	0,857

Association of predicted probabilities and observed responses 2009 2010			
percentage in agreement	36	86	D di Somers 0,727
percentage discordant		13,3	Gamma 0,732
percentage bound		0,7	Tau-a 0,118
couples	323.936.800	c	0,864

Output of the second logistic model for the years 2004-2010

General Information	
Model	Generalized Logit
Optimization Technique	Fishers' Scoring

Response profile		Frequency Totals								mean
Ordered Value	labour status after a year	04	05	06	07	08	09	10		
1	jobseekers	65	220	162	175	149	143		152	
2	other employed and hard inactive	62259	60874	57039	59924	61023	57497		59769	
3	time-underemployed	470	496	360	518	471	458		462	
4	unemployed	2378	2317	1594	1992	2200	2240		2120	
5	want	2679	2861	2953	3263	3139	2922		2970	

Information on the levels of classification		Values			
Class	Valore				
Istatus	jobseekers	1	0	0	0
	other employed and hard inactive	0	0	0	0
	time-underemployed	0	1	0	0
	unemployed	0	0	1	0
	want	0	0	0	1
	SG11	Women	1		
	Men	0			
degree	with university degree	1			
	without university degree	0			

Model Convergence Status

Convergence criterion (GCONV=1E-8) satisfied

Year 2004 - 2005

Hypothesis testing Null global: BETA=0			
Test	Chi-Square	DF	Pr > ChiSq
Likelihood Ratio	11562	24	<.0001
Score	21320	24	<.0001
Wald	10288	24	<.0001

Years 2005 - 2009

Hypothesis testing Null global: BETA=0							
Test	Chi-Square					DF	Pr > Chi Sq
	2005	2006	2007	2008	2009		
Likelihood Ratio	10918	9336	7754	11822	12293	28	<.0001
Score	18919	17016	20730	20743	23681	28	<.0001
Wald	9735	8416	#####	10419	11047	28	<.0001

Type 3 Analysis of Effects			
Effect	DF	Wald Chi-Square	Pr > ChiSq
Istatus_041	12	7846,0508	<.0001
eta_04	4	1743,1588	<.0001
SG11_041	4	209,6678	<.0001
degree1_041	4	69,2652	<.0001

Type 3 Analysis of Effects			
Effect	DF	Wald Chi-Square	Pr > ChiSq
Istatus_051	16	7260,3846	<.0001
eta_05	4	1667,7876	<.0001
SG11_051	4	309,2698	<.0001
degree1_051	4	41,1034	<.0001

Type 3 Analysis of Effects			
Effect	DF	Wald Chi-Square	Pr > ChiSq
Istatus_061	16	6025,5342	<.0001
eta_06	4	1564,0328	<.0001
SG11_061	4	237,7147	<.0001
degree1_061	4	63,747	<.0001

Type 3 Analysis of Effects			
Effect	DF	Wald Chi-Square	Pr > ChiSq
Istatus_071	16	29694724,2	<.0001
eta_07	4	15133215,6	<.0001
SG11_071	4	766076,227	<.0001
degree1_071	4	144544,783	<.0001

Type 3 Analysis of Effects			
Effect	DF	Wald Chi-Square	Pr > ChiSq
Istatus_081	16	7909,892	<.0001
eta_08	4	1834,583	<.0001
SG11_081	4	190,7105	<.0001
degree1_081	4	93,5604	<.0001

Type 3 Analysis of Effects			
Effect	DF	Wald Chi-Square	Pr > ChiSq
Istatus_091	16	8795,3548	<.0001
eta_09	4	1606,0245	<.0001
SG11_091	4	142,012	<.0001
degree1_091	4	20,0133	0,0005

Analysis of Maximum Likelihood Estimates							
Parameters	Istatus_051	DF	Estimation	St. Error	Wald's Chi-	Pr > ChiSqu	
Intercept	jobseekers	1	-5,4129	0,3995	183,5397	<.0001	
Intercept	time-underemployed	1	-4,4257	0,1691	684,692	<.0001	
Intercept	unemployed	1	-1,6391	0,0729	505,7456	<.0001	
Intercept	want	1	-2,3199	0,071	1066,799	<.0001	
Istatus_04	time-underemployed	1	0,7929	1,0139	0,6116		0,4342
Istatus_04	time-underemployed	1	3,899	0,1246	978,6098	<.0001	
Istatus_04	time-underemployed	1	1,8043	0,1496	145,414	<.0001	
Istatus_04	time-underemployed	1	1,1157	0,1778	39,3745	<.0001	
Istatus_04	unemployed	1	2,0597	0,34	36,7014	<.0001	
Istatus_04	unemployed	1	2,1562	0,1476	213,543	<.0001	
Istatus_04	unemployed	1	3,3256	0,0562	3507,5702	<.0001	
Istatus_04	unemployed	1	2,6868	0,0612	1924,9354	<.0001	
Istatus_04	want	1	1,5405	0,3866	15,8785	<.0001	
Istatus_04	want	1	1,1284	0,1986	32,271	<.0001	
Istatus_04	want	1	2,4448	0,0654	1396,7873	<.0001	
Istatus_04	want	1	2,8986	0,0524	3063,8162	<.0001	
eta_04	jobseekers	1	-0,0517	0,00889	33,8068	<.0001	
eta_04	time-underemployed	1	-0,0291	0,00323	81,0833	<.0001	
eta_04	unemployed	1	-0,0571	0,00173	1084,867	<.0001	
eta_04	want	1	-0,0393	0,00144	744,1389	<.0001	
SG11_041	Women	1	0,5578	0,2614	4,5528		0,0329
SG11_041	Women	1	0,5793	0,1028	31,7807	<.0001	
SG11_041	Women	1	-0,0526	0,0466	1,2742		0,259
SG11_041	Women	1	0,5883	0,0455	167,1342	<.0001	
degree1	with university degree	1	0,1671	0,2507	0,4441		0,5052
degree1	with university degree	1	-0,0258	0,0987	0,0682		0,794
degree1	with university degree	1	-0,1071	0,0468	5,2378		0,0221
degree1	with university degree	1	-0,3718	0,0452	67,6898	<.0001	

Analysis of Maximum Likelihood Estimates						
Parameters	Istatus_101_3	DF	Estimate	St. Error	Wald's Chi-	Pr > ChiSqu
Intercept	jobseekers	1	-4,8881	0,26	353,4701	<.0001
Intercept	time-underemployed	1	-4,0907	0,1551	695,4511	<.0001
Intercept	unemployed	1	-1,7281	0,0702	606,6676	<.0001
Intercept	want	1	-2,3217	0,0667	1209,9178	<.0001
Istatus_09	jobseekers	1	4,1604	0,2998	192,5577	<.0001
Istatus_09	jobseekers	1	1,3322	0,5893	5,1096	0,0238
Istatus_09	jobseekers	1	2,744	0,1803	231,6161	<.0001
Istatus_09	jobseekers	1	2,2059	0,1996	122,1164	<.0001
Istatus_09	time-underemployed	1	-13,268	988,7	0,0002	0,9893
Istatus_09	time-underemployed	1	3,9606	0,1302	925,178	<.0001
Istatus_09	time-underemployed	1	1,1903	0,2158	30,4225	<.0001
Istatus_09	time-underemployed	1	1,101	0,1973	31,1547	<.0001
Istatus_09	unemployed	1	2,7943	0,2227	157,4655	<.0001
Istatus_09	unemployed	1	2,3121	0,1524	230,2402	<.0001
Istatus_09	unemployed	1	3,4376	0,061	3179,1331	<.0001
Istatus_09	unemployed	1	2,7098	0,0677	1600,0657	<.0001
Istatus_09	want	1	1,9509	0,2532	59,3428	<.0001
Istatus_09	want	1	1,2108	0,1902	40,5416	<.0001
Istatus_09	want	1	2,4367	0,0653	1393,178	<.0001
Istatus_09	want	1	3,2559	0,0493	4363,6366	<.0001
eta_09	jobseekers	1	-0,0375	0,00553	45,8234	<.0001
eta_09	time-underemployed	1	-0,0351	0,00313	125,6439	<.0001
eta_09	unemployed	1	-0,0505	0,00164	952,1961	<.0001
eta_09	want	1	-0,0361	0,00137	693,0063	<.0001
SG11_091	Women	1	0,1449	0,1704	0,7233	0,3951
SG11_091	Women	1	0,6291	0,1042	36,4661	<.0001
SG11_091	Women	1	-0,1021	0,0477	4,5799	0,0323
SG11_091	Women	1	0,4198	0,0436	92,7872	<.0001
degree1	with university degree	1	-0,1583	0,332	0,2274	0,6334
degree1	with university degree	1	-0,1226	0,1804	0,4621	0,4967
degree1	with university degree	1	-0,2105	0,0989	4,5306	0,0333
degree1	with university degree	1	-0,3919	0,0942	17,2939	<.0001

Odds Ratio Estimates		Point Estimate						AVERA
Effect	Outcome							GE
		04 ->05	05->06	06->07	07->08	08->09	09->10	
jobseekers vs other employed and hard inactive	jobseekers		31,2	17,4	26,4	15,3	64,1	30,9
jobseekers vs other employed and hard inactive	time-underemployed	2,107*	1,005*		3,0	7,268*	3,789*	3,4
jobseekers vs other employed and hard inactive	unemployed	12,9	10,2	14,1	10,9	15,6		12,7
jobseekers vs other employed and hard inactive	want	8,5	3,5	12,0	7,9	9,1		8,2
time-underemployed vs other employed and hard inactive	jobseekers	2,21*	4,585*	1,379*	<0.001	1,68*	<0.001	2,5
time-underemployed vs other employed and hard inactive	time-underemployed	49,35	40,4	34,6	<0.001	37,9	52,5	42,9
time-underemployed vs other employed and hard inactive	unemployed	6,08	6,8	5,4	<0.001	7,4	3,3	5,8
time-underemployed vs other employed and hard inactive	want	3,05	3,5	2,3	<0.001	2,8	3,0	2,9
unemployed vs other employed and hard inactive	jobseekers	7,84	13,1	11,0	16,3	13,5	16,4	13,0
unemployed vs other employed and hard inactive	time-underemployed	8,64	6,6	4,3	13,7	7,1	10,1	8,4
unemployed vs other employed and hard inactive	unemployed	27,81	27,0	34,1	26,2	29,6	31,1	29,3
unemployed vs other employed and hard inactive	want	14,69	10,7	12,7	16,6	13,0	15,0	13,8
want vs other employed and hard inactive	jobseekers	4,67	8,1	7,7	10,9	9,5	7,0	8,0
want vs other employed and hard inactive	time-underemployed	3,09	3,1	1,9	4,3	2,9	3,4	3,1
want vs other employed and hard inactive	unemployed	11,53	13,9	10,6	15,0	11,2	11,4	12,3
want vs other employed and hard inactive	want	18,15	15,1	12,6	16,4	18,8	25,9	17,8
age	jobseekers	0,95	1,0	1,0	1,0	1,0	1,0	1,0
age	time-underemployed	0,97	1,0	1,0	1,0	1,0	1,0	1,0
age	unemployed	0,94	0,9	0,9	1,0	0,9	1,0	1,0
age	want	0,96	1,0	1,0	1,0	1,0	1,0	1,0
Women vs Men	jobseekers	1,75	1,4	1,4	1,2	0,9	1,2	1,3
Women vs Men	time-underemployed	1,79	1,9	1,9	1,7	2,1	1,9	1,9
Women vs Men	unemployed	0,95	1,2	1,0	1,1	0,9	0,9	1,0
Women vs Men	want	1,80	2,1	1,8	1,5	1,6	1,5	1,7
with university degree vs without university degree	jobseekers	1,18	0,9	1,2	0,8	1,4	0,9	1,1
with university degree vs without university degree	time-underemployed	0,98	1,1	1,3	1,2	1,2	0,9	1,1
with university degree vs without university degree	unemployed	0,90	0,9	0,7	0,7	0,8	0,8	0,8
with university degree vs without university degree	want	0,69	0,8	0,5	0,6	0,4	0,7	0,6

Table 1: Average age difference between Other Employed vs Part time Under-employed

	Statistics	Variable	age 2004			
Labour status	N	Average	Dev std	Err std	Min.	Max.
Other employed	28266	41,013	11,158	0,0664	15	74
Involuntary part-time	603	37,257	10,415	0,4241	16	70
Diff (1-2)		3,7557	11,143	0,4586		
Test T						
Method	Variance	DF	t- value	Pr > t		
Pooled	Equal	2,90E+04	8,19	< .0001		
Satterthwaite	Unequal	632	8,75	< .0001		
Variance Equality						
Method	Num DF	Den DF	F-value	Pr>F		
Folded F	28265	602	1,15	0,0216		

Table 2: Average age difference between Inactive Hard vs Want to work

	Statistics	Variable	age 2004			
Labour status	N	Average	Dev std	Err std	Min.	Max.
Inactive Hard	26301	51,184	19,464	0,12	15	74
Want to work	2909	37,901	12,797	0,2373	15	64
Diff (1-2)		13,283	18,905	0,3694		
Test T						
Method	Variance	DF	t- value	Pr > t		
Pooled	Equal	2,90E+04	35,96	< .0001		
Satterthwaite	Unequal	4554	49,96	< .0001		
Variance Equality						
Method	Num DF	Den DF	F-value	Pr>F		
Folded F	26300	2908	2,31	< .0001		

Table 3: Average age difference between Other Employed vs Part time Under-employed

	Statistics	Variable	age 2005			
Labour status	N	Average	Dev std	Err std	Min.	Max.
Other employed	27822	41,335	10,96	0,0657	15	74
Involuntary part-time	485	39,01	11,127	0,5053	15	74
Diff (1-2)		2,3249	10,963	0,5021		
Test T						
Method	Variance	DF	t- value	Pr > t		
Pooled	Equal	2,80E+04	4,63	< .0001		
Satterthwaite	Unequal	501	4,56	< .0001		
Variance Equality						
Method	Num DF	Den DF	F-value	Pr>F		
Folded F	484	27821	1,03	0,6241		

Table 4: Average age difference between Unemployed vs Jobseekers

	Statistics	Variable	age 2005			
Labour status	N	Average	Dev std	Err std	Min.	Max.
Unemployed	2500	33,511	11,016	0,2203	15	73
Jobseekers	106	34,623	11,784	1,1446	15	64
Diff (1-2)		-1,112	11,048	1,0956		
	Test T					
Method	Variance	DF	t- value	Pr > t		
Pooled	Equal	2604	-1,01	0,3103		
Satterthwaite	Unequal	113	-0,95	0,3422		
	Variance Equality					
Method	Num DF	Den DF	F-value	Pr>F		
Folded F	105	2499	1,14	0,3079		

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Table 5: Average age difference between Inactive Hard vs Want to work

	Statistics	Variable	age 2005			
Labour status	N	Average	Dev std	Err std	Min.	Max.
Inactive Hard	25966	51,045	19,532	0,1212	15	74
Want to work	2917	37,709	12,449	0,2305	15	64
Diff (1-2)		13,336	18,937	0,3698		
Test T						
Method	Variance	DF	t- value	Pr > t		
Pooled	Equal	2,90E+04	36,06	< .0001		
Satterthwaite	Unequal	4711	51,21	<.0001		
Variance Equality						
Method	Num DF	Den DF	F-value	Pr>F		
Folded F	25965	2916	2,46	<.0001		

Table 6: Average age difference between Other Employed vs Part time Under-employed

	Statistics	Variable	age 2006			
Labour status	N	Average	Dev std	Err std	Min.	Max.
Other employed	25585	41,601	10,996	0,0687	15	74
Involuntary part-time	412	38,959	10,793	0,5317	17	71
Diff (1-2)		2,6422	10,992	0,5459		
Test T						
Method	Variance	DF	t- value	Pr > t		
Pooled	Equal	2,60E+04	4,84	< .0001		
Satterthwaite	Unequal	425	4,93	< .0001		
Variance Equality						
Method	Num DF	Den DF	F-value	Pr>F		
Folded F	25584	411	1,04	0,6144		

Table 7: Average age difference between Unemployed vs Jobseekers

	Statistics	Variable	age 2006			
Labour status	N	Average	Dev std	Err std	Min.	Max.
Unemployed	2118	33,194	11,108	0,2414	15	64
Jobseekers	221	39,158	14,804	0,9958	15	72
Diff (1-2)		-5,965	11,507	0,8134		
Test T						
Method	Variance	DF	t- value	Pr > t		
Pooled	Equal	2,34E+03	-7,33	< .0001		
Satterthwaite	Unequal	247	-5,82	< .0001		
Variance Equality						
Method	Num DF	Den DF	F-value	Pr>F		
Folded F	220	2117	1,78	< .0001		

Table 8: Average age difference between Inactive Hard vs Want to work

	Statistics	Variable	age 2006			
Labour status	N	Average	Dev std	Err std	Min.	Max.
Inactive Hard	24158	51,382	19,439	0,1251	15	74
Want to work	2436	37,95	12,75	0,2583	15	64
Diff (1-2)		13,432	18,925	0,4023		
Test T						
Method	Variance	DF	t- value	Pr > t		
Pooled	Equal	2,70E+04	33,39	< .0001		
Satterthwaite	Unequal	3690	46,8	< .0001		
Variance Equality						
Method	Num DF	Den DF	F-value	Pr>F		
Folded F	24157	2435	2,32	< .0001		

Table 9: Average age difference between Other Employed vs Part time Under-employed

	Statistics	Variable	age 2007			
Labour status	N	Average	Dev std	Err std	Min.	Max.
Other employed	25585	41,601	10,996	0,0687	15	74
Involuntary part-time	412	38,959	10,793	0,5317	17	71
Diff (1-2)		2,6422	10,992	0,5459		
Test T						
Method	Variance	DF	t- value	Pr > t		
Pooled	Equal	2,70E+04	5,28	.0001		
Satterthwaite	Unequal	433	5,24	.0001		
Variance Equality						
Method	Num DF	Den DF	F-value	Pr>F		
Folded F	420	26830	1,02	0,8115		

Table 10: Average age difference between Unemployed vs Jobseekers

	Statistics	Variable	age 2007			
Labour status	N	Average	Dev std	Err std	Min.	Max.
Unemployed	1885	33,832	11,03	0,2541	15	70
Jobseekers	205	35,751	12,404	0,8663	15	67
Diff (1-2)		-1,919	11,172	0,8216		
Test T						
Method	Variance	DF	t- value	Pr > t		
Pooled	Equal	2088	-2,34	0,0196		
Satterthwaite	Unequal	240	-2,13	0,0345		
Variance Equality						
Method	Num DF	Den DF	F-value	Pr>F		
Folded F	204	1884	1,26	0,0187		

Table 11: Average age difference between Inactive Hard vs Want to work

	Statistics	Variable	age 2007			
Labour status	N	Average	Dev std	Err std	Min.	Max.
Inactive Hard	25099	51,715	19,527	0,1233	15	74
Want to work	3202	37,606	12,517	0,2212	15	64
Diff (1-2)		14,109	18,865	0,354		
Test T						
Method	Variance	DF	t- value	Pr > t		
Pooled	Equal	2,70E+04	33,39	< .0001		
Satterthwaite	Unequal	3690	46,8	< .0001		
Variance Equality						
Method	Num DF	Den DF	F-value	Pr>F		
Folded F	25098	3201	2,43	< .0001		

Table 12: Average age difference between Other Employed vs Part time Under-employed

	Statistics	Variable	age 2008			
Labour status	N	Average	Dev std	Err std	Min.	Max.
Other employed	27202	42,097	11,022	0,0668	16	74
Involuntary part-time	481	39,353	11,121	0,5071	18	73
Diff (1-2)		2,7431	11,024	0,5071		

Test T					
Method	Variance	DF	t- value	Pr > t	
Pooled	Equal	2,80E+04	5,41	< .0001	
Satterthwaite	Unequal	497	5,36	< .0001	

Variance Equality				
Method	Num DF	Den DF	F-value	Pr>F
Folded F	480	27201	1,02	0,7679

Table 13: Average age difference between Unemployed vs Jobseekers

	Statistics	Variable	age 2008			
Labour status	N	Average	Dev std	Err std	Min.	Max.
Unemployed	2203	34,91	11,501	0,245	16	70
Jobseekers	199	36,935	13,367	0,9476	16	73
Diff (1-2)		-2,025	11,666	0,8635		

	Test T				
Method	Variance	DF	t- value	Pr > t	
Pooled	Equal	2400	-2,34	0,0191	
Satterthwaite	Unequal	225	-2,07	0,0397	

	Variance Equality				
Method	Num DF	Den DF	F-value	Pr>F	
Folded F	198	2202	1,35	0,0026	

Table 14: Average age difference between Inactive Hard vs Want to work

	Statistics	Variable	age 2008			
Labour status	N	Average	Dev std	Err std	Min.	Max.
Inactive Hard	25089	51,947	19,686	0,1243	15	74
Want to work	3378	38,377	12,846	0,221	16	64
Diff (1-2)		13,57	19,003	0,3483		
Test T						
Method	Variance	DF	t- value	Pr > t		
Pooled	Equal	2,80E+04	38,96	< .0001		
Satterthwaite	Unequal	5773	53,52	< .0001		
Variance Equality						
Method	Num DF	Den DF	F-value	Pr>F		
Folded F	25088	3377	2,35	< .0001		

Table 15: Average age difference between Other Employed vs Part time Under-employed

	Statistics	Variable	age 2009			
Labour status	N	Average	Dev std	Err std	Min.	Max.
Other employed	24979	42,61	10,983	0,0695	16	74
Involuntary part-time	478	40,291	11,108	0,5081	18	74
Diff (1-2)		2,3195	10,986	0,5073		
Test T						
Method	Variance	DF	t- value	Pr > t		
Pooled	Equal	2,50E+04	4,57	< .0001		
Satterthwaite	Unequal	495	4,52	< .0001		
Variance Equality						
Method	Num DF	Den DF	F-value	Pr>F		
Folded F	477	24978	1,02	0,7132		

Table 16: Average age difference between Unemployed vs Jobseekers

	Statistics	Variable	age 2009			
Labour status	N	Average	Dev std	Err std	Min.	Max.
Unemployed	2101	35,016	11,488	0,2506	16	71
Jobseekers	216	37,255	11,747	0,7993	16	66
Diff (1-2)		-2,239	11,512	0,8226		
Test T						
Method	Variance	DF	t- value	Pr > t		
Pooled	Equal	2315	-2,72	0,0065		
Satterthwaite	Unequal	259	-2,67	0,008		
Variance Equality						
Method	Num DF	Den DF	F-value	Pr>F		
Folded F	215	2100	1,05	0,6374		

Table 17: Average age difference between Inactive Hard vs Want to work

	Statistics	Variable	age 2008			
Labour status	N	Average	Dev std	Err std	Min.	Max.
Inactive Hard	23897	52,268	19,559	0,1265	15	74
Want to work	3156	38,605	12,6	0,2243	16	64
Diff (1-2)		13,664	18,88	0,3576		
Test T						
Method	Variance	DF	t- value	Pr > t		
Pooled	Equal	2,70E+04	38,21	< .0001		
Satterthwaite	Unequal	5410	53,06	< .0001		
Variance Equality						
Method	Num DF	Den DF	F-value	Pr>F		
Folded F	23896	3155	2,41	< .0001		