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***Societal and Economic Effects on
Quality of Life and Well-being:
Preference Identification and Priority
Setting in Response to Changes in
Labour Market Status***

EPICURUS

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EU RESEARCH ON SOCIAL SCIENCES AND HUMANITIES

Societal and Economic Effects on Quality of Life and Well-being: Preference Identification and Priority Setting in Response to Changes in Labour Market Status

EPICURUS

Final report

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Preface

Within the Fifth Community RTD Framework Programme of the European Union (1998–2002), the Key Action 'Improving the Socio-economic Knowledge Base' had broad and ambitious objectives, namely: to improve our understanding of the structural changes taking place in European society, to identify ways of managing these changes and to promote the active involvement of European citizens in shaping their own futures. A further important aim was to mobilise the research communities in the social sciences and humanities at the European level and to provide scientific support to policies at various levels, with particular attention to EU policy fields.

This Key Action had a total budget of EUR 155 million and was implemented through three Calls for proposals. As a result, 185 projects involving more than 1 600 research teams from 38 countries have been selected for funding and have started their research between 1999 and 2002.

Most of these projects are now finalised and results are systematically published in the form of a Final Report.

The calls have addressed different but interrelated research themes which have contributed to the objectives outlined above. These themes can be grouped under a certain number of areas of policy relevance, each of which are addressed by a significant number of projects from a variety of perspectives.

These areas are the following:

- ***Societal trends and structural change***

16 projects, total investment of EUR 14.6 million, 164 teams

- ***Quality of life of European citizens***

5 projects, total investment of EUR 6.4 million, 36 teams

- ***European socio-economic models and challenges***

9 projects, total investment of EUR 9.3 million, 91 teams

- ***Social cohesion, migration and welfare***

30 projects, total investment of EUR 28 million, 249 teams

- ***Employment and changes in work***

18 projects, total investment of EUR 17.5 million, 149 teams

- ***Gender, participation and quality of life***

13 projects, total investment of EUR 12.3 million, 97 teams

- ***Dynamics of knowledge, generation and use***

8 projects, total investment of EUR 6.1 million, 77 teams

- ***Education, training and new forms of learning***

14 projects, total investment of EUR 12.9 million, 105 teams

- ***Economic development and dynamics***

22 projects, total investment of EUR 15.3 million, 134 teams

- ***Governance, democracy and citizenship***

28 projects; total investment of EUR 25.5 million, 233 teams

- ***Challenges from European enlargement***

13 projects, total investment of EUR 12.8 million, 116 teams

- ***Infrastructures to build the European research area***

9 projects, total investment of EUR 15.4 million, 74 teams

This publication contains the final report of the project 'Societal and Economic Policies to Promote Quality of Life and Well Being: Discrete Preference Identification and Priority Setting in Response to Changes in Labour Market Status', whose work has primarily contributed to the area 'Societal and individual well being: social trends, the implications of structural changes and of technological development'.

The report contains information about the main scientific findings of Epicurus and their policy implications. The research was carried out by seven teams over a period of 42 months, starting in November 2002.

The abstract and executive summary presented in this edition offer the reader an overview of the main scientific and policy conclusions, before the main body of the research provided in the other chapters of this report.

As the results of the projects financed under the Key Action become available to the scientific and policy communities, Priority 7 'Citizens and Governance in a Knowledge-based society' of the Sixth Framework Programme is building on the progress already made and aims at making a further contribution to the development of a European Research Area in the social sciences and the humanities.

I hope readers find the information in this publication both interesting and useful as well as clear evidence of the importance attached by the European Union to fostering research in the field of social sciences and the humanities.

J.-M. BAER,

Director

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Abstract

Public policy is increasingly promoting 'flexible' labour-market practices involving 'atypical' forms of employment (part-time work, temporary or non-standard working hour contracts and the like) as a response to structural changes in the European economies. However, the deregulation of the institutional framework that had traditionally characterized the labour markets of Europe has had repercussions on job security and individual well-being. For this reason, the Lisbon agenda supports the improvement of job quality by arguing in favour of "more jobs through better jobs". The aim of the EPICURUS project is, thus, to examine how these recent trends have affected the (stated) well-being and job satisfaction of individuals in Denmark, Finland, France, Greece, the Netherlands, Spain and the UK. Data obtained from the European Community Household Panel, from a seven-country wide EPICURUS survey of low and medium skilled workers and from economic laboratory experiments are used.

The results confirm existing concerns regarding the harmful 'scarring effect' of unemployment and suggest a need for policies that aim at smoothing transitions from *unemployment* and inactivity to employment. *Job satisfaction* is shown to be the most important facet of life satisfaction implying that the authorities should endorse policies that promote high employment levels and reduce the likelihood of unemployment.

The promotion of a culture of *life-long learning* and the encouragement of employers to invest in skills turn out to be fruitful avenues towards accomplishing the aim of full employment, and so is the implementation of policies that ensure that workers under different contract statutes should enjoy similar access to lifelong learning. There is a need to promote more *flexibility* in permanent contracts (in terms of working-hours arrangements, transferability of social rights and the like) and more security in fixed-term contracts in the context of 'lifelong employability'. The analysis shows that workers need wage premiums in order to be compensated for accepting a job with a high risk of job loss as against one with a low risk. Policy making should ensure that temporary contracts are more attractive to individuals and enhance their role as stepping-stones into high-quality employment, thus reducing employment uncertainty.

'*Chosen work time*' can help individuals to adapt their working hours to their preferences and facilitate the *work-family balance*. Hence policy should put emphasis on predictability and dialogue between employers and employees when flexibility of hours is negotiated. Promoting *active ageing* by adapting life-cycle working hours and reorganizing workplaces to provide incentives to older workers to remain in work can together ease population pressure on the health and pension systems. However, if employees were to

be convinced to sign contracts without early retirement plans, they would need to be compensated by a wage premium. Older individuals are found to prefer to work shorter hours and have more flexible work hours. Hence, pension reform is important. Incentives should stimulate employers to retain or recruit older workers and penalties should discourage their dismissal.

The study shows that individuals change their perceptions about a job with reference to their own job situation. Individuals can adapt by changing expectations and beliefs regarding their job conditions. It is found that individuals are able to adapt to new job situations and to manage their exposition to increased uncertainty and risk in the labour market to a reasonable degree without adverse effects on health. However there is a need for a safety net, but most importantly, it is essential for the economic environment to be able to *generate plentiful jobs* for the workers to enable them to move.

I. EXECUTIVE SUMMARY

The EPICURUS project research is carried out by the Centre for European Labour Market Research (CELMR), University of Aberdeen, U.K, which also coordinates the project, the Centre for Corporate Performance, Aarhus Business School, Denmark, the Research Institute of the Finnish Economy, Finland, the Université Panthéon-Assas (Paris 2) (UNIP2) ERMES, France, the Department of Economic and Social Sciences, University of Macedonia, Greece and the Amsterdam Institute for Advanced Labour Studies, University of Amsterdam, The Netherlands.

The aim of the EPICURUS project is to provide an answer to the following three questions:

- 1) How do working patterns (and changes in them), social norms in the workplace, and inequalities in socio-economic status affect the quality of life and well being of individuals across different EU countries?
- 2) How does job satisfaction influence the quality of life and well being of individuals across different EU countries, given different social norms?
- 3) How can we improve our understanding and assessment of how people change their perceptions of their quality of life and well being in response to changes in labour market status and social norms by eliciting their preference priority setting behaviour?

To achieve the answers to these questions a number of objectives are pursued including (1) a comprehensive survey of the available literature and data sources, (2) the use of available and purpose-obtained data to explore and model how the socio-economic status and working patterns of individuals affect their job satisfaction, quality of life and well being, (3) an investigation and modelling of the stated preferences of individuals about how different working patterns and conditions affect job satisfaction, and quality of life, (4) the use of data obtained from purpose built questionnaires and economic experiments to model and assess the reliability and consistency of findings derived from conventional statistical analysis with respect to the impact of working conditions on individual preferences, (5) the use of economic experiments to assess the reliability and consistency of the conjoint/discrete choice evaluation of declared preferences and, finally, (6) a comparison of the results across the participating EU countries to improve our understanding and assessment of the factors affecting individuals' quality of life.

1. Main issues

Based on the research of the EPICURUS team the above questions are consecutively addressed below.

(1) How do working patterns (and changes in them), social norms in the workplace and inequalities in socio-economic status affect the quality of life and well being of individuals across different EU countries?

In recent years, working patterns have experienced a clear transformation. These changes can be classified into various groups. Firstly, European economies have experienced an increase of what are known as 'atypical' forms of employment. These are mainly described by an increase of part-time work, temporary contracts (fixed-term/agency work), and non-standard working hours. Due to these changes, the traditional employee-employer relationship has become less stable and durable. Secondly, it has been asserted that the increase of temporary and part-time jobs has led to a decrease in on-the-job training. Thirdly, researchers have pointed to an increase of job intensity, pressure, work effort and repetitive work. Fourthly, in recent years the popularity of using incentives to motivate workers and increase effort has increased substantially. And, finally, gender participation has increased all across Europe.

The EPICURUS project has carefully examined how the above-mentioned changes in working patterns have affected or could affect European workers' satisfaction with their jobs. The empirical analysis is done using job satisfaction question information included in both a large household panel sample (European Community Household Panel, ECHP) and a cross-section sample of low and medium skilled workers (EPICURUS). In addition, workers' preferences about their own work (derived from the job-satisfaction question) are compared with their preferences about hypothetical (not experienced) jobs. The former relate to what is called *experienced* job utility or job satisfaction, the latter to what is called *ex ante* or anticipated job utility. The *ex ante* worker's preferences could only be studied for the low and medium skilled workers, as the necessary information is only included in the EPICURUS data set.

The focus here is only on the job characteristics that have undergone important changes in the last two decades, as discussed in the above paragraph. In short, the focus is on 'atypical' forms of employment (irregular working hours, part-time work and repetitive work), gender issues, and incentive measures.

The effect of irregular working hours on job satisfaction

Theory predicts, *ceteris paribus*, a negative relationship between working hours and job utility. Nevertheless, for the national working population, this relationship appears not to be statistically significant except for Dutch and English workers. In addition, for the low and medium skilled workers the number of working hours has a negative effect that is statistically significant for Dutch and Danish workers only. One can therefore conclude that there seems to be a very weak effect of working hours on job satisfaction. However, for the national working population, a clear positive effect of voluntary part-time work (individuals have chosen to work part-time) on job satisfaction is found. If the worker's preferences regarding hypothetical jobs are examined, one can find a clear inverted U-shaped relationship between working hours and *ex ante* job utility with a maximum around 28-29 hours a week. In summary, these results imply that European workers are more satisfied with their job if it is on a part-time basis. Nevertheless, this is only the case if the individual has voluntarily chosen this arrangement (for example, because it provides him or her with enough income and more free time).

Non-standard working hours can only be studied for the low and medium skilled workers, as the ECHP does not provide enough information on this. Non-standard working hours are unusual working hours, such as rotating shifts that include weekends and nights. Surprisingly, non-standard working hours, when compared to working everyday at the same time, are negatively correlated with experienced job satisfaction in Spain only. Nonetheless, when examining the *ex ante* job utility, the picture is different. A priori, workers clearly prefer flexible working hours (and in most countries also *office* hours) to working times that are decided by the employer. Rotating shifts are less preferred to working at "times decided by the employer", except for France and Spain. The difference between *ex ante* and *ex post* preferences may be due to the adaptation phenomenon: workers who do not like asocial working times eventually adapt to it once they have such a job. Of course, it could also be that there is a self-selection into certain types of working times.

The effect of non-standard contracts on job satisfaction

The effect of temporary and other non-permanent contracts on *experienced* job satisfaction differs among countries. For the representative sample of the whole population, two countries are investigated, namely Spain and the Netherlands. These two countries are clear examples of temporary contracts that act, on the one hand (Netherlands), as *stepping stones* (as a first step into a permanent contract) and, on the other hand (Spain) as *dead end* jobs. The Netherlands experiences the largest number

of transitions from temporary to permanent contracts per year in Europe (*Employment in Europe*, 2003 and 2004), while the opposite is true for Spain. The results indicate that Spanish workers clearly dislike having a fixed-term or a casual contract (as compared to a permanent one). Dutch workers instead only show a dislike for fixed-term contracts of a year or less. Dutch workers with a fixed-term contract of more than a year or a casual contract do not seem to be less satisfied with their job compared to individuals with permanent contracts. Similar results are found when using the low and medium skilled workers sample (EPICURUS dataset). *Ex ante* worker preferences slightly differ from the *ex post* to the extent that the *ex ante* preference for secure types of contracts over uncertain ones is mostly statistically significant for all European workers.

Workers with temporary type of contracts experience a larger probability of job termination. Nevertheless, the perceived job insecurity that workers experience may depend on more than just the type of contract. The EPICURUS project has therefore examined the relationship between individual's perceived risk of losing the job (on a 4 point scale) and job satisfaction. As expected, the results show that (after controlling for endogeneity) perceived uncertainty about current job retention has a negative effect on job satisfaction.

The effect of on-the-job training on job satisfaction

The importance of training for job satisfaction is empirically difficult to assess. The reason is that it seems likely that individuals who are more productive and more satisfied with their jobs are also the ones who receive more training. Therefore the researcher faces a case of an endogenous relationship, since more training leads to more job satisfaction but also higher job satisfaction increases the probability of obtaining more training. The empirically estimated relationship between training and job satisfaction is very weak for the national working population (ECHP) and positive for the low and medium skilled workers (EPICURUS), except for Finland and Greece. Consistently, the low and medium skilled workers' *ex ante* job preferences also indicate a preference for job training, with the only exception of Finland.

The effect of work intensity on job satisfaction

Next, the analysis turns to the relationship between job intensity (pressure, work effort, and repetitive work) and job satisfaction. This can only be done for the low and medium skilled workers, as the ECHP does not contain enough information. The findings for the *ex ante* with the ones of the *ex post* job utility are compared.

High work pressure mostly shows a negative and statistically significant relationship with *experienced* job satisfaction. This effect however is not present for the UK, which contrasts with the previous literature. Similar results are found for the *ex ante* job utility regarding the work intensity (working under high speed and tight deadlines).

Working conditions (dangerousness, physical tiredness and environmental quality of the job) are a very relevant aspect of job satisfaction for all countries as well.

Having a non-repetitive job has a positive and statistically significant effect on job satisfaction for almost all countries except Finland and Greece. The empirical analysis of the workers' *ex ante* preferences corroborates that having a repetitive job mostly has a negative impact on job valuations. This result is in accordance with the view that intrinsic aspects of the job that are inherent in the conduct of the work itself like autonomy, amount of task variety or challenging work are of primary importance for job satisfaction.

Gender differences in job satisfaction

In recent decades, European women have significantly increased their participation in the labour market. In terms of individual's quality of life, it is important to see what is the level of job satisfaction for women and how it compares with their male counterparts. The EPICURUS team has realized that these are very difficult questions to resolve. In the recent literature it has been argued that women are, in general, more satisfied with their jobs than men. Researchers argue that this is due to the lower expectations women have when compared to men. Nevertheless, in the EPICURUS research it is found that the positive correlation between being a woman and high job satisfaction is not present in all EU countries. In addition, it is shown that the coefficient of "being a woman" is very sensitive to the included variables in the job satisfaction specifications. This indicates that, at least partly, the differences in job satisfaction are due to the different type of work that men and women perform. In effect, the main reason why women have reported to be more satisfied is because they do not perform supervising jobs.

The effect of incentives on job satisfaction

Finally the effect that incentives (introduced to increase worker effort) have on job satisfaction is discussed. First, it is important to keep in mind that most introduced incentives are monetary. However, the EPICURUS project has concluded that workers tend to value the intrinsic characteristics of the job task performed more than the pay they get. Therefore, if policymakers aim at increasing job satisfaction (which in turn increases effort), non-monetary incentives are bound to be very effective. One of the debates in the EU countries is the introduction (or not) of performance pay measures for

public workers. The EPICURUS team has found that workers in NGO's organisations are intrinsically motivated agents and one should not expect to improve their efficiency by introducing an incentive scheme.

The effect of pay for performance schemes has been extensively studied for the UK. The analysis shows that incentive pay has a positive effect on the job satisfaction of high-paid workers only. Low paid workers, instead, perceive these incentive schemes as a control measure (rather than a way of recognition) and therefore perceive it as a negative characteristic of their job.

(2) How does job satisfaction influence the quality of life and well-being of individuals across different EU countries, given different social norms?

In addressing the above question the relationship between satisfaction with own work for and individuals' quality of life is studied. Only then can one assess the importance of working patterns for the quality of life of workers in Europe. Until recently, little has been known about the relationship of satisfaction with various domains of life (e.g. job, financial situation, health, and social life) and total life satisfaction, also called quality of life, happiness, or well-being. In the literature it was only known that in the UK, social life satisfaction is the most important domain satisfaction.

The EPICURUS team has examined the importance of each domain satisfaction (satisfaction with financial situation, house, health, amount of leisure, use of leisure, social life, environment, family, and job) for the life satisfaction of low and medium skilled workers in the seven European countries combined.

The empirical findings show that job satisfaction is the most important domain satisfaction for a low and medium skilled worker's well-being. After job satisfaction, satisfaction with family, use of leisure, health, finance, and social life are the next most important domain satisfactions. At some distance follow satisfaction with the amount of leisure, the environment and the housing situation.

(3) How can we improve our understanding and assessment of how people change their perceptions of their quality of life and well being in response to changes in labour market status and social norms by eliciting their preference priority setting behaviour?

This question is addressed in two stages. In the first stage, data collected from a series of experimental sessions are statistically explored. The economic experiments are designed to complement, support and validate the responses received on three hypothetical control questions when the responses are obtained before the experimental session.

The experimental part of the project has four different but related objectives: The first is to propose an abstract labour market environment. This allows the study of some important phenomena and features underlying the mechanics of real world labour markets, like the worker's reservation wage and the role of unemployment or the role of long-term contracts on salaries, in isolation from other factors. The second objective is the study of the relationship between questionnaire respondents' and experimental subjects' valuations of the abstract environment. A third is to compare hypothetical and revealed valuations obtained from the application of an incentive compatible preference elicitation mechanism. The fourth objective is make country, population-level and within group comparisons of the hypothetical and real evaluations of the abstract labour market environment under different treatments, including *ex post* hypothetical evaluations.

The analysis of the data identifies a number of interesting issues. It shows that the declared valuations of the EPICURUS survey questionnaire respondents and the declared valuations of the experimental subjects are similar within the same country and the same labour market context. Furthermore, country differences are not significant regarding the valuations at average population level. The most persistent finding is that valuations do not depend on the quantity of experience accumulated during the evolution of experimental sessions and this partly explains why the *ex ante* hypothetical valuations and the revealed ones do not differ from each other. This is a major finding of this experimental study, as it confirms the reliability of the individual subjects' responses to the valuation questions framed as judgements on hypothetical labour market conditions in survey data (the vignette part of the EPICURUS survey questionnaire).

Having established the reliability of the individual responses on hypothetical labour market conditions, in the second stage, the researchers use the EPICURUS dataset to compare the empirical results found with the use of subjective questions with the ones found using conjoint analysis. The former results disentangle the relationship between

individuals' subjective satisfaction with their current job and the characteristics of that job. While the latter examine the relationship between a hypothetical job (defined according to a number of characteristics) and the value that individuals assign to such hypothetical job instead. The comparison of such results shed some light on the possible differences between *ex ante* and *ex post* valuation of a job. These differences indicate how individuals change their perceptions of what is a good and a bad job in response to changes in their own job situation.

The differences between both measures of job satisfaction have been discussed when addressing question (1). Here the focus is on the general discussion of these issues.

Satisfaction with own job is a hedonic concept and as such it is about individuals' feelings in relation to a situation they are experiencing. Psychologists have shown that such feelings are alterable. Individuals can adapt to a situation that they experience by changing their expectations and beliefs, so as to reduce cognitive dissonance. Valuation of hypothetical jobs instead is an *a priori* valuation. In this sense, it is an anticipated measure of job satisfaction. This reflects how individuals feel at the present moment about a situation they are not experiencing. Therefore, it is much affected by the individual's predictive capacity.

The study carried out by the EPICURUS team shows that the two methods seem to carry different types of information. Hence, there seem to be two distinct concepts of utility or satisfaction.

The job-satisfaction question (generating information on experienced utility) provides information on the satisfaction level that workers derive from their own work. Therefore, it provides interesting and useful information to employers who aim at improving the quality of life of their employees (and thus their productivity) and to politicians interested on knowing the welfare effects of their job policies and of labour market changes. The conjoint analysis method (providing information on anticipated utility), by contrast, seems useful for understanding how individuals may decide between various jobs. The comparison of the two methods provides us with information about adaptation and an individual's predictive capacity.

2. Policy implications

The literature on subjective satisfaction, which includes not only job satisfaction but also the use of other subjective measures such as satisfaction with life in general, has experienced significant growth in the last decade. Many researchers are using such measures as a proxy to individual welfare, well-being, or job utility. The usefulness of such measures for policy analysis has also been amply recognized in recent years. Many governments have shown interest in using subjective measures to understand how individuals' well-being is affected by daily life situations. In this way, governments can (1) develop measures that help to improve their citizens' happiness and well being and (2) better understand what is the impact of a newly implemented policy.

The EPICURUS project focuses on job satisfaction and on what are its determinants. Despite the increased interest in subjective measures, a systematic study of job satisfaction (and also of well-being) across Europe was missing. The lack of data, the relatively recent start of this research area, and the lack of resources are probably the reasons for this. Few researchers have looked at job satisfaction for one or two countries in isolation. However the EPICURUS project is the first attempt to present a systematic cross-country comparison that is aimed at tackling a number of relevant issues in the labour market. The EPICURUS members have realized that the relationship between certain job and individual characteristics with job satisfaction is not invariable across Europe. Therefore, it is paramount to have such cross-country studies so that policy conclusions are not only drawn from research on one country.

The earlier job satisfaction studies are mainly motivated by theoretical questions and the own research interests of those who investigated the subject. These studies clearly contributed to the advancement of the science but did not necessarily influence the policy-making agenda. Policy makers, however, are usually interested in research on topics that relate to recent changes, are politically relevant, and whose research outcomes can be used for formulating policy. The EPICURUS project team has focused on issues that are on the political agenda of the European Union. To this effect EU reports, such as *Employment in Europe*, have been reviewed so that the researcher can obtain a good understanding of the politically relevant and exciting questions. Naturally, the EPICURUS researchers have also tackled other issues which are interesting from a theoretical perspective even if they do not have a direct application for current policy making, though may also be useful for predicting trade union responses to macroeconomic policies that affect wage relativities.

From a scientific perspective, it is fruitful not only to perform empirical analysis using subjective questions but also to continue looking for other subjective measures of satisfaction and to further understand the information that these questions provide in finding out the mechanisms that determine individual satisfaction. To this end, EPICURUS has added to the literature a technique for measuring satisfaction, namely the conjoint analysis. With this technique, individuals are asked to value a set of hypothetical job situations. These individual answers provide information on ex-ante or anticipated satisfaction. Subjective questions that by contrast ask individuals to evaluate their current situation relate to individual ex-post or experienced utility. This means that these two methods provide different information on an individual's utility and preferences. Comparing the information provided by these two methods has given us a unique opportunity to further understand how individuals build their satisfaction.

A justifiable question is why should one be interested in studying job satisfaction in Europe. Since the year 2000, the EU has advocated the improvement of job quality. Since the adoption of the Lisbon strategy, the political agenda of the EU has not only given priority to the creation of more jobs but also to the development of the quality of work. In order to achieve this, one needs to firstly define what a good job is, that is, the determinants of job quality have to be established. There are two main ways to succeed in this. First, one can use subjective questions as a proxy for job quality. In this case, job quality is studied by means of the answers to a subjective job-satisfaction question. Hence, it is the workers themselves who define the quality of their jobs. In order to understand what a good job is, the researcher looks at the relationship between a worker's job characteristics and his or her job satisfaction. This contrasts with the second approach that focuses on objective indicators of job quality. In this case, it is the researcher who, using theoretical and empirical information, defines what constitutes a good job. The two methods are both useful and, to certain extent, complementary.

Returning to the main issue, one should be interested in job satisfaction as a means for understanding what workers themselves consider a good or a bad job. Only once this is known, can the objective of providing better jobs can be achieved. Job satisfaction questions provide the necessary information to classify jobs according to their quality. Thus, it is a useful instrument to evaluate a worker's current situation, and to see the well-being effects of policy measures and labour market changes. In short, investigating workers' responses to job satisfaction questions offers the tools for developing policies aimed at providing better jobs to workers.

In addition, it has been proven that individuals who enjoy high job satisfaction (i.e. have a better job) have a lower probability to quit their jobs and are also more productive.

Therefore, providing a better job may be a desirable means for attracting individuals to the labour market and for making sure that they remain in it. Of course, doing so is especially important for groups such as youths and women with lower employment participation, and is crucial for Europe, in particular if it wishes to return to the higher levels of jobs growth of the late 1990s. Furthermore, ensuring participation in the workforce is of paramount importance for sustaining the generally high employment rates at prime age and beyond, and for older workers.

Given the above, it is not surprising that policy authorities at national and at the European level have become very interested in the issue of job satisfaction and how this new instrument can help them to develop and implement new policies. With the help of job-satisfaction measures, the researcher can observe the welfare impact of changes in the labour market, evaluate current priorities of policy making (e.g. training, job security, balancing family job) and suggest new ones. The distinction between *ex ante* and *ex post* satisfaction (III 5.) is also of extreme relevance for policy makers as it can help to distinguish between the immediate effect of a policy and its long-term effect.

Finally, it is important to carefully investigate the issue of job satisfaction because according to the outcomes of the EPICURUS research it is the most important domain satisfaction for individual well-being, since a good job is found to be the most important contributor to a worker's well-being. In addition, being unemployed has an important negative impact on an individual's well-being. Therefore, policies that promote the active engagement of individuals in the active workforce and provide them with a good quality job is not only good for the economy, but is also good for the well-being and happiness of the EU citizens.

As is repeatedly indicated in this project recent decades have witnessed major changes in the European labour markets. The effect of globalisation in product markets and its consequences on the intensification of competition in European labour markets have provoked changes in the structure of employment. Most notably, there has been a shift from agriculture to industry and, in recent decades, a strong move from industry to the service sector.

Furthermore, the nature of the workplace has changed. There is a drive for the establishment of new high-performance workplace practices and participative management techniques. These practices imply a less hierarchical distribution of responsibilities with more autonomy of decisions given to the employees. Atypical, non-standard employment is widely used by employers and the incidence of part-time and/or temporary work has increased reflecting a greater incidence of fixed-term contracts and

temporary agency work. This, in turn, generated discomfort among both policy authorities and trade unionists as the shift towards such atypical forms of employment may negatively affect the quality of employment – in terms of security, work-life balance, training, safety at work and the like.

Two further developments in the European labour markets are also important; first, the recent European Enlargement brought in new member states which have structurally different economies and labour markets. The implementation of a market-oriented organization of work in these countries is expected to have important implications for quality of work and life of the workforce. Second, the profile of the working population has changed. Women's participation has increased significantly, which may have contributed to the recent low fertility rates in most European countries which, in turn, have resulted in an ageing population.

These changes are of major concern to policy making for both the European and the national authorities. The concern is reflected in the decisions of the European Summit at Laeken (Dec 2001), which are included in the European Guidelines 2002. The decisions explicitly adopted key 'objective' and 'subjective' indicators for the quality of work and of employment.

The EPICURUS project is concentrated on those topics that are, at present, politically and socially important. Based on the outcomes obtained in the project, this research is able to provide some interesting insights for policy makers concerning:

- the type of contract;
- the working hours and working times;
- the human capital investment;
- the population aging and retirement policies; and
- the health and well-being.

The above will be discussed in sequence below. At the end of the section few additional issues concerning the effect of workplace arrangements on job satisfaction will be also highlighted.

Type of contract

Since the 1980s labour markets in Europe have witnessed a sharp increase in temporary employment. Evidence from the U.K. (Booth et al. (2000))¹ showed that temporary jobs are not desirable as a means of long-term careers. They typically pay less than corresponding permanent jobs, are associated with lower levels of job satisfaction and poorer work-related training. Moreover, the study found evidence that fixed-term contracts are effective stepping-stones towards permanent jobs. Interestingly, women who started with a fixed-term job and then moved to a permanent job fully caught up to the wage level earned by women who began their careers in permanent work. By contrast, men whose initial employment was on a fixed-term contract suffered a 5 per cent long-term loss in wages compared to their permanent equivalents. Overall, it appears that there is a strong correlation of temporary jobs with poor working conditions, such as high physical risks, painful working positions, employment in an environment with vibrations or noise, employment offering no training, and with high work intensity such as work at high speed, repetitive work, work where employees have no control of the pace of work.

In the research of the EPICURUS project the job satisfaction estimation results confirm that in most countries temporary workers are less satisfied than those in permanent contracts. The conjoint analysis results confirm that people across Europe desire contractual security. From the conjoint analysis, it is concluded that workers need a wage premium ranging from 20% to 80% to compensate them in terms of well-being for job insecurity.

However the negative relationship between temporary contracts and job satisfaction differs among countries. The EPICURUS project has carefully compared the results for Spain with the ones for Netherlands. These two countries have very different labour markets, at least concerning the type of contract. The results clearly indicate that the effect of the "same" type of contract on job satisfaction varies between the two countries: while for Spain not having a permanent contract has a considerable negative impact on job satisfaction, the effect is much smaller (if any) in the Netherlands. The researchers conclude that these differences are not due to different individual's personalities but to the different levels of uncertainty associated with the type of contract. In Spain temporary contracts are a dead end. In contrast, in the Netherlands a temporary contract is a transitory state to a more stable situation (stepping stones).

¹Booth, A.L., M. Francesconi, and J. Frank. (June 2002). Temporary Jobs: Stepping Stones or Dead Ends? *Economic Journal*. 112 (480): 189-213

Therefore, when designing policies aimed at improving workers' satisfaction with their work, it is very important that policy makers should not overlook existing country differences. Though the type of contract is the same across Europe, its use and its impact on worker satisfaction can differ largely. Emphasis in policymaking should be put on making temporary contracts attractive to individuals and enhancing their role as stepping-stones into high-quality employment and reducing employment uncertainty. This can be achieved by:

- focusing on increasing the share of voluntary part-time work, as well as introducing more flexibility (in terms of working hours, right to transfer acquired social rights and the like) in permanent contracts and more security in fixed-term ones;
- ensuring the implementation of the EU Directives for Temporary and Part-time work

Policy authorities should carefully consider methods to ensure that workers under different contract statutes enjoy similar access to:

- i) lifelong learning, which will enable individuals to move more easily from one job to another.
- ii) good working conditions
- iii) appropriate protection against discrimination or unfair dismissal,
- iv) insurance coverage and support in the case of job loss
- v) decent pay
- vi) the right to transfer acquired social rights namely pensions or health insurance from job to job and from employer to employer to facilitate job mobility and 'employability for life'.

In this way the concept of 'flexisecurity' or Lifetime Employability (Commission, 2003, p. 14) can be easily implemented.

Working hours and working times: work-life balance

Work-life balance depends on the number of working hours, the flexibility of working times and, importantly, on the presence of multiple job holding. Employed individuals who are involved in household tasks, overseeing the rearing and the education of children or taking care of the elderly, suffer from a double workload. Since irregular working hours are a frequent norm today (work nights, weekends, shifts) reconciling

work and non-work life is of major importance for both the well-being of the individuals and the increase of current employment rates.

In the EPICURUS research, the conjoint analysis results show that people mostly prefer 25-30 hours of work per week. The expressed preference for fewer working hours implies that employers would require increased work intensity, if they are to retain the pay levels unaltered. In addition, the EPICURUS project found that voluntary part-time workers enjoy larger job satisfaction compared to full-timers, *ceteris paribus*, while involuntary part-time work is generally related to worker dissatisfaction. The latter seems to indicate that policy makers should take measures to improve the relative conditions of part-time employment. Furthermore, the results suggest that British and Scandinavian workers prefer flexible working times in contrast to workers in the remaining countries who prefer office hours. In addition, a general dislike in all countries of rotating shifts is revealed.

The above results suggest that policy authorities may

- pursue policies of ‘chosen work time’ that facilitates a process by which individuals can adapt their working hours to their preferences (e.g. pursue policies that facilitate voluntary part-time). In particular, working hours should be adjusted to their other responsibilities, such as care for children and other dependants. This would add to the improvement of the quality of jobs (e.g. flexi-time);
- put emphasis on predictability and dialogue between employers and employees, that is, when flexibility of hours is negotiated with employees, they should be given ample time to adjust non-working responsibilities. In such a case flexibility of working hours and shift work might have positive outcomes or at least no harmful effects on workers’ welfare.

Human Capital Investment

Evidence suggests that there is an overall increase in required competences in the European labour markets arising from the need of employers to fill increasingly more highly skilled occupations. The knowledge-based economy with the development of new technologies and new forms of work organization increasingly require higher levels of qualifications and skills. However, the distribution of labour skills is not identical across the EU countries. Northern Europe exhibits a high human capital in contrast to the South. Furthermore, the skill distribution is not the same for groups of individuals. Thus, for example, those on temporary contracts are disadvantaged in terms of provision of training compared to those on permanent contracts.

The market for training is plagued with market failures including immobility, credit constraints, externalities, lack of insurance and coordination problems. In the EPICURUS project it is found that training has a positive effect on the job satisfaction of mostly low skilled workers who lack in general skills. These workers desire training opportunities. When searching for a job the provision of training is an important factor for the decision to accept the job. However, to this result a caveat should be added, as it is difficult to determine the direction of this correlation, that is, whether individuals with training enjoy a larger job satisfaction or whether it is individuals with higher job satisfaction that are offered more training.

The knowledge-based society requires investment in human resources to encourage workers to acquire life-long skills, accept labour market mobility (and be equipped to tackle the implied uncertainty) and develop 'lifetime employability'. The skills-gap in many countries is likely to be attributed to the supply-side of the market. There is therefore a strong case for government intervention (e.g. training subsidies financed by tax on skilled wages or firm's profits). There is also a need to pursue educational policies that match demand and supply of vocational skills. To this effect the development of Technical Education Institutions as part of the national educational systems of the member states may facilitate the bridging of the skill gap.

Ageing and Retirement

The health care and pension and welfare systems of most European Union countries are under increasing pressure to cope with the demands of their ageing populations over the coming years. As the post-war baby-boomers approach retirement, combined with declining fertility rates, the ratio of people aged 65 and over to the working-age population is set to rise. An example of the looming demographic 'cliff' is the case of the United Kingdom. The cross-section dependency ratio (defined as those aged 65 and older as a percentage of those aged 20-64) is projected to rise from 27% to 45% over the next 30 years as within the EU the number of workers aged between 50 and 64 will increase by 25% over the next two decades. This unfavourable demographic evolution is likely to put a strain on the public finances of most developed economies since, *ceteris paribus*, fewer workers and taxpayers will be working to support the social insurance and public health care systems in the future. To give an example of the financial implications, if, for instance, pensioners are to maintain their living standards in relation to the rest of society, the share of GDP transferred to them will have to rise sharply, from 9.4% today to 14.5% in 2050. The economic consequences of the ageing process are therefore projected to be large.

In the EPICURUS research the conjoint results show a preference for early retirement. If employees were to be convinced to sign contracts with no early retirement plans, they would need to be compensated with a 10-25% wage premium on average. However, it is also found that older individuals prefer to work shorter hours and more flexible work hours.

In the future, it is important to stimulate further research on what determines the job satisfaction of people above 55. It is important to examine, for example, whether workers older than 55 would be satisfied with having a voluntary part-time job. If this is the case, the transition from work to early retirement could be smoothed by introducing part-time working.

There are a number of policy implications of the above findings that can be summarised as follows:

- Promoting active ageing by adapting life-cycle working hours and reorganizing the workplace to provide incentives to individuals to remain at in work after the early retirement age (e.g. telework). In other words, to facilitate adjustment of working hours over the life-cycle.
- Introducing incentives to employers to retain or recruit older workers and penalties to discourage dismissal of older workers who are willing to continue their active engagement in the labour market.
- Introducing incentives for employees to remain in the active labour force. One way of introducing such incentives is pension reform aimed at increasing the employment rate of older workers and increasing the effective retirement age, at least on a voluntary basis.

Health and well-being

The changing nature of work due to the introduction of new technology and the establishment of larger production units intensified the division of labour and worker specialization. These changes at the workplace have caused a deskilling of a part of the labour force; they have increased in the incidence of repetitive work and the time pressures. As a result, a number of disorders such as musculoskeletal disorders, back pain, psychosocial problems (stress-related illnesses), and occupational risks are on the rise. Moreover, the proliferation of the so called 'New High-Performance Workplaces' which allocate more autonomy and responsibility to the individual worker have further contributed to the increase in stress and work intensity.

In the EPICURUS research the job-satisfaction estimation results show that (a) healthier workers are happier, (b) high intensity and repetitive work conditions reduce job satisfaction and (c) high work pressure, task repetitiveness, low chances of promotion, and bad working conditions (in terms of dangerousness and quality) are detrimental to individual well-being. Further, the conjoint analysis results point to aversion to high intensity (in terms of speed of task performance and short deadlines) of work. The strong negative correlation between absenteeism and job quality may also partly reflect the need for better working conditions with tighter health and safety procedures if one assumes that lost days at work are usually a consequence of accidents at work, work-related illnesses and occupational diseases.

Hence policy authorities should put more emphasis on intensifying efforts aimed at implementing the provisions of the EU Health and Safety at Work Directives.

Some additional topics

The preference for autonomy in the workplace can also be seen by the fact that the employees declare a significant distaste for engaging in fixed routines. Nevertheless, with the exception of the Scandinavians, any rules that constrain the scope of the worker's autonomy are seen as a positive asset by European workers, since to be given fixed tasks and freedom to decide when and how the execution of the task should be done is preferred to having complete control over the contents of the work. This result might arise due to the fact that when the tasks become more complex, positive involvement can degenerate in pain if internal pressure of time and responsibility accumulates.

Remarkably, workers do not seem to be significantly concerned with the existence of teamwork in their workplaces, despite the widespread popularity of 'teams' as a form of personnel management within firms. This potentially reflects the employees' beliefs that teamwork counteracts their decision-making independence, while it is also well-documented experimentally that individuals dislike free-riding that takes place within teams. British workers appear to be the only ones who seem to appreciate the challenge and new experiences that are associated with being placed in varying teams.

One EPICURUS study reveals a strong inclination on behalf of low-skilled employees (of the EPICURUS dataset) in favour of reorganizing employment away from the traditional mode, which involves a task-specialized structure that can be easily monitored via an 'impersonal' pyramidal hierarchy of line management and mechanical controls, towards the so-called 'new high performance workplace practices'. These typically entail a more task-integrated and flatter organizational structure, with a decentralization of responsibility and worker participation in decision making. The expressed desire of

employees for more autonomy, coupled with their aversion for rule by fear, also gives credence to the contemporary fashion of “participative” management.

New high-performance workplace practices are also usually accompanied by performance-based payment schemes. Based on the subjective beliefs of workers incentives that make pay depend on performance are regarded as effective instruments, though financial rewards have little effect on the long-run level of motivation. When effective financial incentives exist, then these financial incentives and employee goodwill should be thought of as mutually reinforcing. The workers in the above study seem to adhere to this statement, as they also respond favourably to the idea of Akerlof on loyalty and reciprocation to their employers’ ‘gifts’. Hence, firm loyalty –either workers to the firm or the firm to its workers – may not be values of a bygone era.

Within the EPICURUS project it is shown that financial incentives are likely to be beneficial for the job satisfaction of high-paid workers only. For the low paid these incentives may be ineffective as they are unable to bear the financial risk that such payment systems entail.

Women’s participation in the labour market has significantly increased in the last decades. Nevertheless, female participation in itself is not the only objective for policy makers. Instead, policy makers in all EU countries and at the EU level target as one objective gender inequality, which means, among others, that men and women should have equal access to good jobs and promotion prospects. To examine whether this is the case, one needs to look further than simply exploring the relationship between gender and job satisfaction. The reason is that this relationship is contaminated by the expectations held by the workers of the two genders: if women are less demanding concerning their job than men, they will be more easily satisfied with a lower quality job. In the EPICURUS project though this issue is not fully disentangled, the research has gone beyond earlier studies and concludes that one of the main reasons why women report to be less satisfied is because they do not perform supervising jobs. Therefore, there seems to be a selection into different jobs depending on gender. In this selection, women tend to acquire jobs that lead to a lower job satisfaction. The EU and policy makers should therefore aim at prompting gender anti-discrimination policies in the context of promotion opportunities and not solely in the context of pay.

Concluding Remarks on General Policies

The EPICURUS research has confirmed the concerns expressed in the literature regarding the harmful 'scarring effect' of unemployment in the sense that prior unemployment experience increases the likelihood of an individual experiencing further unemployment. There is a need for activation and prevention policies aiming at smoother transitions from unemployment and inactivity to employment. Hence, there is a need for welfare policies to cushion the negative non-pecuniary effects of joblessness. Such policy initiatives may also reduce the long-run unemployment rates in the European Union.

In the EPICURUS project, it is found that that job satisfaction is the most important facet of life satisfaction. Therefore there is a need to use tax or benefit instruments to reduce the likelihood of unemployment and poverty traps, especially for the most vulnerable groups of population such as the young, the old, and the low skilled.

The promotion of a culture of life-long learning and the increase of incentives to the employers to invest in skills via tax subsidies and the like seems to be a fruitful avenue towards the aim of full employment. Educational authorities should consider ways to improve evaluation, accreditation, and certification of continuous vocational training Europe-wide. In addition, policy makers at the national and European level should implement policies and legislation ensuring that workers under different contract statutes enjoy similar access to lifelong learning, good working conditions, appropriate protection against discrimination or unfair dismissal, support in the case of job loss, decent pay, and the right to transfer acquired social rights in the case of job mobility.

For work-life balance policies the promotion of better and wider access to care services for children and other dependents, more flexible and predictable working-time organization, part-time work facilities and facilitation of parental leave arrangements will lead to a better work-life balance, a higher employment rate, more career opportunities for women, thus reducing any gender gaps in opportunities.

It appears that there is a need to promote more flexibility in the permanent contracts (in terms of working hours arrangements, transferability of social rights and the like), more security in fixed-term ones in the context of 'lifelong employability'. There is also a need for opening up the 'upper tier' of the labour market that is insulated/occupied by insiders in some but not all countries. This may be implemented by pursuing policies that remove low-wage employment in segmented labour markets via the coverage of minimum wages and training provisions.

Promoting active ageing by adapting life-cycle working hours and reorganizing workplaces to provide incentives to the older workers to remain in work is an important way to ease the ageing population pressure on the health and pension systems. This can be done by introducing incentives to employers to retain or recruit older workers and penalties to discourage their dismissal. Pension reform is important. This should increase employment rates of older workers and rise effective exit age. Finally, pursuing health and safety at work will keep more people in the labour market, especially in the context of ageing. This requires legislation, social dialogue, corporate social responsibility and implementing economic incentives.

Importantly, the EPICURUS research has revealed that in terms of job conditions individuals seem to exhibit psychological phenomena such as adaptation and cognitive dissonance. Thus they are able to adapt to new job situations and to manage their exposition to more uncertainty and risk in the labour market to a reasonable degree without adverse effects on health. However there is a need for a safety net but most importantly it is essential for the economic environment to be able to generate plentiful available jobs for the workers to move. Supply-side policy recommendations such as some of those generated by the EPICURUS project are useful only when the macroeconomic environment and the demand side manage to generate enough job vacancies to make job-to-job mobility viable in practice.

II. BACKGROUND AND OBJECTIVES OF THE PROJECT

Following the marked structural changes that most economies underwent during the last quarter of the twentieth century, such as the increased globalisation of economic activity, the acceleration of technological innovation which led to the emergence of the knowledge society, the growing importance of service industries at the expense of manufacturing, as well as the organizational shift to post-Fordist workplace systems, there was an increasing focus of public policy on so-called 'flexible' labour-market practises. These involve the widespread use of 'atypical' forms of employment, such as part-time work, contracts of temporary duration (fixed-term/agency work) and very low-paid jobs on non-standard working hours, all of which were intended to equip employers with adequate flexibility to respond to ever-changing circumstances and to allow firms to retain a competitive advantage in the face of globalisation.

Yet, such practices came into conflict with existing social norms of the workplace, since in the past many firms had relied on long-term and stable employer–employee relationships as a means of human resources management, resulting in labour hoarding during periods of weak demand. This enabled firms to attract and retain a high-quality pool of workers, eliminate information asymmetries about their ability and productivity and foster specific training skills, while from their side employees were likely to reciprocate to their employer's loyalty by exerting greater effort. These attitudes came to be considered as obsolete in most advanced Western economies, as the notion of a 'job for life' ceased to exist. The labour market now has more unstable forms of employment, with those individuals in part-time or temporary jobs facing far shorter job durations and greater job instability compared to those in full-time jobs. Thus, even though the increased flexibility in job-market arrangements is believed to have had a positive effect on the employment levels and labour-force participation rates of modern economies, the shift to non-standard contracts and the deregulation of the institutional framework that traditionally provided some protection to vulnerable groups of the working population, is thought to have had repercussions on job security and individual well-being.

The above clearly highlights the importance of a thorough examination of the effects and consequences of 'atypical' forms of employment, induced by labour-market flexibility, on individuals' well-being and quality of life. It is the aim of the EPICURUS project to investigate how the recent transformation of modern job markets has affected the (stated) well-being and job satisfaction of individuals. This research serves to develop a more holistic understanding of how to evaluate the impact of socio-economic policies on

individual welfare. Hence, the aim of the EPICURUS project is to provide an answer to the following three questions:

- 1) How do working patterns (and changes in them), social norms in the workplace, and inequalities in socio-economic status affect the quality of life and well being of individuals across different EU countries?
- 2) How does job satisfaction influence the quality of life and well being of individuals across different EU countries, given different social norms?
- 3) How can we improve our understanding and assessment of how people change their perceptions of their quality of life and well being in response to changes in labour market status and social norms by eliciting their preference priority setting behaviour?

To achieve the answers to these questions a number of objectives are pursued including (1) a comprehensive survey of the available literature and data sources, (2) the use of available and purpose-obtained data to explore and model how the socio-economic status and working patterns of individuals affect the job satisfaction, quality of life and well being, (3) an investigation and modelling of the stated preferences of individuals about how different working patterns and conditions affect job satisfaction, quality of life, (4) the use of data obtained from purpose built questionnaires and economic experiments to model and assess the reliability and consistency of findings derived from conventional statistical analysis with respect to the impact of working conditions on individual preferences, (5) the use of economic experiments to assess the reliability and consistency of the conjoint/discrete choice evaluation of declared preferences and finally (6) to perform comparisons of the results across the participating EU countries to improve our understanding and assessment of the factors affecting individuals' quality of life.

The EPICURUS project carefully examines how the above-mentioned changes in working patterns affect or could affect European workers' satisfaction with their jobs and their well being. The empirical analysis is done using a job-satisfaction question included in both a large household panel sample (European Community Household Panel (ECHP)) and a cross-section sample of low and medium skilled workers (EPICURUS). Some type of changes could not be examined for the whole working population, because unfortunately the ECHP does not include enough information. In such cases, the analysis is restricted to the low and medium skilled workers of the EPICURUS survey. Due to financial considerations the EPICURUS survey is restricted only to low and medium skilled workers. Though this is somewhat restrictive it is justified, first, on statistical grounds,

since a relative homogeneous sample is obtained and, second, the results are relevant to workers who have suffered disproportionately by changes in their working patterns over the recent past.

III. SCIENTIFIC DESCRIPTION OF PROJECT RESULTS AND METHODOLOGY

1. Introduction

Following the marked structural changes that most economies underwent during the last quarter of the twentieth century, such as the increased globalisation of economic activity, the acceleration of technological innovation which led to the emergence of the knowledge society, the growing importance of service industries at the expense of manufacturing, as well as the organizational shift to post-Fordist workplace systems, there was an increasing focus of public policy on so-called 'flexible' labour-market practises (Harrison, 1998). These involve the widespread use of 'atypical' forms of employment, such as part-time work, contracts of temporary duration (fixed-term/agency work) and very low-paid jobs on non-standard working hours, all of which were intended to equip employers with adequate flexibility to respond to ever-changing circumstances and to allow firms to retain a competitive advantage in the face of globalisation.

Yet, such practices came into conflict with existing social norms of the workplace, since in the past many firms had relied on long-term and stable employer–employee relationships as a means of human resources management, resulting in labour hoarding during periods of weak demand. This enabled firms to attract and retain a high-quality pool of workers, eliminate information asymmetries about their ability and productivity and foster specific training skills, while from their side employees were likely to reciprocate to their employer's loyalty by exerting greater effort. These attitudes came to be considered as obsolete in most advanced Western economies, as the notion of a 'job for life' ceased to exist. The labour market now has more unstable forms of employment, with those individuals in part-time or temporary jobs facing far shorter job durations and greater job instability compared to those in full-time jobs (Gregg and Wadsworth, 1995, 1996). Thus, even though the increased flexibility in job-market arrangements is believed to have had a positive effect on the employment levels and labour-force participation rates of modern economies, the shift to non-standard contracts and the deregulation of the institutional framework that traditionally provided some protection to vulnerable groups of the working population, is thought to have had repercussions on job security and individual well-being.

The above clearly highlights the importance of a thorough examination of the effects and consequences of 'atypical' forms of employment, induced by labour-market flexibility, on individuals' well-being and quality of life. It is the aim of the EPICURUS project to investigate how the recent transformation of modern job markets has affected the (stated) well-being and job satisfaction of individuals. This research serves to develop a

more holistic understanding of how to evaluate the impact of socio-economic policies on individual welfare.

In order to accomplish this goal, three main methods are used. First, the research looks at the relationship between working conditions and individuals' satisfaction with their own work. The rationale for this is that satisfaction with one's own job constitutes one of the main determinants of individual satisfaction with life (and, indeed, this assertion was confirmed in the course of the project, as will be discussed below). It means that good working conditions are not only relevant for enhancing a worker's satisfaction with his/her own work, but also that they are of crucial importance for the individual's overall satisfaction with life or happiness.

Second, a stated-choice methodology known as conjoint analysis is used to disentangle individuals' preferences over hypothetical jobs. This method provides information on individuals' perceptions about a wide range of job characteristics, which they are not currently experiencing. This method allows the study of the relationship between job characteristics and job quality. An exciting part of the project was to compare the results found with the satisfaction questions based on actual job experience (*ex post*) with the ones obtained in the conjoint analysis which are based on hypothetical jobs (*ex ante*).

Third, laboratory experiments are used to understand how individuals behave in a real world setting regarding important issues such as the reservation wage, unemployment, and the type of contract. In addition, the experimental part of the project provides a unique opportunity to examine the relationship between the respondents' preferences as stated in the EPICURUS questionnaire and the ones revealed in the experimental setting. The study also focuses on the differences and similarities among countries regarding individual labour market behaviour as reflected in the framework of experimental labour markets.

The present report brings together in a systematic way the main results found in the research of the international EPICURUS team. In section III 2. the main findings on the relationship between subjective job satisfaction and job characteristics are discussed. The results are presented according to the two datasets used (notably the existing well-known European Community Household Panel (ECHP) and the new EPICURUS dataset which is an important contribution of the present research project), the method employed (satisfaction questions and conjoint analysis) and the countries analysed. In addition, the results are compared by looking for consistencies and differences across countries, datasets and methods. Section III 3. focuses on a range of interesting topics, such as the relationship between job satisfaction and gender, reference earnings,

training, type of contract, and dangerousness of the job. Section III 4. presents the results obtained from the laboratory experiments which are realized in three of the seven EPICURUS countries: Greece, Spain, and the UK. In Section III 5., the results obtained with the satisfaction questions are carefully compared with those of the conjoint analysis. It is argued that each method carries different type of information. Subjective questions provide information on the *ex post* or experienced utility, while the conjoint method relates to the *ex ante* or anticipated utility. These two concepts of utility may or may not coincide.

Importantly, it should be emphasized that this report offers a broad and detailed picture of the relationship between job characteristics and job quality that is subjectively evaluated. This picture is presented for different datasets, countries and methods. The aim is to present a well-founded picture of the impact that the labour-market situation has on individuals' well being. This is clearly important for both behavioural and welfare economists as well as for policy makers.

2. Core Findings: Individual's satisfaction in the working place

2.1 Introduction

The European Union and other national political bodies have shown large interest in increasing the knowledge on the effect that changes in the labour market have and will have on worker's job quality. The EPICURUS project clearly sheds some light on these questions by looking at the relationship between working conditions and individual's satisfaction with own work. Additionally, the results obtained in the project identify satisfaction with own job as one of the main determinants of individual's satisfaction with their life. This means that working conditions are not only relevant for a worker's satisfaction with own work but also for his/her satisfaction with life or happiness.

The empirical analysis is based on different methods, databases, and countries. This offered a unique opportunity to check for intra- and inter-national consistencies and differences, which will be discussed in the following pages in detail. Despite the differences, all of the empirical analysis is based on a single common premise, namely that individual's opinions are the basis on which to measure job quality. In other words, the project has used a subjective definition of job quality. It is the workers themselves who define the quality of their jobs, which is in contrast to other studies that have used objective indicators of job quality.

Prior to the start of the project, very little was known about the effect of working conditions on job satisfaction. While some information was available about job

satisfaction in the UK and, to a lesser extent, in Germany and the Netherlands, hardly any empirical research was carried out in the other countries. Most studies published in international journals were based on English, German, and Dutch databases. The consequence was that the empirical results found in these studies (in particular, those based on the UK) were thought to be universal. Examples of results that drew a lot of attention in the literature include the so-called "gender paradox" (anything else given, women are more satisfied with their jobs than men), and the negative relationship between education and job satisfaction (which was explained by the fact that the higher expectations of highly educated individuals made them more critical of their jobs).

One of the main conclusions of the EPICURUS project is that these results are typical of the UK but do not (always) apply to other European countries. Another important contribution of the EPICURUS project is the inclusion into the empirical analysis of a large number of working conditions variables. This allows a deeper understanding of a worker's job characteristics and their effect on job satisfaction, and expands previous empirical work that was limited to the study of just a few variables, mainly gender, age, education, wages, and whether the worker is unionized or not. The EPICURUS project extends the number of variables included in the analysis by including, amongst others, the opinions of workers about their working conditions.

Finally, the EPICURUS project embarks on a comparison of two methods of measuring satisfaction (or happiness), namely the subjective question method and conjoint analysis. In doing so, it is possible to distinguish between two types of *job utility*: *ex ante* and *ex post*. *Ex ante* utility is identified by means of conjoint analysis, which disentangles individual's preferences over hypothetical jobs. This type of evaluation is not contaminated by psychological phenomena such as adaptation and cognitive dissonance. The subjective approach instead explicitly asks individuals to rate how satisfied they are with their own job. Thus, we obtain an *ex post* valuation of the job. The main conclusion is that the two subjective valuations can differ.

2.2 Traditional results: the job satisfaction question

In a first stage, the EPICURUS project used existing data sets, mainly the ECHP, to examine the relationship between working conditions and job satisfaction. In this part, the main contributions are (1) to extend the number of countries so as to look for consistencies and differences among them; (2) to include the largest possible number of variables defining job characteristics; and (3) to have a closer look at certain topics. This last aspect is discussed in Section III 4. The exercises (1) and (2) above involve a job satisfaction model using multiple econometric techniques. Sometimes, the different

techniques lead to dissimilar results, which explains why some variables have more than one sign. An explanation of the econometric techniques used in the empirical analysis can be found in the Workpackage CONVENTIONAL. All the techniques used include individual and time effects so as to take into account that the data is a panel.

As expected, wages are found to be positively correlated with job satisfaction, although, for Finland, the effect is non-significant for some specifications. Surprisingly, the effect of working hours on job satisfaction is, for many countries, non-significant. Only Dutch and English workers show a negative relationship between working hours and job satisfaction. However, whether the individual has chosen to work part time (voluntarily) has a positive effect on job satisfaction for most of the countries.

In the previous literature, which is mainly based on UK data, a negative relationship between education and job satisfaction is reported. The higher expectations that additional education breeds is favoured as an explanation for this unexpected result. The EPICURUS project, however, finds that this negative relationship does not exist for all of the countries. In Greece, for example, the results show a positive and statistically significant relationship between education and job satisfaction. A plausible explanation could be that in Greece, the benefits from having a higher education (more opportunities to a better job) might outweigh the costs (e.g. having high expectations that will be difficult to meet).

Similarly, the well known gender paradox, which asserts that, *ceteris paribus*, women are more satisfied with their jobs than men, is not confirmed in all of the countries. For example, in the Netherlands the dummy variable indicating whether the respondent is a female is negative and statistically significant.

In addition, the effect of individual occupation on job satisfaction is fairly similar in all countries as having a managerial job shows a positive effect on job satisfaction while for blue collar workers a negative relationship is found. In contrast, the effect of training on job satisfaction is negligible. The empirical analysis of the effect of training is however difficult, as there must be strong endogeneity.

The results indicate that since 1998, job satisfaction has decreased in all of the countries studied. Several explanations have been discussed in the literature. This phenomenon is explained as follows: In these years, European countries experienced good times with rapid economic growth and labour market conditions that were favourable to the workers. So one could speculate that workers compared themselves with their neighbours and friends, who all seemed to have a better job than them. Green and Tsitsianis (2005) propose another explanation for the UK. According to these authors the

decline in job satisfaction is due to the increase of job effort and decrease of control over own work, which one cannot control for when using the ECHP. Similarly, Clark (2005) proposes stress and overworking as possible explanations for the decline of job satisfaction.

The new and unique EPICURUS data set is designed to explicitly enhance the state of knowledge on issues of well-being. The questionnaire includes a large number of variables on working conditions that are both objectively and subjectively measured. Prior to extending the number of variables included in the job satisfaction model, thus exploiting all of the richness of the data set, the EPICURUS team has replicated the empirical model with the respective variables from the new EPICURUS dataset. The results slightly differed from the ones found using the ECHP. One possible reason for this discrepancy is the cross-sectional nature of the EPICURUS data set, which does not allow for the correction of individual personal traits that differ among individuals but remain constant across time. Another reason for the divergence of the results is the sample differences, since the EPICURUS data set is targeted to low skilled workers. It is found that for four out of the seven countries, the relationship between wages and job satisfaction is not statistically significant. Only for France, the Netherlands and the UK is the coefficient of wages positive and statistically significant.

The effect of the variable 'number of working hours' is only negative and statistically significant for two countries, namely Denmark and the Netherlands, which is similar to the result obtained by using the ECHP. For the other countries the coefficient of working hours is not statistically significant. In addition to the contractual working hours, the EPICURUS data set has information on the amount of "overworked hours", this is the average number of weekly working hours that come on the top of contractual working hours. The coefficient of overworking is statistically insignificant for many countries. For Spain and Greece, however, the effect is positive and statistically significant. The positive sign, which may seem strange at first, could be due to the fact that overworked hours (may) correlate, for example, with extra income, having an interesting job, liking the job, and having a good relationship with the employer or boss.

The effect of education on job satisfaction is found to be similar to the effect obtained using the ECHP. Education is either negative or statistically insignificant except for Greece, where the effect is positive. It has therefore been confirmed by the newly generated EPICURUS dataset that the negative effect of education on job satisfaction is not a universal finding.

While training led to inconclusive results when using the ECHP, the coefficient for training is positive and statistically significant for many countries (it is only statistically insignificant for Finland and Greece). This seems to indicate that training has a positive effect on job satisfaction only for low skilled workers (EPICURUS data set), which is reasonable given that this particular group of workers is lacking in the general skills that usually are acquired through further education.

2.3 Traditional econometric analysis results: including more variables

Part of the attractiveness of the EPICURUS data set is that it includes a large number of questions regarding working conditions. Some variables were objectively measured (e.g. working in a large firm, working time flexibility), while others were based on workers' opinions about their own work. In these latter questions respondents are asked to express how they perceive certain aspects of their jobs, such as the intensity of work (existence of deadlines, speed of work), the likelihood of promotion, and whether the job is repetitive.

In our augmented models this larger set of variables describing working conditions are included as a constructed variable based on the respondents' opinions on whether he/she has a dangerous job, a physically demanding job, or works in a low quality environment. This variable has a statistically significant positive effect on job satisfaction for all countries, suggesting that bad working conditions have a detrimental effect on individual utility derived from work.

For most countries, non-repetitive work has a positive and statistically significant effect, while high work pressure and having a low chance of promotion have a negative statistically significant effect.

The effect of working relations with colleagues (working mostly alone, working with the same people, or working in changing teams) does not have much of an effect on an individual's job satisfaction, except for the Netherlands and France. The results indicate that Dutch workers dislike working with changing teams. In France it is found that there is a negative and statistically significant effect of "working always with the same people".

The existence of early retirement plans only has a statistically significant effect for France and the UK. Surprisingly the sign in these two countries is negative.

Finally, working times (working everyday at the same time, working on shift work, and working on non-normal hours) only has a statistically significant effect in Spain, where workers dislike working on non-normal hours the most.

It is interesting to notice that the inclusion of this larger set of variables defining an individual job, changes the coefficient for some of the variables included in the smaller 'traditional' model. Perhaps the most interesting change is that the positive effect of education found in Greece is no longer there. The coefficient for education in Greece is now insignificant, indicating that it is the superior working conditions that more educated individuals in Greece enjoy that accounted for the positive effect of education on job satisfaction in previous analyses.

2.4 A new method to measure job satisfaction: conjoint analysis

The purpose-built EPICURUS questionnaire includes a set of vignettes, each of which describes a hypothetical job situation. Respondents are asked to value each vignette on a scale from 0 to 10. Thus, along with being asked to value how satisfied they are with their own current job, respondents have to value a number of hypothetical jobs. The answer to the vignette questions provides an indication of an individual's *ex ante* valuations. This method is known in the literature as conjoint analysis.

The comparison of the results obtained from the two methods (satisfaction questions and conjoint analysis) gives an indication of the existing differences between the *ex ante* and the *ex post* valuation of a job. The answer to the job satisfaction question concerns individual feelings about every day activity at work and these feelings are not constant and irreversible. They depend on the current work environment, are affected by a process of adaptation and coping, and are contaminated by cognitive dissonance. The differences found using the two methods can therefore be attributed to adaptation, coping, and cognitive dissonance. For instance, individuals may perceive certain job characteristics as very negative. Nevertheless, once they obtain such a job most of them will adapt to the new situation.

The results from the conjoint analysis indicate the effect that certain job characteristics have on the valuation of a hypothetical job. It is worth noting that the comparison of the results found using the two methods is not straightforward. While large differences do indicate a change in perceptions before and after performing a job, small differences can be due to empirical issues².

There is a clear positive and statistically significant relationship between wages and how individuals value a job. This result is not very consistent with the results found when

² These include the fact that the error term is mathematically not the same for the two methods, some of the independent variables (for example wage compensation) may be different in the two data sets; and the number of observations differs.

using the job satisfaction question. In the latter case, many countries show a non-statistically significant relationship between job satisfaction and wages. The differences between these two results does provide some confirmation of Easterlin's *adaptation hypothesis*, as it suggests that although individuals value higher wages prior to obtaining a job, they adapt to their monetary condition *ex post*.

Working hours show an inverted U-shape, with a maximum around 28-29 hours a week. The inverted U-shape hypothesis is not tested with the satisfaction analysis and therefore one cannot exactly compare the results. Nevertheless, it is worth mentioning that the relationship between working hours and job satisfaction is statistically insignificant for most of the countries. In contrast, this relationship appears statistically significant for all countries when using conjoint analysis.

Apart from Finland, there is a positive relationship between training and the value respondents give to a job vignette. This result is fairly consistent with the one found when using the job satisfaction question.

The effect of working times on hypothetical job valuations does not show a clear pattern across countries. Taking this into account we can say that, in general, flexible working hours and office hours are preferred to working times that are decided by the employer. In contrast, working on rotating shifts is less preferred to working on times decided by the employer. Again, this result largely differs from the one obtained with the job satisfaction question. In this latter case, working times did not have a statistically significant effect on job satisfaction for any country except for Spain.

For both methods, the effect of work organisation (working alone, in a fixed team, or in a varying team) is not statistically significant. The only exceptions are the Netherlands and France. In the first country, the coefficients are statistically significant for the job satisfaction question. In France, the variable "working always with the same people" has a negative coefficient. Workers in many countries do not seem, therefore, to be significantly concerned with the existence of teamwork in their workplaces, despite the widespread popularity of 'teams' as a form of personnel management within firms. This potentially reflects the employees' beliefs that teamwork negates their decision-making independence while it is also well documented experimentally that individuals loathe the free riding that takes place within teams.

Although not identical, both methods seem to corroborate the view that having a repetitive job mostly has a negative impact on job valuations. Nevertheless, the results are not always statistically significant. Strangely enough, conjoint analysis reports statistically significant results for some countries while the opposite is true for the

satisfaction question. Similar results are found regarding the work intensity (working under high speed and tight deadlines).

While early retirement is positive and statistically significant for the *ex ante* valuation of a hypothetical job (with very few exceptions for some regression techniques and countries), it is, for most countries, not statistically significant for the *ex post* valuation of a job. The only exceptions are France and UK, where early firm retirement plans had a negative impact on the valuation of own job.

A comparison of the effect of type of contract between the two methods is not possible for all countries. The reason is that the relationship between type of contract and job satisfaction was only empirically estimated for the Netherlands, UK, and Greece. In the Netherlands, the results from the satisfaction analysis showed a very weak relationship between the type of contract and job satisfaction. This relationship however is stronger when using the conjoint method. For the UK the job satisfaction analysis shows a non-statistically significant relationship between type of contract and job satisfaction. In contrast, for Greece the relationship between type of contract and job valuation is very similar with both methods. In the Netherlands and UK the type of contract seems to constitute *a priori* a very important job feature. Nevertheless, once an individual has a job, the type of contract does not appear as important. In Greece, the type of contract remains important even after obtaining the job.

As argued before, there are differences between the two methods. Job satisfaction is a measure of psychological well-being at work. These feelings are affected by processes of adaptation and coping and are contaminated by cognitive dissonance. Instead, conjoint analysis (i.e. valuation of various hypothetical jobs) looks at how individuals evaluate a job before they start performing it. As such it is not contaminated by adaptation and cognitive dissonance. Individuals are habituated to their circumstances and simply do not know or realize their job could be different.

2.5. Explaining partial job satisfactions

Using the EPICURUS data set the econometric investigation results are extended by including an empirical analysis of the relationship between individuals' job and socio-economic characteristics and their satisfaction with various aspects of job satisfaction. In the EPICURUS data set, one can distinguish twelve different partial job satisfactions: satisfaction with promotion prospects, total pay, the relationship with direct boss, job security, use of own initiative, work itself, working hours, working times, the behaviour of the employer, the work load, work tension and job stress.

Many of the empirical results found in performing the present empirical analysis have added useful and interesting information to the aforementioned findings on overall job satisfaction. For example, some non-statistically significant variables on overall job satisfaction do have a statistically significant effect on some partial job satisfactions and some variables exert opposite effects in various partial job satisfactions. Hence, the aggregate effect they have on overall job satisfaction is likely to be insignificant. In short, the results for overall job satisfaction sometimes do not provide a clear picture and one should examine the partial job satisfactions.

The results presented here are for all seven countries combined together. The negative effect of higher education is only statistically significant for satisfaction with work itself, pay, job security, relations with boss, relations with employer, and job stress. This is consistent with the results found with overall job satisfaction (pooled sample of all countries together), although in the latter case the coefficient was not statistically significant for all countries, and was positive statistically significant for Greece.

Working income is statistically significant only for satisfaction with total pay and promotion prospects. As discussed earlier, for the low skilled EPICURUS sub sample, the effect of earnings on overall job satisfaction is not statistically significant either for each country individually or for the pooled sample of all countries together. Managers are more satisfied with the use of own initiative and the work itself but less satisfied with their relationship with their boss and employer.

The results for overall job satisfaction show that the relationship between working hours and job satisfaction is statistically insignificant. For the pooled sample (all countries together) the coefficient for working hours is however negative and statistically significant. Consistent with this, the present results show that the negative coefficient for working hours is statistically significant for 7 of the 12 partial job satisfactions: satisfaction with working hours, working times, total pay, promotion prospects, job security, relations with boss, and stress.

For the pooled sample, the job satisfaction results using the EPICURUS data set finds a positive coefficient for hours classified as overworking. This result, which may seem puzzling at first, can now be better explained when looking at the partial job satisfactions. On one side, 'overworking' hours have a negative and statistically significant coefficient for satisfaction with working hours and working times. On the other side, 'overworking' hours show a positive and statistically significant coefficient for satisfaction with pay and relations with the boss. This is thus the explanation for the surprising coefficient between overworked hours and overall job satisfaction. Low paid

workers may be satisfied with their pay if they can make some extra money by working over normal hours. One can also assume that the employer of the individuals who work over normal hours is very happy with them, which generates a positive relationship.

The working times variable has a statistically significant effect on overall job satisfaction only for Spain. For all other countries and for the pooled sample the coefficients for “work at the same time” and “shift work” are statistically insignificant. In line with this, the results show that the only statistically significant relationship is with satisfaction with working hours and working times.

The work organization (working on rotating teams, on fixed teams or alone) does not have much of an impact on the overall job satisfaction for many countries. However, for the pooled sample, “work mostly alone” is positive statistically significant. In line with this, working alone shows a positive coefficient for half of the partial job satisfactions: namely satisfaction with relations with boss and employer, use of initiative, working times, work itself and job stress. Nevertheless, working in rotating teams is only negative for satisfaction with own initiative. The type of contract is statistically significant only for 3 of the 12 partial domains, namely satisfaction with pay, promotion prospects, and job security.

Looking at overall job satisfaction, training is found to be relevant for low skilled workers (EPICURUS dataset), in contrast to the results found with the ECHP. Here, training during the year of the interview has a statistically significant positive impact on various partial job satisfactions. Similar results are found for training in previous years.

Similar to the results for overall job satisfaction, better working conditions have a positive and significant coefficient for all the partial job satisfactions. Also in line with the results for overall job satisfaction, high work pressure and low chance of promotion have a negative statistically significant coefficient for all the 12 partial domain satisfactions. In contrast to the result for overall job satisfaction, working alone shows a positive coefficient for half of the partial job satisfactions: namely satisfaction with relations with boss and employer, use of initiative, working times, work itself and job stress.

2.6 The full satisfaction model: Partial job satisfactions and overall job satisfaction

The literature suggests that in the Netherlands “content of job” is the most important partial job satisfaction, while in the UK this is “work itself”. The EPICURUS project improves the knowledge on this area by presenting a study of the relationship between the partial job satisfactions and overall job satisfaction. Two main studies are (1) the work of the British, French and Greek teams based on Skalli et al. (2005); and (2) the work of the French and Dutch team. Both contributions appeared in the CONVENTIONAL workpackage. The first piece uses the ECHP and the second one the EPICURUS data set.

In the ECHP five different partial job satisfactions are considered namely satisfaction with type of work, with earnings, job security, working conditions, and working times. This is much less than in the EPICURUS data set. Using the ECHP, the full model of job satisfaction is estimated for Austria, Belgium, Denmark, Finland, France, Greece, Italy, the Netherlands, Portugal and Spain. The results indicate that in all five countries included in the EPICURUS project (namely, Denmark, Finland, France, Greece, the Netherlands, and Spain) satisfaction with type of work is the most important partial job satisfaction. In Denmark, Finland and Spain this is followed by satisfaction with earnings. In France the second most important partial job satisfaction is working times, in Greece job security and in the Netherlands it is working conditions. The least important partial job satisfaction is with working times for Denmark, Greece and Spain; and job security for the Netherlands, Finland, and France.

Using the EPICURUS data set it is possible to establish a hierarchy of partial job satisfactions for all the countries together. The results clearly confirm that job satisfaction can be interpreted as a composite of the satisfaction with the various job domains. Among these, eight appear as significant determinants of overall job satisfaction. The most important is the satisfaction with the work itself. This one is followed by satisfaction with the relations with direct boss and employer, and satisfaction with total pay. Satisfaction with promotion prospects and job stress are ranked fifth. Surprisingly, satisfaction with job security does not appear as a significant component of overall job satisfaction. Another group of satisfaction variables are the ones related to various measures of physical and mental strain. The results show that these satisfactions enter in the decomposition of overall job satisfaction only as secondary factors. While satisfaction with stress, work tension and working times are significant, satisfactions with work load and worked hours are not statistically significant.

2.7 The full satisfaction model: the life satisfaction

From the literature is known that in the UK, social life satisfaction is the most important domain satisfaction. The empirical findings using the EPICURUS data set indicate that for all countries together, job satisfaction is the most important domain satisfaction for a worker's well-being. This is followed by satisfaction with family, use of leisure, health, finance, and social life. At some distance, satisfaction with the amount of leisure, the environment, and house follow.

3. Some topical issues: A closer look

Next to the general issues discussed in Section III 2., a number of researchers have focused on specific topics for some or all countries. A long summary of these papers can be found in the Appendix of workpackage SYNTHESIS. In this section, the main findings are discussed.

3.1 Wage effects of Relative Pay and of Risk at Work

The study entitled *The Affective and Cognitive Impact of Earnings Comparisons on Job Satisfaction* examines whether comparison earnings can affect job satisfaction in two ways, through the affective and the cognitive channel. Job satisfaction is likely to be a relative concept, which has an affective and a cognitive component, both of which are affected by social comparisons. Individual-specific financial circumstances are more likely to determine the dominance of each of the effects, rather than the country-specific economic and political environment. The empirical evidence of the past has not pointed at a single direction regarding the sign of the effect of reference income on individual well-being; A negative "relative deprivation" effect by peer income has been claimed to be dominant in developed western societies and positive comparison effects, arising from the informational content in the evolution of peer earnings and/or social capital considerations – increased security effects, are claimed to be dominant in underdeveloped/developing countries.

The study uses the British Household Panel Survey (BHPS) (11 waves (1991-2001)). It should be noted that the British Labour Market is a relatively stable environment.

The study estimates standard job satisfaction equations for two sub-groups of the employed population, the financially vulnerable and the financially sound and decomposes the effect of the reference group earnings into a permanent (level) and a transitory (shock) component.

The results show that the permanent level of comparison earnings exhibits a significantly negative effect on individual job satisfaction. However, transitory shifts in the norm of comparison earnings exhibit a significantly positive cognitive effect on job satisfaction, in the short-run. The ratio of the two effects (shock/level, within/between or transitory/permanent) is much lower than unity for the financially sound employees and much higher than unity for the financially distressed. Robustness checks indicate that the nature of the positive transitory comparison effect arises from the informational content social comparisons can have. There is no significant cognitive effect for employees whose pay is set via a known formula (i.e. incremental scale). The negative permanent comparison effect is higher for employees earning less than their group of reference. Finally, social capital considerations (i.e. increased security due to help by peers when in difficulty) do not arise from earnings comparisons between colleagues. Indeed, it is more likely that individuals expect help from other peer groups, such as friends or relatives, when in need.

Hence the evidence offers a conciliatory explanation for the two opposite comparison effects that have appeared in the literature. The so called "Tunnel Effects" can prevail in countries where the economic environment is stable, but individual-specific circumstances entail financial distress. The relative deprivation arises mostly from upward looking comparisons, and is the dominant state for financially sound employees.

The policy implications implied by the above is that the treatment of poverty-financial strain should be viewed as a group phenomenon (groups formed based on human capital characteristics), rather than as an individual-specific occasion. Hence, policies against poverty that target the whole segment of this population rather than individuals might have a greater impact on the well-being of underprivileged groups, arising from own and peer progress.

The study *Workers Stated Preferences on Wage Premiums and Job Satisfaction for Dangerous Jobs: Evidence from the European Labour Market*, investigates whether compensating wage differentials are paid for workers in dangerous jobs and examines whether individual job satisfaction signals that employees in dangerous jobs are sufficiently compensated for this disamenity. Data obtained from the Epicurus questionnaire (2004) are used. Using a Switching Regression Model the study shows that in the pooled sample the dangerous wage differential has a positive coefficient and the satisfaction differential has no effect. Overall, the evidence verifies that in the equilibrium compensating wage differential world, differences in satisfaction should be zero for every worker.

3.2 Low Pay and Low Quality Jobs

Research has also focused on investigating the well-being of low-paid workers. This is done in *Socio-economic Differences in the Perceived Quality of High and Low-paid Jobs in Greece (and Europe)*. It has been asserted that low-paid workers have suffered from a double penalty, as their jobs are also of low quality. Research (Commission, (2001)) has highlighted the dual nature of the labour markets: workers in the 'upper tier' enjoy decent pay, job security, career prospects, good working conditions whereas workers in the 'low tier' suffer from a high unemployment burden, low pay, precarious employment, lack of education and career prospects". Thus, low-paid labour does not appear to be "worth appallingly little" but "acts as a main conduit to repeat unemployment" instead.

Adam Smith (1776) argued that in perfectly competitive markets low-paid jobs may have good work conditions but high-paid jobs compensate for bad working conditions. Hence, one should expect that no differences in job satisfaction of high and low-paid workers exist, *ceteris paribus*. If differences do, in fact, exist, this implies that there is evidence of segmented 'two-tier' labour markets in Europe. The research uses data from employees of six waves of the ECHP (1996-2001) for GR, UK, ES, FR, FN, DK. Low paid individuals are defined to be those earning less than 2/3rds of the median gross hourly wage of the respective country. It appears that the risk of low wage employment is concentrated on the same types of workers and jobs in all countries – women, young, low education, part-time, private sector, non-permanent contracts, or manual occupations. The results show that low paid workers are less satisfied than the high paid in Greece, Spain, and Finland. Insignificant differences are found for the UK, France and Denmark. This finding implies that low-paid jobs are not universally jobs of 'bad quality' but it appears that there is a 'two tier Europe' regarding the level of quality of jobs (as is reflected on the reported job satisfaction of workers themselves). Finally, segmentation with respect to countries highlights the need for differential policies that centre on the quality of jobs.

3.3 Work Incentives, Work effort and Job Satisfaction

The research agenda of this section is motivated by the interest in detecting the effect that the set of incentives that employers use to attain an increased effort by their workforce has on the job quality and the derived job satisfaction. Of course, this endeavour is naturally constrained by the available data at hand. An extended summary of the studies used to derive this section is given in the appendix of the workpackage SYNTHESIS.

The first step in investigating the above issue is to evaluate the extent to which specific facets of job satisfaction affect and explain overall job satisfaction. The importance and

magnitude of the effects is important in assessing the manner in which the incentive structure motivating individuals will affect their general perception of the quality of their job.

In *Jobs as Lancaster Goods: Facets of Job Satisfaction and Overall Job Satisfaction* data from 8 waves (1994-2001) of the ECHP for 10 EU countries are utilised, to construct a two-layer model in which job satisfaction is viewed as an aggregate concept, consisting of different components namely, (i) satisfaction with the type of work; (ii) with working conditions; (iii) with working time; (iv) with job security, (v) with earnings. It is assumed therefore that overall job satisfaction is likely to reflect the combination of partial satisfactions related to various job features, such as pay, security, the work itself, working conditions, working hours etc. Hence, overall job satisfaction is the weighted outcome of the individual satisfaction with each of these facets. Jobs are viewed as similar to commodities in Lancaster's theory of consumption behaviour. This approach is better suited to investigate the effects of major changes in work organization in the last three decades, on employee job satisfaction.

The paper reveals a number of interesting patterns. In particular, it is found that satisfaction with type of work is the most important contributor to the overall level of job satisfaction. Furthermore, it is found that satisfaction with pay is not amongst the most important facets of job satisfaction in most countries.

These findings have important implications for human resource management. Workers value the intrinsic characteristics of the job task performed more than the extrinsic ones. Hence, one could predict that organisational environments offering high intrinsic work motivation should be expected to induce employees to be more engaged in their jobs and hence more productive. This is in line with research suggesting that extrinsic work motivators may not be as effective as the intrinsic ones.

This idea is further explored in *Workers Well-Being and Intrinsic Motivation* where the authors investigate the job satisfaction and effort level differences of individuals working in profit and non-profit organisations. The introduction of explicit incentives in the public sector has been high on the agenda of various European governments. However, it is also argued that the special features of public-service deliverers make the naive application of magic bullet solutions like performance-based incentives inappropriate. Workers may well be intrinsically motivated agents, i.e. agents who are ready to perform well in their work for their work's sake.

In organisations providing goods with benefits for society, the recruitment of intrinsically motivated agents should be expected to improve the efficiency and requires the use of specific incentives system.

In the literature there are various approaches that predict the extent of intrinsic motivation in non profit organizations. These include the views that (i) nonprofit organizations goals is to produce goods or services while abiding by certain moral, intellectual or ethical principles and to insure their quality when it is less than perfectly observed. The objectives of these organizations are often best achieved by recruiting employees who are motivated more by the desire to produce a quality product than by monetary rewards and to identify very closely with the goals of the organization. (ii) The labour donation theory suggests that nonprofit organisations produce more social benefits by nature than for-profit firms. If workers enjoy satisfaction from the production of social benefits, they are willing to readily offer (donate) their labour. Consequently, nonprofit organizations would attract intrinsically motivated workers by paying lower wages. After selection of the workers in their preferred sector occurs according to their preferences, the wage differential between nonprofit and for-profit organization sectors will be negative.

The empirical literature tests the above prediction by revealing preferences from the sign of the wage differential between the two sectors. However, the existence of a negative wage differential for the nonprofit organizations can be interpreted as labour donation only if this is not compensated by a lower level of effort.

Using a subjective job satisfaction evaluation approach, this paper assesses the differences in the worker's utility working in nonprofit and for-profit firms by estimating the differences in their reported levels of job satisfaction. The hypothesis is that if labour donation hypothesis is correct, employees in non-profit firms should enjoy higher job satisfaction because they gain higher intrinsic utility from their work.

In doing so the EPICURUS dataset is used. The results show that workers from the nonprofit sector are significantly more satisfied with their overall job and with their use of own initiative while equally satisfied with the other job domains. Therefore, nonprofit firms offer non-pecuniary benefits and this result cannot be attributed to differences in monetary compensation or characteristics of the job contents. The higher satisfaction with initiative is consistent with the idea that non-profit organizations try to maintain intrinsic motivation high.

Intrinsically motivated workers take sufficient pride in their work so that working time, up to some level, increases utility. The optimal number of working hours is 27 hours a

week for workers in the for-profit organisations and 29 hours a week for the workers employed in the nonprofit ones. Workers in the nonprofit organizations show a higher intrinsic motivation for work.

In summary, the paper shows that first, workers in the non-profit sector voluntarily accept to work for lower wage levels, are not given explicit monetary incentives, and this without any loss in terms of lower effort. Second, they are also significantly more satisfied with their job and with their use of own initiative compared with those employed in the for-profit sector. Third, the evaluation of hypothetical job offers reveals that workers in the nonprofit sector appear to be more intrinsically motivated but this motivation is fragile and likely to fade out. When workers are intrinsically motivated by the goals of their employer, the need for incentive pay can be reduced and different work arrangements may be designed.

Two further studies which rely on stated choice methods where employees are asked to evaluate the importance of incentive alternatives for their effort investigate the impact of 'financial and organizational flexibility' on job quality: *Rewarding Carrots, Crippling Sticks: Uncovering the Preferred Incentives of Employees in Europe* and *Some are Punished and Some are Rewarded: A Study of the Impact of Performance Pay on Job Satisfaction*.

With reference to organisational flexibility, due to moral hazard, firms design incentive contracts to align their interests with those of their employees. The study investigates (i) whether incentives work; and (ii) what is the optimal mix. The incentive options consist of: (i) Risk of losing job; (ii) Pay incentives; (iii) Closer monitoring (supervision-reports/appraisals); (iv) Akerlof's 'gift exchange'; (v) Peer pressure; (vi) Closer contact with clients; (vii) Speeding up the assembly line;

The data came from the EPICURUS survey. Workers are asked to state on a 1-5 scale how important the incentives are for (i) their level of effort; (ii) the marginal change in their effort.

The results show that the primary determinant of employee effort is discretion over performance of tasks. Pay incentives and reciprocal employer-employee behaviour are most important for inducing changes in effort. Importantly, 'sticks' as an incentive device are likely to be counterproductive and Tayloristic methods of production appear to be the least important as effort motivators. These findings have organisational implications for human resource management since they suggest a shift from traditional task-specialized work, monitored via an 'impersonal' pyramidal hierarchy of line management and mechanical controls towards the New High Performance Workplaces (NHPWPs). The latter

involve a task integrated flatter organization structure with decentralization of responsibility, worker participation, and financial rewards reinforcing employer-employee goodwill.

With reference to financial flexibility there have been widespread concerns regarding the move towards greater 'financial flexibility' (variable pay, Performance related pay, bonuses etc.). However non-economists have warned about extrinsic incentives conflicting with intrinsic motivation and the popular press has warned that incentive pay is substituting for 'job security'. Since incentive pay can affect the absolute or relative pay of workers, or their perceptions of interpersonal relationships, equity and fairness, it can influence workers' perceptions about job quality via multiple avenues.

In this paper, the analysis is undertaken using a sample of UK employees from waves 8-11 of the BHPS. 16,26% of sample receive PRP, found in managerial/administrative/clerical/secretarial occupations and mostly in the private sector. The estimation methodology corrects for the 'sorting' of workers into different pay systems in a standard Job satisfaction model.

The results show that the unobserved characteristics that make individuals less likely to receive Performance Related Pay make them happier. There is no evidence that the provision of PRP comes at the cost of greater job insecurity. Importantly, incentive pay has a positive effect on the JS of (very) high-paid workers only. By contrast, low wage workers are more likely to perceive contingent pay schemes as controlling compared to higher paid employees. This can be attributed to the fact that low wage workers suffer from a greater inability to diversify the extra risks inherent in variable pay systems, while for high-paid workers bonus rewards act as signals of recognition, markers of competence and personal worth.

All in all, the results of the above studies show that 'high performance work places' appear to be good for productivity and well-being but financial rewards are effective incentives when mutually reinforcing employee goodwill. After all, "workers have so many opportunities to take advantage of employers that it is not wise to depend on coercion and financial incentives alone as motivators" (Bewley, 1999). Furthermore, the incentives for low-paid workers should be carefully designed as they may turn out to be counterproductive.

3.4 Employment/Job Status and Job Satisfaction

All of the studies in this section look at the relationship between job satisfaction and employment/job status. Individuals can voluntarily or involuntarily lose a job. One paper looks at whether job satisfaction is able to predict which individuals are likely to voluntarily leave their job. The other papers deal with involuntary job transitions. In the last years, European countries have experienced a 'flexibilization' of the labour market, which means, among others, a reduction in the percentage of employees with a permanent contract and an increase of individuals with fixed-term and casual contracts. This in turn has probably led to an increase of the individual's risk perception of losing his/her job. This section presents a set of papers that, using different methods, look at the relationship between these changes and job satisfaction.

For many people job loss implies exit to unemployment. Using the Geographical Information System method, *Socioeconomic status and well being in the European Union* looks at the relationship between psychological status (as a proxy for individual well-being) and unemployment. The paper is based on a cross-country comparison using the ECHP. The results show that individuals who are employed enjoy a better psychological status and hence enjoy a higher well-being status compared to the unemployed.

In *Making the Risk of Job Loss a Way of Life: Does it Affect Job Satisfaction?*, the risk of unemployment and the risk of loss of the individual's current job is thought to be negatively correlated to the level of job satisfaction. In order to assess the impact of the risk of job loss on job satisfaction, the paper has tackled with the endogenous nature of job loss risk in its relationship with job satisfaction, and has controlled for several economic and personal characteristics. The issue is investigated by using data from the Eurobarometer survey 44.3 (1996) for seven European Union countries. A conventional instrumental variable approach and a selection model is used.

The authors take into account the possible endogeneity by disentangling whether perceived risk of job loss affects job satisfaction or whether it is more dissatisfied workers who face an increased risk of losing their job. This study is based on 5778 EU workers (self-employed and members of the armed forces are excluded). The individual's perceived risk of losing the job is measured on a four-point scale. In order to tackle the endogeneity problem, the authors use an instrument variables approach and a selection model. The estimation results of the job satisfaction regression after correcting for the effects of the endogenous relationship between perceived risk of job loss and job satisfaction clearly show a negative, significant, and large effect. Those who feel that they have lower risk of job loss are more satisfied with their jobs compared to those who

are employed in a job with a perceived high likelihood of termination. The results also show the importance of correcting for endogeneity. All specifications used confirm that uncertainty about current job retention has a detrimental impact on the satisfaction derived from the job.

Another measure of the risk of losing one's job is the type of contract. Instead of using subjective perceptions, *Insecurity in the Labour market*, examines the relationship between type of contract and job satisfaction. This paper uses the sub-sample of ECHP workers for the years 1995 to 2001 (self-employed not included). The paper is based on two countries, namely, the Netherlands and Spain, two of the most different countries in the EU in terms of type of contractual arrangements. The empirical results show that while for Spanish workers not having a permanent contract has a considerable negative impact on their job satisfaction, the effect is much smaller (if any) in the Netherlands. The authors conclude that these country differences are not due to different individual's personalities in these countries (e.g. a lower degree of risk tolerance for Spanish workers) but to the different levels of uncertainty associated with each type of contract. They argue that while in the Spain temporary contracts are a dead end, while in the Netherlands they are considered to be a transitory state that will eventually lead to a more stable situation.

Finally, a study examines the "voluntary" job transitions, namely quits. In *Job satisfaction and quits*, the authors look at whether job satisfaction can predict quits. Firms often invest in training and education for their employees and the rate of return to such investments crucially depends on retaining the trained employee after the training period. It is therefore important for firms to gain a good understanding of what determines quits in order to enable the firms to retain their employees longer. This paper is based on the workers sub-sample of the Danish equivalent to the ECHP for the period 1994 to 2000 (self-employed not included). The results show a very significant negative effect of job satisfaction on the probability of quit. In addition, the paper examines the effect of various job domains on the probability to quit. The results show that the most important job domain is satisfaction with Type of Work, followed by Satisfaction with Earnings. For the lowest skilled the Work Environment is ranked highest (even above overall job satisfaction). The least important job domain is found to be satisfaction with job security, which contrasts with the previous results found for the UK.

3.5 The Effect of Training on Job Satisfaction

Despite the importance of training (investing on human capital) for, e.g., wage determination (returns to training), possibility to keep a job, or find a new one, a very little attention is paid on the relationship between training and job satisfaction. This is even more surprising if one notices that, for example, one of the main indicators used to assess job quality is whether or not the employer provides on-the-job-training. In *Job Satisfaction and training*, the relationship between training and job satisfaction is examined. The empirical analysis is based on the workers sub-sample of the ECHP survey for the period 1994-2001. Training is a continuous measure of the number of days of training as well as an indicator variable for whether training was provided or not. One of the main shortcomings of the analysis is that a reverse causality between job satisfaction and training is likely to exist. This would be the case if more satisfied workers (and thus more productive and more motivated) also receive more training. For this reason and given the need for a suitable instrument, the paper empirical approach is based on OLS fixed effects model. Individual fixed effects take into account that individual unobservable characteristics that do not change across time. Thus, this takes partly account of the endogeneity problem to the extent that variables such as a worker's productivity and motivation do not change across time. The results show that training coefficients are generally insignificant (the results are presented for different specifications). Therefore training does not seem to have an impact on job satisfaction.

3.6 Gender Issues in Job Satisfaction

The relationship between gender and job satisfaction has generated much literature since the first paper published by Clark in 1997. While Clark finds a clear positive coefficient for female workers on job satisfaction, latter studies for other countries report different types of coefficients (positive, negative, and not statistically significant). One paper in this project takes the issue further. In addition, the experimental part of the project also tackles the gender effect on reported, revealed and stated job preferences. In *Job Satisfaction and Gender*, the relationship between job satisfaction and gender is explored. The author argues that gender differences may be due to differences in the (1) quality of male and female jobs, (2) work values, motivations and preferences for type of work; and (3) relative job positions. Therefore, in order to assess whether there is gender discrimination in the labour market, it is important to differentiate all these above-mentioned aspects, which is what the paper aims at doing. The empirical analysis is based on the French dataset constructed for the ECHP for the period 1994-2000. When including only the "traditional" set of control variables, the author reports a statistically insignificant coefficient for female. In a second step, the specification is augmented with

a larger set of job characteristics. In this case, women appear significantly more satisfied with their jobs than men. This indicates that the gender coefficient is very sensitive to the included explanatory variables. This is clearly due to the strong correlation between type of job and gender. The paper goes further by analyzing which is (are) the explanatory variable(s) that cause the female sign to become statistically significant and positive by using a stepwise regression technique. From this exercise, the paper concludes that male workers enjoy a higher job satisfaction because they usually have access to jobs with supervision duties and influence on the wage of their subordinates. Therefore, the authors argue that women are not given an equal access to jobs. To further examine the possible vertical segregation between genders, the author performs the decompositions of the male/female differential in the predicted probability of each satisfaction levels. The most important results are: (1) women seem less demanding in terms of their situation in the labour market; and (2) heterogeneity of the situations in the labour market is clearly at the advantage of men. Thus even if women experience lower job quality, their evaluation of their employment situation is more optimistic than the one of men. In their conclusions, the author stresses the fact that there is no voluntary self-selection into preferred jobs. It is also not true however that the differences are only capturing working situation heterogeneity, as they also reflect genuine differences in the preferences for job characteristics.

In a second paper called *Cultural and Gender Differences in Salary Bargaining Experiments*, the authors examine cultural and gender differences using an experimental setting in which individuals revealed their labour market preferences, such as a worker's reservation wage in relation to the role of unemployment and the importance of security in long-term contracts and their effects on salaries and market efficiency. In addition, the results in the laboratory are compared with individuals stated preferences in questionnaires and on a real task situation. The paper examines whether the gender differences found in wage bargaining are partly due to differences in risky decision-making (as argued in the experimental literature) or not. In order to control for risk attitudes, lottery questions are introduced. This study confirms the broadly accepted result that women are more risk averse than men. Despite this, gender differences in both employer and employee-subjects' behaviour remain significant after risk attitudes are accounted for. Specifically, female employers offer lower wages and female employees reject more than males do. Thus, gender differences are not because of but rather despite females' higher risk aversion. This result indicates that the gender differences on job satisfaction may be (at least partially) due to different preferences. In addition, gender effects are found to depend also on cultural differences, i.e. the gender effect is not universal across countries.

3.7 Some general issues

There are two papers in the EPICURUS project that are of importance not only to researchers and politicians interested in job satisfaction and labour market issues but also to a larger audience of individual's working on subjective satisfaction questions.

The first of these papers is *Unhappy at home: should you blame your partner's job? An Empirical Study of happiness transmission*. In this study, the author looks at the interdependence of satisfaction among individuals of the same household. Surprisingly, in the satisfaction literature, household interdependences have so far been largely ignored. This paper falls into the tradition of investigating the importance of social norms in defining own satisfaction. Using the French version of the ECHP, the author develops a contamination model with the objective of examining the effect of happy workers on the probability of another household member reporting a high happy score. The results are supportive of the notion that the family members' job satisfaction has an influence on the other member's life satisfaction. The probability of an individual becoming happy is increased by 0.57 points if the family job satisfaction doubles. The paper finds a puzzling result, namely that the positive contagion effect of job diminishes when the family size increases. In addition, the paper looks at the relationship between the probability of divorce and the levels of life satisfaction. The author concludes that individuals who are affected positively by their within-family job satisfaction tend to decrease their will to divorce.

A second paper is of interest for a larger audience interested on the analysis of subjective satisfaction questions, namely *Anchoring vignettes*. In this paper, the authors use the individual answers to the hypothetical vignettes included in the EPICURUS data set to rescale the job satisfaction answer by following the pioneering work of G. King. By using this method, the job satisfaction questions are rescaled such that they are more comparable across countries with different cultures and languages. This method identifies whether a particular group (e.g. the Danish sample) systematically gives higher valuations of hypothetical jobs compared to other nationalities. If they do, then one can conclude that these higher hypothetical valuations are due to, e.g., the optimistic character of the Danish population, and therefore he or she should rescale their answers to the job satisfaction question so as to take this into account. The empirical analysis uses the EPICURUS data set. The results show that, if rescaling the answers the average job satisfaction in each country changes such that, for example, the Danish are no longer the most satisfied workers in the EPICURUS data set. In other words, the rescaling did have an impact on the results. This holds when the countries are analysed separately for three different groups: Finland, Denmark and The Netherlands in one group (Protestant

Europe) and Greece, Spain and France in another group (Catholic Europe). The authors conclude that individuals in different cultures have varying standards for what constitutes particular levels of job satisfaction, and this has important bearings on their responses to subjective questions. This is why when controlling for the actual content of the job (through vignettes) the ranking between countries changes. An important and immediate consequence of our results is that one should be very careful in concluding that the Danish labour market model should necessarily serve as a role model for other countries. In fact, this study points instead to the Dutch model as being the best in terms of job satisfaction.

4. What have we learned from experiments?

4.1 Introduction

This section presents the results from statistical analysis of data collected from a series of experimental sessions designed to complement, support and validate the responses received on three hypothetical *control questions* -also referred to as *preliminary questions* when the responses were obtained before the experimental session- included in a questionnaire aimed at eliciting employees' preferences for labour market features.

The experimental part of the project has four different but related objectives: The first objective is to propose an abstract labour market environment hereafter referred to as a Salary Negotiation Experiment with a Real Task (SNERT). This allows the study of some important phenomena and features underlying the mechanics of real world labour markets, like the worker's reservation wage and the role of unemployment or the role of long-term contracts on salaries and market efficiency, in isolation from other factors. The second objective is the study of the relationship between questionnaire respondents' and experimental subjects' valuations of the abstract environment. A third objective is to compare hypothetical and revealed valuations obtained from the application of an incentive compatible preference elicitation mechanism. Finally, the study aims to make country, population-level and within group comparisons of the hypothetical and real evaluations of the SNERT under different treatments, including *ex post* hypothetical evaluations.

The analysis of the data identifies a number of interesting issues concerning the aforementioned objectives of the experimental design. Among them, it shows that the declared valuations of the EPICURUS survey questionnaire respondents and the declared valuations of the experimental subjects are similar within the same country and the same labour market context. Furthermore, country differences are not significant regarding the valuations at average population level. Significant differences are obtained with respect

to the models explaining the factors which affect a subject's valuation of the different experimental setups. The most persistent finding is that valuations do not depend on the quantity of experience accumulated during the evolution of experimental sessions and this partly explains why the *ex ante* hypothetical valuations and the revealed ones do not differ from each other. This is a major finding of this experimental study, as it confirms the reliability of the individual subjects' responses to the valuation questions framed as judgements on hypothetical labour market conditions in survey data (e.g. the vignette part of the EPICURUS survey questionnaire). However, experimental subjects' valuations lie systematically below valuations by questionnaire respondents in all the scenarios used in the control questions.

Other findings concern the factors explaining the individual subject's valuation of a given setting. Specifically, a moderate negative effect of unemployment and a more systematic positive effect of being male on the values elicited for the experimental labour market studied is found. Clearly, the role assumed by the individual subject in the experiment significantly affects his/her valuation of different features of the labour market, namely, in the experiment employees value a certain labour market in a different way compared to the employers. Other features of the experimental labour market studied, like long-term contracts, fixed employee-employer matching, etc., do not seem to be captured by revealed valuations, although their impact on market data (salary offers, salary rejection rates) presents patterns which are consistent with labour-theoretic predictions and stylized facts from real-world markets.

4.2 Experimental design

An exhaustive review of the vast literature on ultimatum bargaining is beyond the scope of this report. However, contrary to the "found money" bargaining games approach, in most (if not all) real world bargaining situations usually adopted in laboratory, the pie to be shared by negotiating "partners" is the result of some task which must be performed by both owners of perfectly complementary assets. For example, an employer-employee interpretation of abstract ultimatum bargaining (over, say the latter's salary) might underestimate the role of the task to be performed by the employee and the associated effort costs or the value of the firm owned by the employer as determinants of the final outcome of the game. This study address this issue, including a real task (to be performed by the employee) yielding the monetary profit which is shared by the two agents involved.

In the experimental protocol, pairs of *employer/employee*-subjects negotiate over their respective gains from a real task. The present experimental design is similar to Brandts

and Charness (2004). In addition, it includes two totally novel design features. First, “successful” negotiations result in “contracts” for a *real* task to be performed by employee-subjects. Second, together with a hypothetical valuation of the market implemented in the experiment, an incentive-compatible (real-reward) valuation of the setup is obtained, following the Experimental Contingent Valuation protocol introduced in Camacho *et al.* (CGGS) (2003, 2004),. Therefore, together with the observed behaviour in this study one can validate and calibrate the responses obtained on a number of “Control Questions” concerning the value assigned by experimental subjects to the setup implemented in the lab.

Regarding the functioning of the market the most interesting findings of the present study concerns the wage-reducing and acceptance rate-enhancing role of unemployment and long term contracts. As it would have been expected, the employee’s psychological cost due to the effort associated with the real task has a significant positive effect on observed salaries. Importantly, the hypothetical valuation of this artificial labour market by employees is a reliable predictor of incentive compatible valuations. However, in most cases, valuations are closer to employee-subjects’ earnings from successful contracts rather than to earning averages (including both positive and zero period earnings) along the experiment.

General features and temporal structure

The incentive-compatible validation and survey calibration methodology proposed here is based on the use of three complementary instruments: The Salary Negotiation Experiment with a Real Task (SNERT), the questionnaire with special focus on the analysis of stated hypothetical preferences elicited by a number of control questions (CQ) and an appropriately designed incentive compatible elicitation sheet (ES) aimed at validating and calibrating the subjects’ responses to the control questions.

Each experimental session combines the SNERT and the ES alternated in a random order, whereas in the beginning *or* at the end of each session (both orderings were tested in order to control for the effects of experience gained over the SNERT on a subject’s responses and *vice-a-versa*), a reduced part of a large questionnaire including the appropriate control question are distributed to the subjects in order to control for the relation between hypothetical-stated and revealed valuations of the market institution implemented and the relation of both to observed behaviour. Before explaining the content of each one of the parts of the experiment, the temporal structure is presented, which is adopted in each experimental session. Then, the way in which the SNERT is run in different treatments corresponding to variations of the standard wage bargaining game

is explained. In each one of the experimental sessions, 20 subjects participate in a 2-2½ hour experiment. In each session, the SNERT is repeated a number of periods randomly determined between 30 and 35, in order for any kind of end-game behaviour to be avoided. Subjects are given written instructions on the SNERT (in which no mention to the ES is included), which are also read aloud by the experimenter. The experimenter answers any remaining questions and doubts, avoiding any comment, which could affect behaviour by inducing any strategy as the “correct”, “reasonable” or “optimal”.

After the SNERT has been repeated for 6 periods, the experimenter stops the session and introduces the ES, which provides for an incentive-compatible design for eliciting subjects' valuations of a specific situation. The number of the 6 periods is chosen so that subjects would not be induced to expect that the ES will be given every 5, 10, and so on periods). The sessions continue by repeating the SNERT for another 5 periods and then the ES is presented again to the subjects, adopting a seemingly random temporal structure of: 7, 13, 19, 23, 27 and so on.

The main experiment (SNERT, Treatment 1 or Clearing Market “CLM”)

In a session of the basic experiment proposed here, 20 participants are randomly assigned to two groups: employers and employees. In each period, employers dispose of $Y=10$ Euros, which correspond to the total value of a task, which has to be performed by an employer-employee pair.

The employers post an amount X to be given to this period's employee-partner (randomly assigned and communicated to each one of them at the beginning of each period). If the employee accepts the offer, the task is “executable” and the two players' period earnings are $(\Pi_{er}, \Pi_{ee})=(10-X, X)$. If the employee rejects the offer, the task is not performed and they both earn nothing: $(\Pi_{er}, \Pi_{ee})=(0, 0)$.

The real task and payment method

A unit of the real task consists of filling 20 numbered envelopes with their corresponding (also numbered) one-page letters. At the end of the bargaining part of the session, 5 periods among the total number of periods actually played are randomly chosen to be the ones which will determine subjects' earnings and real-task obligations. Each period in which a “successful negotiation” has taken place generates the obligation of a unit of the real task to be performed by the employee-subject who will also perceive the reward agreed in the corresponding period of the negotiation part of the session. After all executable units of the task are performed; the employer- and employee-subjects receive their monetary rewards.

The format of the sheet is shown in figure 1.. As explained above, following the methodology in CGGS, before the SNERT is played for a 7th (13th, 19th, and 23^d) period, the session is stopped and the ES is distributed and explained to the subjects. The experimental subjects are informed (except for the last period in which nothing is said on the issue of repetitions, given that no further repetition will take place) that, after this procedure is finished, the game will go on in exactly the same way as in previous periods.

After the responses to the ES are collected, two steps are in order: First, next period of the SNERT is run in the standard fashion, with subjects making decisions as in periods preceding the elicitation stage. Second, a lottery (throwing a 20-sided die) is publicly run, so that the "binding" scenario is chosen among the 20. Each subject's choice (certain payment or game earnings, depending on the subject's choice in the scenario chosen) is registered as this period's payoff.

This part of the experiment is especially designed as an incentive-compatible complement of the basic experiment, so that, together with a subject's observed behaviour, one can elicit subjects' real valuations of the game³ and learn about their beliefs on the expected outcomes. In addition, the repetition of the ES part provides information on possible changes (due to learning) in individual valuations of the game. After this preference elicitation stage is finished, the main experiment is repeated in the standard way, until a new elicitation stage is reached.

Treatments and labelling

Apart from the basic experiment discussed above, different wage bargaining settings are studied. Below, a list of treatments and of the different labels used for each one of them is provided.

- **TREATMENT 1 (Baseline Treatment): Random pairs formed in each period; permanent roles, randomly assigned once (see Control Question 1). The basic treatment is also implemented as "Pilot 1" (run only in Spain) in which the task is fictitious in order to control for the effect of the real task on observed behaviour.**

It is also referred to as "Clearing Market" (*CLM*).

³ Typically, individual valuations may deviate from a game's equilibrium or most frequently observed outcome's corresponding payoff, due to subjects' errors in predicting others' behavior or due to misjudgment of own psychological costs and benefits from playing the game.

- **TREATMENT 2 (Run as “Pilot 2” in Spain, only): Randomly formed (once) fixed pairs.**
- **TREATMENT 3 (Run as “Pilot 1.1” in Spain, only): Like in treatment 1, but with control questions answered after, rather than before the experiment.**
- **TREATMENT 4 (Run as “Pilot 2.1” in Spain, only): Like in treatment 2, but with control questions answered after, rather than before the experiment.**
- **TREATMENT 5: As in Treatment 1, but with 12 employee-subjects and 8 employers (see Control Question 2).**
- **TREATMENT 6: As in Treatment 5, but every second period, 2-period contracts are offered by employers to employees. Subsequently, employees accepting the wage will not participate in the market for contracts in the next period. (Control Question 3).**

Control questions and Elicitation Sheets (see Figure 1.)

In order to avoid any additional (and undesirable) framing effects, the hypothetical valuation must be obtained using exactly the same format as the one used in the ES.

The experimental protocol presented in this study constitutes a novel approach to ultimatum games labelled and implemented as wage bargaining experiments and to preference elicitation concerning labour market conditions. The most novel features are the introduction of the real task and that it includes the incentive-compatible valuation procedure. A further important novelty is the combination and comparison of the incentive compatible valuation sheet with a hypothetical elicitation of preferences concerning phenomena which are closely related to the real world labour markets. In line with the standard recruitment protocols used by experimentalists in economics, the subjects are recruited among university students. In addition, an equal number to the experimental subjects is randomly selected from the EPICURUS questionnaire respondents who answer the same control questions on the hypothetical valuation of the experimental setup in order to control for differences between the two populations (experimental subjects vs EPICURUS questionnaire respondents).

In total, 60 subjects per country participate in the experimental sessions, 20 subjects in each session of the three basic treatments run in Spain, Greece and the UK. Furthermore, another 4 pilot sessions with a fictitious task and permanent employer-employee matching are run in Spain (filling the experimental cells of the resulting 2x2 matrix), for which another 80 subjects are recruited. Finally, each control question

corresponding to one of the three basic treatments are also answered by 20 questionnaire respondents from each one of the countries in which experiments are run. Non-laboratory responses to the control questions are labelled as “Questionnaire” data. The organization of the experimental sessions, the submission of strategies, the matching and the feedback to the subjects and finally the data collection was obtained by using a specifically tailored software based on Urs Fischbacher’s z-Tree toolbox. Apart from experiments run in the *Laboratori d’Economia Experimental* in Spain, all other sessions are run in appropriately modified computer rooms which had never been used before for experimental purposes.

4.3 Results

This section is organised in a way which allows the investigation of the main questions addressed by the experimental design:

4.3.1. Similarity of hypothetical valuations (CQ responses) across subject populations

This hypothesis concerns two types of comparisons of responses to the three Control Questions: Comparisons across countries and comparisons between laboratory and non-laboratory (survey) responses. Laboratory data are labelled by the name of the city in which the experiment was performed that is, Castellón, Aberdeen and Thessaloniki. The questionnaire data from the three countries are labelled using the corresponding country name (Spain, UK and Greece).

Non parametric tests confirm the following results:

RESULT 1: Hypothetical valuations of the labour market settings corresponding to each one of the three Control Questions by experimental subjects are not significantly different from the corresponding questionnaire data generated by non-laboratory (survey) respondents.

Specifically, Result 1 is confirmed by the non-significance of differences between experimental and questionnaire responses to the three control questions. This result implies that despite the *ex ante* population differences between experimental subjects and questionnaire respondents (such as recruitment procedure, target population, etc.) their valuations of the relatively abstract setup of the experimental labour market conditions are very stable within the same cultural context, and across different cultural contexts. Indeed, comparisons across countries reveals that control question responses do not significantly vary across countries:

RESULT 2: Hypothetical valuations of the labour market settings corresponding to each one of the three Control Questions by questionnaire respondents do not significantly vary across countries.

4.3.2. Similarity between declared (CQ) and revealed (ES) valuations within the same session

This hypothesis requires comparing our experimental subjects' declared valuations of each labour market setting (Control Questions) with their incentive compatible valuations elicited through the Elicitation Screen (ES) during the experiment. The latter is implemented in a context which is designed to make a subject's earnings depend on choices (revealed preferences), while the former relies on choices in merely hypothetical comparisons between the labour market setting and a certain payoff. It is also important that all results concerning valuations are (for consistency) framed from the employee's point of view. The corresponding non parametric tests⁴ reveal the following:

RESULT 3: Hypothetical valuations of the labour market settings (elicited by the Control Questions) are not significantly different from the corresponding revealed valuations (elicited by the Elicitation Sheets design). The only exception is the case of Spanish and UK subjects⁵ faced with Treatment 6 conditions (Long Term Contracts).

The preceding result is a major finding for this study since it confirms the consistency of the subjects' responses to the hypothetical valuation of the abstract settings used in the experimental sessions and the responses to revealed valuations. The result implies that the responses to the three control questions do not suffer from a significant hypothetical bias, except for the case of two out of a total of nine sessions compared here. However, the agreement between hypothetical (stated) and revealed valuations is in sharp contrast with the following related finding:

RESULT 4: Employees' valuations of the labour market settings used in the experiments (both declared and revealed) are significantly higher⁶

⁴ A Wilcoxon test is performed as a within-subject comparison of deviations between hypothetical and revealed valuations. Also, a MannWhitney test is used to make comparisons at a population level using the Control Question data obtained from all subjects at the beginning of each session and Elicitation Sheet data obtained from subjects who actually acted as employees during the experiment.

⁵ The hypothesis of equality of valuations is rejected obtaining Mann-Whitney test results with p -values below 0.04.

⁶ All corresponding Mann-Whitney tests of the hypothesis that valuations and session average earnings come from the same population obtain p -values lower than 0.001.

from the corresponding average earnings of employees during the sessions.

One should expect that the subjects' valuation of the setting should depend on their average payoff from it. However, this expectation contradicts the above result. Although it is difficult to explain the difference between the valuation of a given setting by a subject and the subject's average earnings from it, an explanation of the above contradiction may be found in the fact that revealed valuations of Treatment 1 by employees are not significantly⁷ different from the corresponding observed salaries. The same finding is also confirmed by some but not all of the other sessions and treatments performed. Therefore, a possible explanation of the optimistic way in which employee-subjects value their labour market settings is that they use their earnings from successful (working) periods rather than their average income from all periods of a session (including periods of voluntary unemployment) as a reference point. An alternative interpretation of this result is that subjects assign an extra value to their participation in the labour market, beyond that dictated by their monetary benefits from it. The abstract setting of the economic experiment rules out most standard sources of non-monetary benefits of a job (status, self image, etc.). Thus this finding suggests that subjects assign a positive value to the possibility of actively participating in the context of social interaction and negotiation of the experiment. These conjectures suggest a possible explanation of the mechanism determining the value assigned by subjects to the artificial labour market designed hereby. A more rigorous analysis will be presented in the following section aimed at identifying the whole set of factors affecting valuations of these experimental labour settings.

4.3.3. Dependence of revealed valuations on individual and treatment design features

In this section, first, the data set obtained from the three main treatments run in the three countries are used to estimate a common model in which country and treatment effects are captured in the estimates of the corresponding dummies variables. Secondly, the data obtained from pilot sessions run with a fictitious task are used to estimate a similar model with treatment dummies variables only. Among the factors which are found to determine a subject's revealed valuation of the experimental labour market setting of the experiment studied, the subject's role in the experiment (reflected on the "type" variable coefficient) is revealed to be significant. The significant and negative coefficient

⁷ As confirmed by Mann-Whitney tests comparing elicitation sheet choices with salary averages from each of the sessions involved.

indicates that the employee subjects value the labour market situation studied lower than employers. In the overall sample, treatment effects produce significantly lower valuations of the *unemployment with long term contracts* (LTC6 variable) situation. Finally, a significant gender effect reveals the higher valuations of the setup by males than females.

Remember that in the pre-play control question subjects' valuations of the labour market setup are elicited assigning all subjects the role of an employee. Interestingly, it is found that subjects reporting higher hypothetical valuations in the control question, also value more the setup with which they are faced, independently to whether they are acting as employers or employees. In fact, both the gender and the control question effects are confirmed by the model estimated from pilot session data. Furthermore, both models reject the hypothesis that revealed valuations evolve over time, contradicting an intuitively expected learning effect. Finally, country dummy variable coefficients are non significant, confirming in an alternative way the finding that revealed valuations do not show different patterns across countries. However, this result concerns average behaviour. A more detailed examination of country differences can be performed by estimating three different country-specific valuation models.

In the case of the three country-specific valuation models the results show that the only significant treatment effect is obtained from the UK sessions with respect to the unemployment treatment (EUC5). This effect is negative. Interestingly, the gender and "Control Question" effects reported above for the whole data set are confirmed for Greece and Spain but they are not significant for the UK. A puzzling country difference concerns the non significance of the "type" variable in the Spanish sessions, though this difference is not confirmed by the Spanish pilot session data. Finally, the lack of learning by experience is a common feature of all sessions, detected by the non significant coefficient of the period variable. This finding of the invariance of valuations over time is also compatible with the similarity between declared and revealed valuations elicited by experimental labour market setup.

One may raise the question whether the experimental labour market presented to the subjects in the hypothetical question format and the environment implemented in the experiments reasonably reproduces standard features of real world labour markets. This question is answered in the following subsection.

4.3.4. Data collected from the experiment reflect theoretical and real labour market properties

This hypothesis is a combination of various hypotheses referring to a number of underlying labour market-related phenomena. Therefore, the following paragraphs report results concerning different questions that can be addressed using the main labour market experiment of this study and the pilot sessions performed in the *LEE* in Castellón.

With regard to the individual behaviour of the experimental subjects, one should distinguish between employer and employee behaviour. Within-treatment comparison of offers across countries indicates that employers in Aberdeen have offered significantly higher salaries in the baseline treatment (treatment 1, "CLM") than subjects in the other two countries. The unemployment treatment (treatment 5, "EUC") yields very similar offers in the three countries.

Finally, subjects in the long-term contract (Treatment 6, "LTC") in Castellón have offered significantly higher salaries than subjects from the other two countries. In fact, employer-subjects in Spain have not behaved differently across treatments, while the three sessions in Aberdeen reflect most clearly the expected pattern that unemployment leads to lower offers and so do long term contracts to a more significant degree. Greek subjects present an intermediate degree of responsiveness to the three conditions implemented in the treatments run in the three countries. That is, while unemployment in the Greek sessions yields similar offers to the baseline treatment, long-term contracts lead to significantly lower offers than both the other treatments. A model of 'employer' offers is estimated in which the explanatory variables include treatment and country dummies, a period variable capturing any linear trend of offers along the periods of a session, the subject's *ex ante* hypothetical valuation of the setting from an employee's point of view and a dummy variable for periods following the elicitation screen, in order to capture possible effects of the incentive compatible evaluation mechanism on next period's offers.

Four versions of the above model are estimated, one for the complete experimental data set and one for each country. The estimated models first, confirm the significance of the differences between countries mentioned above (offers in the Greek sessions are significantly lower than those in the other two countries), and second, the estimates indicate that unemployment leads to lower offers in the complete data set and the UK sessions only, while the long term contracts have a significant negative impact on wage offers in the sessions performed in the UK and Greece. Only Greek subjects confirm the prediction that long term contracts setting lead to lower offers than when there is only

unemployment. The overall data set and the Spanish sessions confirm that the higher a subject values a given labour market setting from an employee's point of view, the lower a salary he/she offers when acting as an employer during the experiment. This intuitive finding is new in the experimental literature on labour markets and ultimatum games. Finally, all models except for the one for the UK sessions confirm that subjects adapt their offers to higher levels during the session, indicating a learning effect, which, in turn is a consequence of employee's tendency to reject unfairly low salary offers.

Turning to the examining of the employees' behavior, the focus is on the rejection rates. A logit model is estimated to explain country differences in the probability of rejection for the given wage, the expectation reflected on an employee's *ex ante* evaluation of each setting and possible time trends. The UK sessions are used as the reference group. The estimates indicate that, the dummy variable for Greece is significantly different from zero (Greek subjects have a significantly lower probability of rejecting a given offer compared to the UK ones), a results similar with that related to offers. However, this dummy variable becomes non significant and the dummy variable for the Spanish sessions significant, when a subject's control-question value and the dummy variables for periods following the elicitation procedure are taken into account. Surprisingly, unemployment does not reduce rejection probabilities, but unemployment in the presence of long term contracts significantly reduces a subject's probability of rejecting an offer. *Ex ante* valuations determine rejection probabilities in the sense that a subject who values more a given labour market setting declares a higher salary expectation and thus has a higher probability of rejecting a given wage offer. Interestingly, periods following an elicitation screen significantly increase rejection probabilities, since the incentive compatible elicitation mechanism works as insurance or a reference point to which salary offers are compared by the employee subjects. As expected, a higher salary offer entails a lower probability of rejection. Finally, rejection probabilities present a decreasing trend over time. This may imply that, as the session comes closer to its end, the incentive for an 'employee' to reject low salary offers - in order to voice his/her discontent or punish unfair employers - become weaker over time, like do future earnings from a hard bargaining attitude.

The reported time trends of higher offers and lower rejection rates lead to a relatively stable pattern of salaries and an increasing rate of efficiency (percentage of successful transactions) over time. Except for the Spanish sessions, in which the expected ranking of Treatment 5 and 6 is reversed, in the other two countries salaries are the lowest in the presence of long term contracts setting. This captures the shadow value of security in labour markets with unemployment. In a similar manner, the desire for a more secure

job in presence of unemployment forces employee-subjects to accept worse salary offers leading to higher levels of market efficiency.

Finally, the regression analysis reveals some further labour market stylised features of the experimental design. The most important finding relates to the effect of the real task. The absence of a real task in the pilot sessions, which are directly comparable with the baseline treatment (pilot sessions 1 and 1.1), leads to lower offers in only one of the two pilot sessions, while rejection probabilities are lower in both of sessions. This confirms the intuition that employees in experimental settings faced with the obligation to perform a real task are more demanding in terms of salaries which reflects the extra cost of real effort. The respective plots and descriptive statistics indicate that the shadow market value of the real task performed by employees is of approximately 0.5 €. In pilot sessions 2 and 2.1 the fixed employer-employee matching lead to higher offers and to lower rejection rates than in the baseline treatment (with real task) but higher than in pilot sessions 1 and 1.1. This is a consequence of the fact that a fixed employee-employer matching increases employees' incentives to reject current unfair offers on the expectation that he/she will receive better offers in the future. Such incentives are lower in the random matching sessions than the two period set up. They represent punishments (salary rejections) by the employee and can be seen as altruistic costly contributions of the employers to a public good, such as "social learning", associated with the principle that unfair offers entail a higher risk of rejection. The respective pilot session data show that these phenomena result in higher wages but also higher rejection rates in the fixed matching sessions. Finally, contrary to the rest of the sessions, where the effect is not significant, in the pilot sessions, employees' expectations reflected on the Control Question evaluations positively affect the probability of rejection. Other results, like the decrease in rejection probabilities due to higher wage offers are retained.

4.4 Conclusions

This study shows that in terms of the stated and revealed valuations of the experimental setup studied, the experimental subjects produce similar hypothetical responses to those of the target population of the EPICURUS questionnaire. In addition, hypothetical/stated and revealed valuations are most often not significantly different to each other, indicating the lack of a significant hypothetical bias. Country differences within the same control question are also insignificant. However, revealed valuations are more similar to salary levels than subjects' average earnings (for both the successful and the rejected transactions). This indicates some persistent "optimistic" bias of valuations towards successful periods, rather than –as neoclassical theory would predict– towards average monetary utility from the experiment as a whole. This finding may suggest that a

subject's satisfaction from participating in the artificial labour market setting exceeds his/her monetary reward. This finding is usually interpreted as preference for active participation in a job as opposed to inactivity (e.g. remaining unemployed). However, the underlying phenomena of this preference (social status, self-image, etc.) are not applicable in an experimental labour market. Thus, some alternative value should be attributed to this preference such as the subject's preference for being active in the market. The valuation model estimates indicate that the most consistent finding is that employees reveal lower valuations for the same labour environment than those obtained from the employers. A gender effect exists according to which male subjects report and reveal higher valuations than female subjects. Valuations remain invariant over time and this result is confirmed by all models. This finding is compatible and may be an explanation of the agreement between the revealed and the declared valuations. Thus, the subjects' declared (hypothetical) valuations of the labour market settings studied here do not change after subjects are faced with and act in the labour market itself. Thus, their *ex ante* predisposition towards a given labour market setup remains unchanged after the subjects gain experience from acting in the market. This implies first, that the responses in the EPICURUS survey questionnaire are good predictors of the value that respondents would have assigned to the different hypothetical scenarios in the vignette evaluations and second that the lack of responsiveness of valuations to some treatment features (with a statistically significant impact on the functioning of the market) indicates the difficulty of respondents to abandon or adapt their *ex ante* beliefs and valuations to the levels that would be dictated by their experience from each labour market setting. In terms of the labour market-related features of the experiment the control session without a real task reproduces the usual (in ultimatum bargaining experiments) 60%-40% "split of the pie", between employers and employees, respectively. When the real task is introduced, the average salary increases by 0.55 €, which is the shadow (reservation) price of a unit (filling 20 numbered envelopes with their corresponding one-page letters) task for employees. As standard economic models would predict, both unemployment and long-term contracts increase the number of successful employee-employer negotiations (the former accept easier a given salary than experiments without unemployment and long-term contracts). However, observed salaries and employers' offers provide weaker evidence of the corresponding standard predictions for these conditions: namely, lower offers and salaries. As would have been predicted by neoclassical models, unemployment and long term contracts reduce salaries although the latter not significantly more than the former in all cases. A fixed employee-employer matching increase the employee's bargaining power but reduces market efficiency due to the increase in rejections of salary offers.

Figure 1. Example of an Elicitation Sheet: The elicitation sheet (*ES*) for period 7. An identical but hypothetical format is adopted for the Control Questions (*CQ*).

<u>Elicitation Sheet</u>	
In the following period, your earnings will be determined, according to your decision in the 20 scenarios below, among which one will be randomly selected (after the SNERT is played for a 7 th period) to be the one that will be used as the 'binding' one:	
Mark with an 'X' in the appropriate box for each one of the following 20 scenarios .	
Remember!!! ANY OF THE 20 SCENARIOS MAY BE THE ONE ACCORDING TO WHICH YOU WILL BE REWARDED FOR THIS PERIOD.	
SCENARIO 1: You are offered an alternative of a certain payment of 0.5 Euros .	
Do you prefer the certain payoff?	<input type="checkbox"/>
Or next period's earnings from the SNERT?	<input type="checkbox"/>
SCENARIO 2: You are offered an alternative of a certain payment of 1 Euros .	
Do you prefer the certain payoff?	<input type="checkbox"/>
Or next period's earnings from the SNERT?	<input type="checkbox"/>
(the actual sheet does not omit this text)	
SCENARIO 20: You are offered an alternative of a certain payment of 10 Euros .	
Do you prefer the certain payoff?	<input type="checkbox"/>
Or next period's earnings from the SNERT?	<input type="checkbox"/>

5. Ex-ante vs ex-post utility: Lessons from the conjoint analysis

5.1 Introduction

The utility workers derive from their job can be operationalised and measured by the concept of job satisfaction. Following the work of Locke (1969), Hamermesh (1977), Freeman (1978) and Borjas (1979), economists became increasingly interested in issues related to subjective evaluations of the utility derived from work, since job satisfaction is related to gains in efficiency at an organizational and an individual level. Higher job satisfaction is likely to result in higher efficiency at work and hence in a higher performance of the organization as a whole (Wright *et al.*, 2002). The literature provides evidence for a strong relationship between job satisfaction and specific individual socio-economic characteristics, such as, gender, age, education, wages, working hours, trade union status, establishment size, and job security⁸.

Following Kahneman, Wakker and Sarin (1997), experienced utility is defined in the context of this chapter to be the satisfaction derived from the present job. Job satisfaction is, thus, a measure of psychological well-being at work. As such, it is a wide-ranging concept since it concerns individual feelings about every day activity in work and these feelings are not constant and irreversible. They depend on the current work environment, are affected by a process of adaptation and coping (Frederick and Loewenstein, 1999), and are contaminated by cognitive dissonance (Festinger, 1957)⁹. In the present context cognitive dissonance is the internal conflict that may exist between what one thinks is a good job and the job one actually has. Workers may (try to) eliminate the dissonance, so as to create a happy life, by changing their opinion. An example similar to that used by Festinger (1957) may assist in elucidating this issue. Suppose that a worker believes that staying at home during the evenings and nights is very important for a happy family life. Imagine now that the firm in which he or she is employed suddenly introduces night shifts. The worker will experience dissonance, because the knowledge that he/she will work at night is dissonant with his opinion about

⁸ See, among others, Borjas, 1979; Freeman and Medoff, 1984; Brockner et al, 1988; Brockner, 1992; Lillydahl and Singell, 1993; Lang and Johnson, 1994; Clark and Oswald, 1996; Clark, 1997; Drakopoulos and Theodossiou, 1997; Blanchflower and Oswald, 1999; Burchell et al 1999; Groot and Maassen van de Brink, 1999; Ward and Sloane, 1999; Sloane and Williams 2000; Kaiser, 2002; Lydon and Chevalier, 2002; Moguerou, 2002; van Praag and Ferrer-i-Carbonell, 2004; Clark, 2005; and Pouliakas and Theodossiou, 2005.

⁹ The theory of cognitive dissonance suggests that contradicting elements of knowledge (cognitions) serve as a driving force that compels the human mind to modify existing beliefs. The existence of dissonance, being psychologically uncomfortable, motivates the person to reduce the dissonance and leads to avoidance of information likely to increase the dissonance. The greater the magnitude of the dissonance, the greater is the pressure to reduce dissonance.

family life. He/she can then reduce the dissonance either by refusing to work in night shifts or by changing his opinion on whether it is good to spend nights at home.

In the light of the above psychological processes, the evaluation of the effects of any job characteristics on individual job satisfaction is a particularly troublesome issue. Opinions about the current job are moulded and contaminated by present reality. Therefore, one can distinguish between two important concepts: a utility function that describes how individuals evaluate their actual job (experienced utility); and one that looks at the *ex ante* evaluation of a job. The latter concept shows how individuals perceive a job before it begins. It seems logical to assume that individuals are bound to base their job market decisions on these ex-ante perceptions. Therefore, the ex-ante evaluation of a job may give information on how individuals form their decisions. This is defined here as the anticipated utility.

This section constitutes a first attempt to operationalise anticipated (job) utility and to compare it with experienced utility. Experienced utility is empirically estimated by using a subjective question on job satisfaction. To study the anticipated utility this study resorts to a stated preference methodology known as conjoint analysis (Green and Srinivasan, 1978; Green *et al.*, 2001). This involves choices or evaluation responses by an individual concerning various hypothetical jobs.

This study represents a contribution to the growing literature on subjective well-being. At this stage of the research agenda, it seems relevant to understand and to operationalise the two different utility concepts. This comparison will help to understand the differences and similarities between the two concepts and methods. This will provide information on whether or not there are different concepts of utility and how these relate to individuals' welfare and behaviour. This is helpful for, e.g., welfare analysis (e.g. poverty studies), assisting firms in improving the well-being of their existing workforce and hence their efficiency, and understanding and predicting the behaviour of individuals.

5.2. The Theoretical Setting

5.2.1 Conjoint Analysis

As described in the workpackage NOVEL, conjoint analysis makes use of so-called 'vignettes'. These are short descriptions of hypothetical jobs, which are characterized by some main attributes. An example is presented in Figure 2.

Figure 2. Typical vignette

Imagine that, for some reason, you had to stop with your current job and had to look for a new one. Imagine that after a short time you get several offers. We will list them on the following screen. These listed jobs offers do not differ from your current job except from some points we specifically mention.

Can you please evaluate these offers on a scale from 0 to 10, where 0 means the worst possible and 10 the best possible offer? And indicate if they are acceptable?

Wage: 20 % more than now per hour

Type of contract: Permanent with risk of losing the job with no severance pay

Working hours: 20 hours a week

Working times: Rotating shift system

Training Opportunities: The employer will offer you a 10 workdays training program in the course of the year.

Work organisation: The job involves working in a varying team

Work Conditions: No one controls your work

Work Speed: The job is fairly demanding, which means that sometimes you may have to work at high speed

Retirement: You can retire at age 55

Behavioral norms: Same working conditions as in other firms No loyalty from both sides shirking and low performance is possible

How would you rate this offer?

Please, evaluate this offer on a scale from 0 to 10, where 0 means the worst possible and 10 the best possible job.

Would this job offer be acceptable to you? *Yes/No*

The advantage of this set-up is that one can ask the respondents to evaluate jobs on a numerical scale or to choose the best among several vignettes. This choice approach is rooted in random utility theory (McFadden, 1973; Hanemann, 1984, Van Beek et al 1997) and conjoint analysis (Green, 1974; Green and Srinivasan, 1978; Louviere and Woodworth, 1983; Green, Krieger and Bansal, 1988; Elrod, Louviere, and Davey, 1992; Green, 1995).

Presenting vignettes to respondents may be seen as a controlled experiment, comparable to that in experimental psychology. The vignette is the stimulus and the response is the reaction by the respondent. The creation of such vignettes is not trivial. We may distinguish between four steps. The first step is to identify the relevant job characteristics, or attributes in the conjoint terminology. Such attributes are, for example, a job's salary, working hours, and job security. The second step is to assign various values to each attribute. The levels must be believable, thus encouraging respondents to take the exercise seriously. The third step is the actual design of vignettes. Vignettes are drawn up that describe possible jobs, given the selected job attributes and level possibilities. The number of vignettes increases rapidly with the number of characteristics and the number of distinct levels/values. A respondent, however, has only a finite span of attention and, thus, only a few vignettes can be included in each individual questionnaire. Thus, experimental design is used to reduce the number to a convenient level. We have to create a discrete grid over the space of potential vignettes. The final step is to establish the preferences.

Usually, preferences for the vignettes included in a questionnaire are elicited by using one of three methods: ranking, rating, or discrete choices. With ranking, respondents are asked to list the vignettes in order of preference. It provides us with an ordering, but it does not inform us about differences in strength of preference. It yields an ordinal utility ordering. Moreover, there are difficulties, when respondents feel indifferent with respect to two or more alternatives. In the discrete choice method, respondents are asked to consider a set of vignettes and are invited to choose their preferred one. Obviously the method yields less information than the ranking method, as we only know that one of the alternatives ranks highest, while we do not know anything about the ordering of the less than optimal alternatives. The rating method requires the respondents to assign a score, of say 0 to 10, to each of the vignettes. The rating method yields a cardinal preference ordering. Given the practical experiences with ratings respondents do not have problems to rate alternatives on a numerical scale, where equal differences in rates are set equal to equal utility differences. Needless to say, that for all types of response behavior a random error term has to be included.

5.2.2 The utility model

Following the now classical theory of Lancaster (1966, 1971) and Rosen (1974) the theoretical approach adopted in the present study is to postulate that job satisfaction is derived from the characteristics (attributes), z , that a job possesses. The extent to which an individual derives satisfaction from a job or values the job depends on the levels of these job characteristics.

A specific job j is described by a vector of attributes z_j . This description is called a *vignette*. It is assumed that a job vignette j is evaluated by a cardinal evaluation (or utility) function $U(z_j)$.

Thus utility from work, i.e. job satisfaction, is a function of the job characteristics that is:

$$U(z_j) = U(z_{1j}, z_{2j}, z_{3j}, \dots) \quad (1)$$

where z_{ij} is the value of the i^{th} characteristic that a worker faces in job j .

Individuals are indifferent between two jobs j and j' if $U(z_j) = U(z_{j'})$. Knowledge of the function $U(\cdot)$ makes it possible to calculate the so-called trade-off ratios. That is, the extent to which one job characteristic can deteriorate if the worker is simultaneously compensated by an improvement in another job dimension, thus leaving the individual indifferent between the two jobs.

Different individuals will have different opinions about the same job. In order to take this feature into account equation (1) can be individualized as follows:

$$U(z_j) = U(z_1, z_2, z_3, \dots, z_j; x_n) \quad (2)$$

where x_n is a vector of the personal characteristics of the n^{th} respondent.

Furthermore, next to the individual characteristics, the characteristics z_n of the individual's own current job may also co-determine the valuation of a vignette. Thus, for instance, workers who work in night shifts and have adapted their life to the requirements of such a job may be more positively inclined to a job with nightshifts than

a respondent who works only in regular daytime. The issue here is that individual responses when evaluating jobs may be affected by the characteristics of their current job. In other words, individual responses may be contaminated by cognitive dissonance or adaptation due to the individual's experience with his current job. In order to take this into account, equation (2) is augmented as follows:

$$U(z_j) = U(z_j; x_n, z_n) \quad (3)$$

where z_n is the vector of own job characteristics of the individual n . If z_n were to affect the evaluation of the hypothetical vignettes, the conjoint method should take that into account.

Finally, it is interesting to investigate how respondents evaluate the "vignette" of their own current job and how this evaluation differs from the conventional approach of satisfaction analysis (e.g., Clark and Oswald, 1994; Drakopoulos and Theodossiou, 1997; Hamermesh, 2001; Van Praag and Ferrer-i-Carbonell, 2004). The latter approach looks at how satisfied individuals are with their *own* job and attempts to 'explain' individual responses by the characteristics of the respondent (x_n) and by characteristics of the own job (z_n).

Satisfaction analysis yields a relation between the characteristics of one's own current job (z_n), the individual's personal characteristics (x_n), and the corresponding job satisfaction by a 'satisfaction function', $S(z_n; x_n)$. Besides estimating equation (3), this chapter will investigate whether the evaluation of the individual's own job on the basis of vignettes is consistent with the job satisfaction derived from the above satisfaction function, that is, whether

$$U(z_j; z_n, x_n) \equiv S(z_n; x_n) \quad (4)$$

If this is not the case it follows that one has to assign different interpretations to these concepts, namely U is the anticipated utility, and S the experienced utility as discussed in

Section III 1. If $S(z_n; x_n) \equiv U(z_j; z_n, x_n)$, there is then an indication that the anticipated function is not affected by the present job.

5.3. Empirical approach

The empirical analysis uses the EPICURUS data set, which includes both an answer to the job satisfaction question and to 5 vignettes allocated at random. The evaluation of the vignettes is given by the respondent and can be described by an evaluation function

$$U_{jn} = U(z_j, x_n) \quad (5)$$

where z_j is the vignette¹⁰ of the job j , and x_n represents individual characteristics of individual n .

A respondent can only rate the vignettes on a discrete scale 0, 1, 2, ..., 10. Hence, the evaluation U cannot be observed exactly, but only as a rounded-off value.

In the literature, such a model is often analyzed by means of Ordered Probit, Ranked Ordered Logit, or a Tobit censored model. However, in the present study a new approach is used, called the Cardinal OLS (COLS) method, which was first introduced in Van Praag and Ferrer-i-Carbonell (2004)¹¹. This is done in order to avoid the computational difficulties that are caused by the probable correlation structure between the five individual vignette evaluations.

5.4 Results

5.4.1 The effect of job attributes on the vignette evaluation

First the effect of different hypothetical job attributes on the desirability of the vignettes are detailed, while the effect that individual and current job characteristics may have on one's evaluation of the vignette are ignored (a restricted model).

The strongest factor explaining the preference for a vignette is the offered hourly wage that is offered (the percentage difference between the wage offered by the fictitious job and the wage of the respondent's present job). The wage elasticity is 1.0 in the

¹⁰ Before running the survey, the vignette set was checked for linear dependencies (non-orthogonality).

¹¹ See also Van Praag, Frijters and Ferrer-i-Carbonell (2004) and Van Praag and Ferrer-i-Carbonell (2004, 2006) for further methodological elaborations.

Netherlands, 1.28 in Greece, and as high as 1.42 in the U.K. In line with economic theory, the effect of weekly working hours on the vignette evaluation is strongly negative in all countries. It reduces the vignette desirability by a factor of about 0.30 in the U.K. and the Netherlands, while this reduction corresponds to a factor of about 0.17 in Greece. From this information one can derive the trade-off ratio between hours and income that leaves the respondent at the same utility. Those trade-off ratios are useful for interpreting the results. Some interesting findings are highlighted below.

For instance, a change from a temporary contract with no possibility of renewal to a permanent contract with no likelihood of being fired is equivalent to a wage reduction of 21%. For the Dutch, the equivalent percentage is 28%, while for the Greeks it is 23%. It implies that the premium necessary to induce someone to accept a temporary contract in replacement of a permanent contract with no probability of job termination is about 21%. Moreover, the premium to induce someone to accept a temporary contract with a probability of continuation in replacement of a temporary contract without change on continuation scores is high. It might be that individuals prefer the certainty of a temporary job to a job of which the prospects are uncertain. This would point to risk aversion.

Furthermore, the results highlight an important issue in terms of both theoretical significance and human resource management policy. Akerlof (1982) and Akerlof and Yellen (1988) suggested that a salary higher than the market wages will raise the worker's loyalty to his or her employer. Their model predicts that the average worker would be willing to work harder for the firm that pays wage premiums as a 'gift' to the workers in return for a higher performance by him or her. Hence such contracts are productivity enhancers. The results of this chapter show that mutual loyalty is also attractive to workers at the lower ranks of the occupational strata, which is the groups of workers that is considered in this study. A change from a contract with a 'loyalty-gift exchange' to a contract where this is not the case is equivalent to a wage reduction of 10% for the Netherlands, 11% for the U.K., and 6% for Greece.

5.4.2 Extended estimation: Introducing the worker's own situation

The above results are obtained without any controls for the individual's personal and current job characteristics. However, since individuals are heterogeneous with respect to their characteristics and their working experiences, different respondents may respond differently to the same vignette sequence. In order to deal with these issues the model is extended accordingly. If the respondent's personal situation were to have an influence on his or her vignette evaluation, this would need to be taken into account in order to use

the model as a predictive instrument. In this case, the respondent's future behaviour would need to be predicted not only by using information on the offered jobs but also on the respondent's current situation. The variables defining own characteristics can be split into the characteristics of the respondent's current job (which can be further divided between those characteristics that are also mentioned in the vignette and those that are not), and the personal characteristics, such as age, gender and the like.

As predicted, any differences between the former restricted model and the latter extended model are not statistically significant. This implies that the introduction of individual's current characteristics does not change the effect that the vignette attributes have on the vignette evaluation. This is an implication of the fact that the vignettes are randomly allotted to the respondents without any reference to the individual characteristics, which implies block-orthogonality.

Examining the effects of the characteristics of the own job situation on the respondent's evaluation of the vignette, it turns out that only few statistically significant variables are found at the conventional 10 or 5% confidence level. These results suggest that contrary to *a priori* expectations that the own situation would have a significant impact on the evaluation of vignettes, it turns out that this effect may be important for some dimensions, but that it is certainly not the rule. Thus, for instance, the present results do not support the proposition that those workers currently employed in rotating shifts would evaluate vignettes in a different way than workers who do not work in rotating shifts. The latter effect holds only for workers in Greece. However, the effect of current (own) working hours is positive, which implies that individuals who work long hours evaluate all job vignettes higher than individuals who work fewer hours. Members of a trade union in the Netherlands evaluate all jobs lower than non-members.

Similarly, only a few non job- related characteristics are statistically significant. Dutch males value each vignette higher than Dutch females. The older the UK workers are, the more critical they become when evaluating the vignettes. Greek individuals, who have children, are more positive with respect to the vignettes than Greek workers without children. Dutch individuals with children show the opposite behaviour.

The main result of this section is contrary to the *a priori* expectations. The initial expectation was that the evaluation of vignettes would be affected by the own job and by individual non-job related characteristics. This would have implied that vignette analysis without taking the respondent's background into account would give biased results. From the evidence presented in this section, one can conclude that, at least for the relatively homogeneous group of low-and medium- skilled workers considered in this study, it is

not inappropriate to ignore the respondent's job and personal characteristics from the regression model. The implication of the above results is that the application of vignette analysis is a fruitful methodology in this context. It is a straightforward and robust technique for estimating *anticipated* utility.

5.5 Job satisfaction: analyzing evaluation of own job

A second novelty of this section is the question of how the results derived by using conjoint analysis compare with those derived conventionally from responses to job satisfaction questions. The differences among both questions portray the distinction between *experienced* and *anticipated* utility, i.e. that obtained ex-post vs. the one obtained prior to obtaining the job.

The individual's satisfaction with his or her current job can be studied by asking respondents how satisfied they are with their present job or by using the vignette approach. In the latter case, one needs to describe the respondent's current job in terms of the vignette attributes and to calculate the estimated evaluation¹². In this section, the relationship between the two approaches will be studied.

Job satisfaction is estimated by COLS. If the coefficients estimated from this equation coincide with the ones estimated from the vignette analysis, one could argue that both models lead to similar results. In this case, experienced and anticipated utility would coincide.

The results show that there is a striking difference between the estimated coefficients across different countries¹³.

Both models do not yield similar results. There is a substantial difference in the estimated coefficients of the regression corresponding to the job satisfaction question and those derived from the vignette question approach. This means that the respondents evaluate their current jobs in a different way than hypothetical jobs. The utility function derived from vignette analysis is not based on experienced utility. Instead, it is the anticipated utility function that is used to evaluate alternatives when the individual is being on the verge of making a choice decision. In the vignette choice, as in the anticipated utility case in general, the alternatives are not experienced first-hand by the individual making

¹² Given the structure of the questionnaire used, it is impossible to describe the own job in exactly the same way as in the vignettes. Some of the questions on the 'own job' have by necessity a different specification and different response categories than in the vignettes. However, the coefficients of the corresponding dummy variables can be readily compared.

¹³ Given that the number of observations per country is modest.

the evaluation. The experienced utility derived from the job satisfaction question is influenced by hedonic adaptation (Van Praag, 1971 and Frederick and Loewenstein, 1999) and by cognitive dissonance (Festinger, 1957). As it is shown earlier, the influence that those effects have on the evaluation of vignettes is surprisingly very small. Thus, though the vignette analysis is based on an 'as if' or 'hypothetical' utility it may come closer to describing the individuals' 'unconstrained' preferences in the sense of being uncontaminated by the adaptation or/and cognitive dissonance process. In short, the usefulness of the vignette methodology in general and the present findings in particular are relevant in for human resource management and our knowledge of individual well-being issues.

5.6 Conclusions

Job satisfaction is a measure of psychological well-being at work. It concerns individual feelings about every day activity in work. These feelings are not constant and irreversible. Instead, they are affected by processes of adaptation and coping and contaminated by cognitive dissonance. This study uses a stated preference methodology, which involves evaluation responses by the same individual with respect to various hypothetical jobs, to describe the individual's *ex ante* job preferences. In other words, it examines how individuals evaluate a job before they start performing it. This approach may be relevant in obtaining an insight into the choice process of individuals when they have to decide between various jobs before they start performing it. This is the comparative evaluation, which plays a role when deciding which job to choose. Evidently, the question remains of whether there is a strong relationship between revealed preferences in the real world and the hypothetical stated choice in a questionnaire.

Next to the stated choice method, the response on the by now conventional job satisfaction questions is analyzed. Both types of question appear to carry different types of information. The conventional job satisfaction question deals with the evaluation of workers' own jobs only. The job satisfaction question supplies an experienced satisfaction function in the sense of Kahneman, Wakker, and Sarin (1997). The job satisfaction question is useful in obtaining an insight into how workers evaluate their current job. In that case the respondents are not invited to compare different working situations. Hence, they may not be conscious of differences in a host of variables. Moreover, they are habituated to their circumstances and simply do not know or realize their job could be different. Estimation results are likely to be affected by an adaptation and coping process, and, to some degree, by cognitive dissonance.

Experienced utility, measured by the widespread satisfaction questions, may be used for welfare and well-being analysis. This question provides information on the quality of life that a worker or individual experience and as such is very useful for employers seeking to improve the well-being of their employees, to take into account welfare effects when developing job policies, and to enhance their productivity. The anticipated utility, analyzed by conjoint analysis techniques in this study, provides information on how individuals perceive a job ex-ante. Therefore, it can be used to predict individual's behavior when they have to decide among various jobs. The estimation method presented in this chapter has also allowed to take into account how the individual's current situation affects the ex-ante job evaluation. Surprisingly, the influence of current job and personal circumstances on the hypothetical job evaluations is rather unimportant.

This study highlights the significance of taking the ex-ante - ex-post dichotomy into account not only for job utility evaluations but also for any type of satisfaction, such as general well-being or happiness. The happiness literature has seen an enormous growth in the last decades. This chapter adds to this literature by showing that individual's well-being can also be studied using the empirical framework of this chapter, which distinguishes between *experienced* utility and *anticipated* utility. In a similar vein a 'anticipated happiness' study might present various hypothetical situations of a 'life situation' to respondents, who would have to evaluate them. The description of the situation would be based on our current knowledge on what is relevant for happiness.

IV. CONCLUSIONS AND POLICY IMPLICATIONS

1. Concluding remarks: Outcomes versus aims of the research

The EPICURUS project has as a main goal to provide an answer to the following three major questions, which have been developed at the beginning of the project:

- 1) How do working patterns (and changes in them), social norms in the workplace, and inequalities in socio-economic status affect the quality of life and well being of individuals across different EU countries?
- 2) How does job satisfaction influence the quality of life and well being of individuals across different EU countries, given different social norms?
- 3) How can we improve our understanding and assessment of how people change their perceptions of their quality of life and well being in response to changes in labour market status and social norms by eliciting their preference priority setting behaviour?

Based on the research developed in the last 2.5 years, which is summarized in this report, the EPICURUS team is now able to provide scientifically derived answers to the above questions. These are consecutively addressed below.

(1) How do working patterns (and changes in them), social norms in the workplace and inequalities in socio-economic status affect the quality of life and well being of individuals across different EU countries?

In recent years, working patterns have experienced a clear change. These changes can be classified into various groups. First, European economies have experienced an increase of what is known as 'atypical' forms of employment. This is mainly described as an increase of part-time work, temporary contracts (fixed-term/agency work), and non-standard working hours. These changes implied (and at the same time were possible thanks to) a change on the traditional employee-employer relationship, which has become less stable and durable. Second, the increase of temporary and part-time jobs has, in opinion of some, lead to a decrease in on-the-job training. Third, researchers have pointed to an increase of job intensity, pressure, work effort (see Green and McIntosh, 2001), and repetitive work (Karasek and Thoerell, 1990). Fourth, in the recent years the popularity of using incentives to motivate workers and increase effort has increased substantially. Fifth, gender participation has increase all across Europe.

The EPICURUS project has carefully examined how the above-mentioned changes in working patterns have affected or could affect European workers' satisfaction with their jobs. The empirical analysis is done using a job-satisfaction question information included in both a large household panel sample (ECHP) and a cross-section sample of low and medium skilled workers (EPICURUS). In addition, workers' preferences about their own work (derived from the job-satisfaction question) are compared with their preferences about hypothetical (not experienced) jobs. The former relate to what is called *experience* job utility or job satisfaction, the latter to what is called *ex ante* or *anticipated* job utility. The *ex ante* worker's preferences could only be studied for the low and medium skilled workers, as the necessary information is only included in the EPICURUS data set. Some type of changes could not be examined for the whole working population, because unfortunately the ECHP does not include enough information on, for example, job stress and job intensity. In such cases, the analysis is restricted to the low and medium skilled workers of the EPICURUS survey.

In the report the reader can find detailed information on the relationship between job satisfaction (both experienced and hypothetical) and many job and individual characteristics, such as wage, education, tenure, and occupation. The focus here is only on the job characteristics that have undergone important changes in the last two decades, as discussed in the above paragraph. In short, the focus is on 'atypical' forms of employment (working hours and part-time working, working times, type of contract), training, increase of job intensity (increase of job pressure, work effort, and repetitive work), gender issues, and incentive measures. In chapter 8, the policy implications of these findings are carefully examined.

Theory predicts, *ceteris paribus*, a negative relationship between working hours and job utility. Nevertheless for the national working population, this relationship appears not to be statistically significant except for Dutch and English workers. For the low and medium skilled workers, the number of working hours has a negative effect that is statistically significant for Dutch and Danish workers only. One can therefore conclude that there seems to be a very weak effect of working hours and job satisfaction. However, for the national working population, it is found a clear positive effect of voluntary part-time work (individuals have chosen to work part-time) and job satisfaction. If the worker's preferences regarding hypothetical jobs are examined, one can find a clear inverted U-shaped relationship between working hours and *ex ante* job utility with a maximum around 28-29 hours a week. In summary, European workers are more satisfied with their job if it is on a part-time basis. Nevertheless, this is only the case if the individual has voluntarily chosen this arrangement (for example, because it provides him or her with enough income and more free time).

Non-standard working hours can only be studied for the low and medium skilled workers, as the ECHP does not provide enough information on this. Non-standard working hours are unusual working hours, such as rotating shifts that include weekends and nights. Surprisingly, non-standard working hours (working on shift work, and working on non-normal hours) when compared to working standard hours (everyday at the same time) are negatively correlated with experienced job satisfaction in Spain only. When turning into examining the *ex ante* job utility, the picture is different. A priori, workers clearly prefer flexible working hours (and in most countries also *office* hours) to working times that are decided by the employer. Rotating shifts is, except for France and Spain, less preferred to working at "times decided by the employer". The difference between *ex ante* and *ex post* preferences may be due to the adaptation phenomena: workers who do not like a social working times eventually adapt to it once they have such a job. Of course, it could also be that there is a self-selection into certain types of working times.

The effect of temporary and other non-permanent contracts on *experienced* job satisfaction differs among countries. For the representative sample of the whole population, two countries are investigated, namely Spain and the Netherlands. These two countries are clear examples of temporary contracts that act, on the one hand (Netherlands), as *stepping stones* (as a first step into a permanent contract) and, on the other hand (Spain) as *dead end* jobs. The Netherlands is one of the countries with most transitions from temporary to permanent contracts per year (*Employment in Europe*, 2003 and 2004), while the opposite is true for Spain. The results indicate that Spanish workers clearly dislike having a fixed-term contract or a casual contract (as compared to having a permanent contract). Dutch workers instead only show a dislike for fixed-term contracts of a year or less. Dutch workers with a fixed-term contract of more than a year or a casual contract do not seem to be less satisfied with their job than individuals with permanent contracts. Similar results are found when using the low and medium skilled workers sample (EPICURUS dataset). *Ex ante* worker preferences slightly differ from the *ex post* to the extent that the *ex ante* preference for a secure types of contracts over uncertain types is mostly statistically significant for all European workers.

Workers with temporary type of contracts experience a larger probability of job termination. Nevertheless, the perceived job insecurity that workers experience may depend on more than just the type of contract. The EPICURUS project has therefore examined the relationship between individual's perceived risk of losing the job (on a 4 point scale) and job satisfaction. As expected, the results show that (after controlling for endogeneity) perceived uncertainty about current job retention has a negative effect on job satisfaction. These findings are also confirmed by the strong negative relationship between unemployment and psychological health.

The importance of training for job satisfaction is empirically difficult to assess. The reason is that it seems likely that individuals who are more productive and more satisfied with their job are also the ones who receive more training. Therefore the researcher faces a case of endogenous relationship since more training leads to more job satisfaction but also higher job satisfaction increases the probability of obtaining more training. The empirically estimated relationship between training and job satisfaction is very weak for the national working population (ECHP) and positive for the low and medium skilled workers (EPICURUS), except for Finland and Greece. Consistently, the low and medium skilled workers' *ex ante* job preferences also indicate a preference for job training, now except for Finland only.

Next the analysis turns to examine the relationship between job intensity and pressure, work effort, and repetitive work and job satisfaction. This can only be done for the low and medium skilled workers, as the ECHP does not contain enough information. The findings for the *ex ante* with the ones of the *ex post* job utility are compared.

High work pressure shows mostly a negative and statistically significant relationship with *experienced* job satisfaction. This effect however is not present for the UK, which contrasts with previous literature. Similar results are found for the *ex ante* job utility regarding the work intensity (working under high speed and tight deadlines).

Working conditions (dangerousness, physical tiredness and environmental quality of the job) is a very relevant aspect of job satisfaction for all countries.

Having a non-repetitive job has a positive and statistically significant effect on job satisfaction for almost all countries except Finland and Greece. The empirical analysis of the workers *ex ante* preferences corroborates that having a repetitive job mostly has a negative impact on job valuations. This result is in accordance with the view that intrinsic aspects of the job that are inherent in the conduct of the work itself like autonomy, amount of task variety or challenging work are of primary importance for job satisfaction (see Warr, 1999).

In the recent decades, European women have significantly increased their participation in the labour market. In terms of individual's quality of life, it is important to see what the level of job satisfaction is for women and how it compares with their male counterparts. The EPICURUS team has realized that these are very difficult questions to resolve. In the recent years it is thought that women are, in general, more satisfied with their job than men. Researchers argue that this is due to the lower expectations women have when compared to men. Nevertheless, in the EPICURUS research it is found that the positive correlation between being a women and having high job satisfaction is not present in all

EU countries. In addition, the French team showed that the coefficient of “being a women” is very sensitive to the included variables in the job satisfaction specifications. This indicates that, at least partly, the differences on job satisfaction are due to the different type of work that men and women perform. In effect, the main reason why women reported to be less satisfied is because they do not perform supervising jobs. In the near future, it is interesting to further research this issue and to further disentangle the job satisfaction differences between genders to evaluate whether they are due to 1) different expectations and preferences; and (2) heterogeneity on the type of jobs the two genders perform.

Finally the effect that incentives (introduced to increase workers effort) have on job satisfaction is discussed. First, it is important to keep in mind that most introduced incentives are monetary. However, the EPICURUS project has concluded that workers tend to value more the intrinsic characteristics of the job task performed than the pay they get. Therefore if policymakers aim at increasing job satisfaction (which in turn increases effort), non-monetary incentives are bound to be very effective. One of the debates in the EU countries is the introduction (or not) of performance pay measures for public workers. The EPICURUS team has found that workers in NGO’s organisations are intrinsically motivated agents and one should not expect to improve their efficiency by introducing an incentive scheme.

The effect of pay performance system, which has been extensively introduced in the last years, has been studied for the UK. The analysis shows that incentive pay only has a positive effect on job satisfaction of high-paid workers. Low paid workers instead perceive these incentive schemes as a control measure (rather than a way of recognition) and therefore perceive it as a negative characteristic of their job.

(2) How does job satisfaction influence the quality of life and well-being of individuals across different EU countries, given different social norms?

In addressing the above question the impact that working patterns on individuals job satisfaction is studied. The next logical step is to examine how important is satisfaction with own work for individuals quality of life. Only then one can assess the importance of work patterns for the quality of life of workers in Europe. Until recently, little have been known about the relationship of satisfaction with various domains of life (e.g. job, financial situation, health, and social life) and total life satisfaction, also called quality of life, happiness, or well-being. In the literature only Van Praag, Frijters, and Ferrer-i-Carbonell (2003) and Van Praag and Ferrer-i-Carbonell (2004) had offer what they call a

full model of life satisfaction. From these studies it is known that in the UK, social life satisfaction is the most important domain satisfaction.

The EPICURUS team has examined the importance of each domain satisfaction for the life satisfaction of low and medium skilled workers in the seven European countries. Unfortunately, such a study could not be realized for the total working population, as in the ECHP panel data there is no question that asks respondents to rate their satisfaction with life in general. The empirical relationship between the various domain satisfactions (satisfaction with financial situation, house, health, amount of leisure, use of leisure, social life, environment, family, and job) and the general life satisfaction is examined for all seven countries together.

The empirical findings show that job satisfaction is the most important domain satisfaction for a low and medium skilled workers well-being. After job satisfaction, satisfaction with family, use of leisure, health, finance, and social life are the most important domain satisfaction. At some distance follow satisfaction with the amount of leisure, the environment and the housing situation.

(3) How can we improve our understanding and assessment of how people change their perceptions of their quality of life and well being in response to changes in labour market status and social norms by eliciting their preference priority setting behaviour?

This question is addressed in two stages. In the first stage, data collected from a series of experimental sessions are statistically explored. The economic experiments are designed to complement, support and validate the responses received on three hypothetical control questions when the responses are obtained before the experimental session.

The experimental part of the project has four different but related objectives: The first is to propose an abstract labour market environment. This allows the study of some important phenomena and features underlying the mechanics of real world labour markets, like the worker's reservation wage and the role of unemployment or the role of long-term contracts on salaries, in isolation from other factors. The second objective is the study of the relationship between questionnaire respondents' and experimental subjects' valuations of the abstract environment. A third is to compare hypothetical and revealed valuations obtained from the application of an incentive compatible preference elicitation mechanism. The fourth objective is make country, population-level and within group comparisons of the hypothetical and real evaluations of the abstract labour market environment under different treatments, including *ex post* hypothetical evaluations.

The analysis of the data identifies a number of interesting issues. It shows that the declared valuations of the EPICURUS survey questionnaire respondents and the declared valuations of the experimental subjects are similar within the same country and the same labour market context. Furthermore, country differences are not significant regarding the valuations at average population level. The most persistent finding is that valuations do not depend on the quantity of experience accumulated during the evolution of experimental sessions and this partly explains why the *ex ante* hypothetical valuations and the revealed ones do not differ from each other. This is a major finding of this experimental study, as it confirms the reliability of the individual subjects' responses to the valuation questions framed as judgements on hypothetical labour market conditions in survey data (the vignette part of the EPICURUS survey questionnaire).

Having established the reliability of the individual responses on hypothetical labour market conditions, in the second stage, the researchers use the EPICURUS dataset to compare the empirical results found with the use of subjective questions with the ones found using conjoint analysis. The first results disentangle the relationship between individuals' subjective satisfaction with their current job and the characteristics of the job they have. The second results instead examine the relationship between a hypothetical job (defined according to a number of characteristics) and the value that individuals assign to such hypothetical job. The comparison of such results shed some light on the possible differences between *ex ante* en *ex post* valuation of a job. These differences indicate how individuals change their perceptions of what is a good and a bad job in response to changes in their own job situation.

The differences between both measures of satisfaction with job have been discussed when addressing question (1). Here the focus is on the general discussion of these issues.

Satisfaction with own job is a hedonic concept and as such it is about individuals feelings in relation to a situation they are experiencing. Psychologists have shown that such feelings are alterable. Individuals can adapt to a situation that they experience by changing their expectations and beliefs, so as to reduce cognitive dissonance. Valuation of hypothetical jobs instead is an *a priory* valuation. In this sense, it is an anticipated measure of job satisfaction. This reflects how individuals feel now about a situation they are not experiencing. Therefore, it is much affected by the individual's predictive capacity.

The study carried out by the EPICURUS members shows that the two methods seem to carry different types of information. Hence, there seem to be two concepts of utility or satisfaction.

The job-satisfaction question (generating information on experienced utility) provides information on the satisfaction level that workers derive from their own work. Therefore, it provides interesting and useful information to employers who aim at improving the quality of life of their employees (and thus their productivity) and to politicians interested on knowing the welfare effects of their job policies and of the labour market situation and changes. The conjoint analysis method (providing information on anticipated utility), by contrast, seems useful for understanding how individuals may decide between various jobs. The comparison of the two methods provides us with information about adaptation and an individual's predictive capacity.

2. Research relevance, policy implications and future research

2.1. How the state of the art was advanced with the EPICURUS project and the transnational applicability of the findings

The literature on subjective satisfaction, which includes not only job satisfaction but also the use of other subjective measures such as satisfaction with life in general, has experienced a significant growth in the last decade. Many researchers are using such measures as a proxy to individual welfare, well-being, or job utility. The usefulness of such measures for policy analysis has also been amply recognized in the last years. Many governments¹⁴ have shown interest in using subjective measures to understand how individuals' well-being is affected by daily life situations. In this way, governments can (1) develop measures that help to improve their citizens' happiness, and well being and (2) better understand what is the impact of newly implemented policy.

This project has mainly focused on job satisfaction and on what are its determinants. Despite the increased interest in subjective measures, a systematic study of job satisfaction (and also of well-being) across Europe was missing. The lack of data, the relatively recent start of this research area, and the lack of resources are probably the reasons for this. Few researchers have looked at job satisfaction for one or two countries. However the EPICURUS project is the first attempt to present a systematic cross-country comparison that is aimed at tackling a number of relevant issues in the labour market. The EPICURUS members have realized that the relationship of certain job and individual characteristics with job satisfaction is not invariable across Europe. Therefore, it is

¹⁴ In addition happiness research has increasingly attracted the attention of the media.

paramount to have such cross-country studies before and not to rush to policy conclusions drawn from research on only one country.

The earlier job satisfaction studies are mainly motivated by theoretical questions and the own research interests of those who investigated the subject. These studies clearly contributed to the advancement of the science but did not necessarily influence the policy-making agenda. Policy makers, however, are usually interested in research on topics that relate to recent changes, are politically relevant, and that they can use the research outcomes of for formulating policy. The EPICURUS project team has focused on issues that are on the political agenda of the European Union. To this effect EU reports, such as *Employment in Europe*, have been reviewed so as the researcher to obtain a good understanding of the politically relevant and exciting questions. Naturally, the EPICURUS researchers have also tackled other issues which are interesting from a theoretical perspective even if they do not have a direct application for current policy making. Thus, for example examining the effect of relative wages on job satisfaction does make a contribution to the advancement of science and seems relevant for policy makers at all levels at the same time and may also be useful for predicting trade union responses to macroeconomic policies that affect wage relativities.

It is encouraging that policy makers are open to and realise the usefulness of subjective questions. From a scientific perspective, it is fruitful not only to perform empirical analysis using subjective questions but also to continue looking for other subjective measures of satisfaction and to further understand the information that these questions provide in finding out the mechanisms that determine individual satisfaction. To this end, EPICURUS has added to the literature a novel technique for measuring satisfaction, namely the conjoint analysis. With this technique, individuals are asked to value a set of hypothetical job situations. These individual answers provide information on ex-ante or anticipated satisfaction. Subjective questions that by contrast ask individuals to evaluate their current situation relate to individual ex-post or experienced utility. This means that these two methods provide different information on an individual's utility and preferences. Comparing the information provided by these two methods has given us a unique opportunity to further understand how individuals build their satisfaction.

Another important novelty of this project is the use of laboratory experiments. Among others, these experiments helped (1) to understand how individual answers vary in different settings, namely questionnaires (stated preferences) and experiments (revealed preferences), and (2) to increase our knowledge of how real labour markets work. Given the increasing popularity of subjective measures, we consider the first issue (validating the responses to questionnaires using an experimental setting) of extreme importance

for the advancement of science. Interestingly, the experiments, which were set up uniformly, also enabled international comparison.

2.2. Policy Implications

Introduction

A justifiable question is why one should be interested in studying job satisfaction in Europe. Since the year 2000, the EU has advocated the improvement of job quality. Since the adoption of the Lisbon strategy, the political agenda of the EU has not only given priority to the creation of more jobs but also the development of the quality of work. In order to achieve this, one needs to first know what a good job is, that is, the determinants of job quality have to be established. There are two main ways to succeed in this. First, one can use subjective questions as a proxy for job quality. In this case, job quality is studied by means of the answers to a subjective job-satisfaction question. Hence, it is the workers themselves who define the quality of their jobs. In order to understand what a good job is, the researcher looks at the relationship between a worker's job characteristics and his or her job satisfaction. This contrasts with the second approach that focuses on objective indicators of job quality. In this case, it is the researcher who, using theoretical and empirical information, defines what constitutes a good job. The two methods are both useful and, to certain extent, complementary.

Returning to the main issue, one should be interested in job satisfaction as a means for understanding what workers themselves consider a good or a bad job. Only once this is known, the objective of providing better jobs can be achieved. Job satisfaction questions provide the necessary information to classify jobs according to their quality. Thus, it is a useful instrument to evaluate a worker's current situation, and to see the well-being effects of policy measures and labour market changes. In short, investigating workers' responses to job satisfaction questions offers the tools for developing policies aimed at providing better jobs to workers.

In addition, it has been proven that individuals who enjoy high job satisfaction (i.e. have a better job) have a lower probability to quit their jobs and are also more productive. Therefore, providing a better job may be a desirable way to go for attracting individuals to the labour market and for making sure that they remain in it. Attracting is important for groups such as youths and women with lower employment participation; particularly if it is for Europe to return to the higher levels of jobs growth of the late 1990s. Furthermore, ensuring participation in the workforce is of a paramount importance for sustaining the generally high employment rates at prime age and beyond, for older workers.

Given the above, it is not surprising that policy authorities at national and at the European level have become very interested in about the issue of job satisfaction and how this new instrument can help them to develop new policies and help on their implementation. With the help of job-satisfaction measures, the researcher can observe the welfare impact of changes in the labour market, evaluate current priorities of policy making (e.g. training, job security, balancing family job) and suggest new ones. The distinction between *ex ante* and *ex post* satisfaction (III 5.) is also of extreme relevance for policy makers as it can help to distinguish between the immediate effect of a policy and its long-term effect.

Finally, it is important to carefully investigate the issue of job satisfaction because according to the outcomes of the EPICURUS research it is the most important domain satisfaction for individual well-being since a good job turns out to be the most important contributor to a worker's well-being. In addition, being unemployed has an important negative impact on an individual's well-being. Therefore, policies that promote active engagement of individuals in the active workforce and provide them with a good quality job is not only good for the economy, is also good for the well-being and happiness of the EU citizens.

Section below carefully spells out how the research carried out by the EPICURUS team project can provide policy-relevant information on what constitutes a good job and what the better jobs to be created look like for different aspects of work and working life.

What have we learned from this project in terms of policy implications.

As is repeatedly indicated in this report recent decades have witnessed major changes in the European labour markets. The effect of globalisation in product markets and its consequences on the intensification of competition in European labour markets have provoked changes in the structure of employment. Most notably, there has been a shift from agriculture to industry and, in recent decades, a strong one from industry to the service sector.

Furthermore, the nature of the workplace has changed. There is a drive for the establishment of new high-performance workplace practices and participative management techniques. These practices imply a less hierarchical distribution of responsibilities with more autonomy of decisions given to the employees. Atypical, non-standard employment is widely used by employers and the incidence of part-time and/or temporary work has increased reflecting a greater incidence of fixed-term contracts and temporary agency work. This in turn generated discomfort among both policy authorities and trade unionist as the shift towards such atypical forms of employment may

negatively affect the quality of employment – in terms of security, work-life balance, training, safety at work and the like.

Two further developments in the European labour markets are also important; first, the recent European Enlargement brought in new member states which have structurally different economies and labour markets. The implementation of a market-oriented organization of work in these countries is expected to have important implications for quality of work and life of the workforce. Second, the profile of the working population has changed. Women's participation has increased significantly, which may have contributed to the recent low fertility rates in most European countries which, in turn, have resulted in an ageing population.

These changes are of major concern to policy making for both the European and the national authorities. The concern is reflected in the decisions of the European Summit at Laeken (Dec 2001), which are included in European Guidelines 2002. The decisions explicitly adopted key 'objective' and 'subjective' indicators for the quality of work and of employment.

The EPICURUS project is concentrated on those topics that are, at present, politically and socially important. Based on the outcomes obtained in the project, this research is able to provide some interesting insights for policy makers concerning:

- the type of contract;
- the working hours and working times;
- the human capital investment;
- the population aging and retirement policies; and
- the health and well-being.

The above will be discussed in sequence below. At the end of the section few additional issues concerning the effect of workplace arrangements on job satisfaction will be also highlighted.

2.2. Type of contract

Since the 1980s labour markets in Europe have witnessed a sharp increase in temporary employment. Evidence from the U.K. (Booth et al. (2000))¹⁵ showed that temporary jobs are not desirable as a means of long-term careers. They typically pay less than corresponding permanent jobs, are associated with lower levels of job satisfaction and poorer work-related training. Moreover, the study found evidence that fixed-term contracts are effective stepping-stones towards permanent jobs. Interestingly, women who started with a fixed-term job and then moved to a permanent job fully caught up to the wage level earned by women who began their careers in permanent work. By contrast, men whose initial employment was on a fixed-term contract suffered a 5 per cent long-term loss in wages compared to their permanent equivalents. Overall, it appears that there is a strong correlation of temporary jobs with poor working conditions, such as high physical risks, painful working positions, employment in an environment with vibrations or noise, employment offering no training, and with high work intensity such as work at high speed, repetitive work, work where employees have no control of the pace of work.

In the research of the EPICURUS project the job satisfaction estimation results confirm that in most countries temporary workers are less satisfied than those in permanent contracts. The conjoint analysis results confirm that people across Europe desire contractual security. From the conjoint analysis, it is concluded that workers need a wage premium ranging from 20% to 80% to compensate them in terms of well-being for job insecurity.

However the negative relationship between temporary contracts and job satisfaction differs among countries. In the EPICURUS project Ferrer Carbonell *et al* () have carefully compared the results for Spain with the ones for Netherlands. These two countries have very different labour markets, at least concerning the type of contract. The results clearly indicate that the effect of the "same" type of contract on job satisfaction varies between the two countries: while for Spain not having a permanent contract has a considerable negative impact on job satisfaction, the effect is much smaller (if any) in the Netherlands. The researchers conclude that these differences are not due to different individual's personalities but to the different levels of uncertainty associated with the type of contract. In Spain temporary contracts are a dead end. In contrast, in the

¹⁵ Booth, A.L., M. Franscesconi, and J. Frank. (June 2002). Temporary Jobs: Stepping Stones or Dead Ends? *Economic Journal*. 112 (480): 189-213

Netherlands a temporary contract is a transitory state to a more stable situation (stepping stones).

Therefore, when designing policies aimed at improving workers satisfaction with their work, it is very important policy makers should not overlook existing country differences. Though the type of contract is the same across Europe, its use and its impact on worker satisfaction can differ largely. Emphasis in policymaking should be put on making temporary contracts attractive to individuals and enhancing their role as stepping-stones into high-quality employment and reducing employment uncertainty. This can be achieved by:

- focusing on increasing the share of voluntary part-time work, as well as introducing more flexibility (in terms of working hours, right to transfer acquired social rights and the like) in permanent contracts and more security in fixed-term ones;
- ensuring the implementation of the EU Directives for Temporary and Part-time work

Policy authorities should carefully consider methods to ensure that workers under different contract statutes enjoy:

- i) to lifelong learning in order to enable individuals similar to those in permanent contracts access to enable them to move more easily from job to job.
- ii) good working conditions
- iii) appropriate protection against discrimination or unfair dismissal,
- iv) insurance coverage and support in the case of job loss
- v) decent pay
- vi) the right to transfer acquired social rights namely pensions or health insurance from job to job and from employer to employer to facilitate job mobility and 'employability for life'.

In this way the concept of 'flexisecurity' or Lifetime Employability (Commission, 2003, p. 14) can be easily implemented.

2.3. Working hours and working times: work-life balance

Work-life balance depends on the number of working hours, the flexibility of working times and importantly on the presence of multiple job holding. Employed individuals who are involved in household tasks, overseeing the rearing and the education of children or taking the care of elderly, suffer a double workload. Since irregular working hours are a frequent norm today (work nights, weekends, shifts) reconciling work and non-work life is of major importance for both the well-being of the individuals and the increase of current employment rates.

In the EPICURUS research, the conjoint analysis results show that people mostly prefer 25-30 hours of work per week. The expressed preference for fewer working hours implies that employers would require increased work intensity, if they are to retain the pay levels unaltered. In addition, the EPICURUS project found that voluntary part-time workers enjoy a larger job satisfaction compared to full-timers, *ceteris paribus* while involuntary part-time work is generally related to worker dissatisfaction. The latter seems to indicate that policy makers should take measures to improve the relative conditions of part-time employment. Furthermore the results suggest that British and Scandinavian workers prefer flexible working times in contrast to workers in the remaining countries who prefer office hours. In addition, a general dislike in all countries of rotating shifts is revealed.

The above results suggest that policy authorities may:

- pursue policies of ‘chosen work time’ that facilitates a process by which individuals can adapt their working hours to their preferences (e.g. pursue policies that facilitate voluntary part-time). In particular working hours should be adjusted to their other responsibilities, such as care for children and other dependants. This would add to the improvement of the quality of jobs (e.g. flexi-time);
- put emphasis on predictability and dialogue between employers and employees, that is, when flexibility of hours is negotiated with employees, they should be given ample time to adjust non-working responsibilities. In such a case flexibility of working hours and shift work might have positive outcomes or at least no harmful effects on workers welfare.

2.4. Human Capital Investment

Evidence suggests that there is an overall increase in required competences in the European labour markets arising from the need of employers to fill increasingly more highly skilled occupations. The knowledge-based economy with the development of new technologies and new forms of work organization increasingly require higher levels of qualifications and skills. However, the distribution of labour skills is not identical across the EU countries. North Europe exhibits a high human capital in contrast to the South. Furthermore the skill distribution is not the same for groups of individuals. Thus for example those on temporary contracts are disadvantaged in terms of provision of training compared to those on permanent contracts.

The market for training is plagued with market failures including immobility, credit constraints, externalities, lack of insurance and coordination problems. In the EPICURUS project it is found that training has a positive effect on the job satisfaction of mostly low skilled workers who lack in general skills. These workers desire training opportunities. When searching for a job the provision of training is an important factor for the decision to accept the job. However, to this result a caveat should be added, as it is difficult to determine the direction of this correlation that is whether individuals with training enjoy a larger job satisfaction or that, the other way around, individuals with higher job satisfaction are offered more training.

The knowledge-based society requires investment in human resources to encourage workers to acquire life-long skills, accept labour market mobility and the implied uncertainty and develop 'lifetime employability'. The skills-gap in many countries is likely to be attributed to the supply-side of the market. There is therefore a strong case for government intervention (e.g. training subsidies financed by tax on skilled wages or firm's profits – Stevens, 1999). There is also a need to pursue educational policies that match demand and supply of vocational skills. To this effect the development of Technical Education Institutions as part of the national educational systems of the member states may facilitate the bridging of the skill gap.

2.5. Ageing and Retirement

The health care and pension and welfare systems of most European Union countries are under increasing pressure to cope with the demands of their ageing populations over the coming years. As the post-war baby-boomers approach retirement, combined with declining fertility rates, the ratio of people aged 65 and over to the working-age population is set to rise. An example of the looming demographic 'cliff' is the case of the

United Kingdom. The cross-section dependency ratio (defined as those aged 65 and older as a percentage of those aged 20-64) is projected to rise from 27% to 45% over the next 30 years as within the EU the number of workers aged between 50 and 64 will increase by 25% over the next two decades. This unfavourable demographic evolution is likely to put a strain on the public finances of most developed economies since, *ceteris paribus*, fewer workers and taxpayers will be working to support the social insurance and public health care systems in the future. To give an example of the financial implications, if, for instance, pensioners are to maintain their living standards in relation to the rest of society, the share of GDP transferred to them will have to rise sharply, from 9.4% today to 14.5% in 2050. The economic consequences of the ageing process are therefore projected to be large.

In the EPICURUS research the conjoint results show a preference for early retirement. If employees were to be convinced to sign contracts with no early retirement plans, they would need to be compensated with a 10-25% wage premium on average. However it is also found that older individuals prefer to work shorter hours and more flexible work hours.

In the future, it is important to stimulate further research on what determines the job satisfaction of people above 55. It is important to examine, for example, whether workers older than 55 would be satisfied with having a voluntary part-time job. If this is the case, the transition from work to early retirement could be smoothed by introducing part-time working.

There are a number of policy implications of the above findings that can be summarised as follows:

- Promoting active ageing by adapting life-cycle working hours and reorganizing the workplace to provide incentives to individuals to remain in work after the early retirement age (e.g. telework). In other words, to facilitate adjustment of working hours over the life-cycle.
- Introducing incentives to employers to retain or recruit older workers and penalties to discourage dismissal of older workers who are willing to continue their active engagement in the labour market.
- Introducing incentives for employees to remain in the active labour force. One way of introducing such incentive is pension reform aimed at increasing the employment rate of older workers and increasing the effective retirement age, at least on a voluntary basis.

2.6. Health and well-being

The changing nature of work due to the introduction of new technology and the establishment of larger production units intensified the division of labour and worker specialization. These changes at the workplace have caused a deskilling of a part of the labour force; they have increased in the incidence of repetitive work and the time pressures. As a result a number of disorders such as musculoskeletal disorders, back pain, psychosocial problems (stress-related illnesses), and occupational risks are on the rise. Moreover, the proliferation of the so called 'New High-Performance Workplaces' which allocate more autonomy and responsibility to the individual worker have further contributed to the increase in stress and work intensity.

In the EPICURUS research the job-satisfaction estimation results show that (a) healthier workers are happier, (b) high intensity and repetitive work conditions reduce job satisfaction and (c) high work pressure, task repetitiveness, low chances of promotion, and bad working conditions (in terms of dangerousness and quality) are detrimental to individual well-being. Further, the conjoint analysis results point to aversion to high intensity (in terms of speed of task performance and short deadlines) of work. The strong negative correlation between absenteeism and job quality may also partly reflect the need for better working conditions with tighter health and safety procedures if one assumes that lost days at work are usually a consequence of accidents at work, work-related illnesses and occupational diseases.

Hence policy authorities should put more emphasis on intensifying efforts aimed at implementing the provisions of the EU Health and Safety at Work Directives.

2.7. Some additional topics

The preference for autonomy in the workplace can also be seen by the fact that the employees declare a significant distaste for engaging in fixed routines. Nevertheless, with the exception of the Scandinavians, any rules that constrain the scope of the worker's autonomy are seen as a positive asset by European workers, since to be given fixed tasks and freedom to decide when and how the execution of the task should be done is preferred to having complete control over the contents of the work. This result might arise due to the fact that when the tasks become more complex, positive involvement can degenerate in pain if internal pressure of time and responsibility accumulates.

Remarkably, workers do not seem to be significantly concerned with the existence of teamwork in their workplaces, despite the widespread popularity of 'teams' as a form of personnel management within firms. This potentially reflects the employees' beliefs that

teamwork counteracts their decision-making independence, while it is also well-documented experimentally that individuals dislike free-riding that takes place within teams (Gachter and Fehr, 1999). British workers appear to be the only ones who seem to appreciate the challenge and new experiences that are associated with being placed in varying teams.

One EPICURUS study, Pouliakas and Theodossiou (2006), reveals a strong inclination on behalf of low-skilled employees (of the EPICURUS dataset) in favour of reorganizing employment away from the traditional mode, which involves a task-specialized structure that can be easily monitored via an 'impersonal' pyramidal hierarchy of line management and mechanical controls, towards the so-called 'new high performance workplace practices'. These typically entail a more task-integrated and flatter organizational structure (Lindbeck and Snower, 2000), with a decentralization of responsibility and worker participation in decision making. The expressed desire of employees for more autonomy, coupled with their aversion for rule by fear, also gives credence to the contemporary fashion of "participative" management.

New high-performance workplace practices are also usually accompanied by performance-based payment schemes (Gupta and Eriksson, 2005). Based on the subjective beliefs of workers in Pouliakas and Theodossiou (2006), incentives that make pay depend on performance are regarded as effective instruments, though financial rewards have little effect on the long-run level of motivation. When effective financial incentives exist, then these financial incentives and employee goodwill should be thought of as mutually reinforcing (Bewley, 1999, p. 431). After all, "workers have so many opportunities to take advantage of employers that it is not wise to depend on coercion and financial incentives alone as motivators" (ibid., p. 431). The workers in the above study seem to adhere to this statement, as they also responded favourably to the Akerlof idea of loyalty and reciprocation to their employers' 'gifts'. Hence, firm loyalty –either workers to the firm or the firm to its workers – may not be values of a bygone era.

Within the EPICURUS project, McCausland, Pouliakas and Theodossiou (2005) argue that financial incentives are likely to be beneficial for the job satisfaction of high-paid workers only. For the low paid these incentives may be ineffective as they are unable to bear the financial risk that such payment systems entail.

Women's participation in the labour market has significantly increased in the last decades. Nevertheless, female participation in itself is not the only objective for policy makers. Instead, policy makers in all EU countries and at the EU level target as one objective gender inequality, which means, among others, that men and women should

have equal access to good jobs and promotion prospects. To examine whether this is the case, one needs to look further than simply exploring the relationship between gender and job satisfaction. The reason is that this relationship is contaminated by the expectations held by the workers of the two genders: if women are less demanding concerning their job than men, they will be more easily satisfied with a lower quality job. In the EPICURUS project though this issue is not fully disentangled, the research has gone beyond earlier studies and concludes that one of the main reasons why women report to be less satisfied is because they do not perform supervising jobs. Therefore, there seems to be a selection into different jobs depending on gender. In this selection, women tend to acquire jobs that lead to a lower job satisfaction. The EU and policy makers should therefore aim at prompting gender anti-discrimination policies in the context of promotion opportunities and not solely in the context of pay.

3. Concluding Remarks on General Policies

The EPICURUS research confirms the concerns expressed in the literature regarding the harmful 'scarring effect' of unemployment in the sense that prior unemployment experience increases the likelihood of an individual experiencing further unemployment. There is a need for activation and prevention policies aiming at smoother transitions from unemployment and inactivity to employment. Hence, there is a need for welfare policies to cushion the negative non-pecuniary effects of joblessness. Such policy initiatives may also reduce the long-run unemployment rates in the European Union.

In the EPICURUS project research suggests that that job satisfaction is the most important facet of life satisfaction. Therefore there is a need to use tax or benefit instruments to reduce the likelihood of unemployment and poverty traps, especially for the most vulnerable groups of population such as the young, the old, and the low skilled.

The promotion of a culture of life-long learning and the increase of incentives to the employers to invest in skills via tax subsidies and the like seems to be a fruitful avenue towards the aim of full employment. Educational authorities should consider ways to improve evaluation, accreditation, and certification of continuous vocational training Europe-wide. In addition, policy makers at the national and European level should implement policies and legislation ensuring that workers under different contract statutes enjoy similar access to lifelong learning, good working conditions, appropriate protection against discrimination or unfair dismissal, support in the case of job loss, decent pay, and the right to transfer acquired social rights in the case of job mobility.

For work-life balance policies the promotion of better and wider access to care services for children and other dependents, more flexible and predictable working-time

organization, part-time work facilities and facilitation of parental leave arrangements will lead to a better work-life balance, a higher employment rate, more career opportunities for women, thus reducing any gender gaps in opportunities.

It appears that there is a need to promote more flexibility in the permanent contracts (in terms of working hours arrangements, transferability of social rights and the like), more security in fixed-term ones in the context of 'lifelong employability'. There is also a need for opening up the 'upper tier' of the labour market that is insulated/occupied by insiders in some but not all countries (Pouliakas and Theodossiou, 2005). This may be implemented by pursuing policies that remove low-wage employment in segmented labour markets via the coverage of minimum wages and training provisions.

Promoting active ageing by adapting life-cycle working hours and reorganizing workplaces to provide incentives to the older workers to remain in work is an important way to ease the ageing population pressure on the health and pension systems. This can be done by introducing incentives to employers to retain or recruit older workers and penalties to discourage their dismissal. Pension reform is important. This should increase employment rates of older workers and raise effective exit age. Finally, pursuing health and safety at work will keep more people in the labour market, especially in the context of ageing. This requires legislation, social dialogue, corporate social responsibility and implementing economic incentives.

Importantly, the EPICURUS research has revealed that in terms of job conditions individuals seem to exhibit psychological phenomena such as adaptation and cognitive dissonance. Thus they are able to adapt to new job situations and to manage their exposition to more uncertainty and risk in the labour market to a reasonable degree without adverse effects on health. However there is a need for a safety net but most importantly it is essential for the economic environment to be able to generate plentiful available jobs for the workers to move. Supply-side policy recommendations such as some of those generated by the EPICURUS project are useful only when the macroeconomic environment and the demand side manage to generate enough job vacancies to make job-to-job mobility viable in practice.

4. Transnational Applicability and Future research

The cross-country comparison has been an important aspect of this project. Thanks to the effort to present a unique model across countries and use similar (EHP) or identical (EPICURUS) data sets, the researchers of the EPICURUS team have been succeeded to map the relationship between individual personal and job characteristics and job satisfaction across seven European countries. This has led to the realisation that this relationship can differ significantly across EU countries. For that reason it is important to continue the research in this direction to uncover and understand the reasons for this divergence and European Commission projects such as EPICURUS are an important platform for doing such research.

The introduction of a new method, namely conjoint analysis, to study job satisfaction is a novelty in the literature. The experience acquired by the EPICURUS project can certainly be used to further explore this method and the differences with the "traditional" job satisfaction method. In the frame of the EPICURUS project the researchers were able to adapt this research method to (job) satisfaction and well being, to create the data, and to provide with a first set of analysis.

Nevertheless, the generation of such valuable data needs to be further encouraged. It is highly advisable to collect similar datasets through time and across countries with the aim of creating panel datasets. These will offer the opportunity to solve some statistical problems that cannot be dealt with in cross-section framework. Furthermore, two main questions appear to be answered by future research: (1) Can *ex-ante* utility provide information on how individuals decide between various jobs?, and (2) Can *ex post* utility predict job separations and quits?

Given the positive results obtained with the conjoint analysis method and the useful lessons learned from the comparison of conjoint analysis results with the job-satisfaction estimation method, it would be very interesting to extend the exercise to satisfaction with other facets of life or with life in general. This would clearly help to advance the research on happiness by (1) providing a new tool, (2) identifying different types of happiness (namely *ex-ante* and *ex-post*), and (3) understanding the mechanisms that determine individual happiness.

Despite the wealth of results obtained in the project, not all members states could be covered certain issues could not yet be fully exploited. To mention only few examples, more research is needed to examine gender and age effects, the relationship between educational attainments and job quality (so as, for instance, to disentangle the

expectations from the achievements effects or consider the paramount effect of work content on job satisfaction), job satisfaction differences among industry sectors with different growth, and tackle the issue of the endogeneity of training in estimated models. The determinants of job satisfaction should be further examined by looking at different age brackets. Importantly, more attention needs to be given to workers above 55 years so as to understand how they could be induced to stay active in the labour market. This is also relevant for the youths as their employment participation differs substantially between countries and contributes significantly to the international differences in employment rates. Job satisfaction may not turn out to be a major explanation here but this should be verified as international differences in happiness for young persons do exist between countries and it seems to bear some relation to their involvement in employment. Similarly, if the EU Employment Strategy aims at increasing female participation in the labour market, this group should be examined separately from male workers so as to gain further insights.

The enormous effort spent on producing new data (EPICURUS) to better understand the impact of changes in the labour market on job satisfaction and happiness has clearly proven to be rewarding and fruitful. Not only have the EPICURUS researchers been able to introduce a new method (conjoint analysis), systematically compare different countries, and include happiness in the research, they have also been able to study the relationship between job satisfaction and job characteristics such as job intensity, work stress, and payment incentives. Hopefully this will not remain an isolated effort. The EPICURUS research team hopes to continue to gather data to investigate the changes across time and, hopefully, to include new European countries into the analysis. It should also be acknowledged that the present EPICURUS dataset does not cover the employer side of the labour market though it has become clear from the results that employer behaviour and attitudes contributes substantially to the job satisfaction of the workforce.

V. DISSEMINATION AND EXPLOITATION OF RESULTS

The project has a comprehensive dissemination strategy aiming at targeting all the potential end-users (please see Dissemination report). This includes media releases, newsletters, a brochure, papers in refereed journals and reports to the EU and national authorities, for example, Department of Health, Department of Trade and Industry, Trade Union Congress in the U.K.

Published papers and articles receive extensive media attention around the world (for example, it appeared in The Times, the Financial Times, the Independent, the Guardian, the Bloomsberg Group, and several other European and non-European newspapers, and BBC radio (see also DISSEMINATION Report)). An article and a brochure in the newspaper "TA NEA" in Greece receive press attention (Dissemination report). A book on Happiness with Oxford UP is published (2004). Chapters 3 and 4 of this book look at the importance of job satisfaction for individual's quality of life. This book has received press attention in the Netherlands and Belgium. Furthermore, presentations of the book have been done. Another book on SYNTHESIS of the results is on progress. Press attention received the laboratory experiments conducted in Spain.

In Denmark the results are conveyed to the Ministry of Labour and the Ministry of Social Affairs. Professor Niels Westergård-Nielsen is Director of the Center for Corporate Performance. This Center is very closely linked to, and has an active cooperation with, some of the largest and most well-esteemed private companies in Denmark (examples include: Tele Denmark, Post Denmark, Novo (the largest medical company in Denmark), Danfoss (Engineering company), Velux (Window manufacturer), Den Danske Bank (one of the largest banks in the Nordic countries). Within this forum there is very close contact to potential users. A "large-scale" CCP meeting is planned for January/February, 2006. This meeting was for both partners of CCP (the 7 large Danish companies as well as the Association for Danish Industries) and associate researchers from Denmark as well as many international researchers. This workshop includes a series of presentations including presentations of work in the field of job satisfaction and well being.

In France, the results are disseminated to Ministry of labour, solidarity and social affairs, Ministry of finance, The Commissariat Général du Plan, The Centre of Income and Living Cost Studies, CERC, the National Institute of Demographic Studies, INED and the National Institute of Statistics and Economic Studies, INSEE. In the Netherlands, the results of the project are made available directly to the Ministry of Social Affairs and Employment and more generally through a special seminar of the AIAS.

In Spain, the results of the project are made available to the Ministerio de Trabajo and the INEM (Instituto Nacional de Empleo). Dissemination: Ministry of Labour, Ministry of Health and Social Affairs, National Research and Development Centre for Welfare and Health (STAKES), Finnish Institute of Occupational Health, labour market organisations and other social partners. In Greece, the results of the project are made available to the Institute for Social Insurance (IKA), which is the largest health-insurance fund, the Agricultural Insurance Organization (OGA) and the Ministry of Labour.

The newsletters and brochures reporting the EPICURUS findings are posted to a mailing list. The project web-page is regularly updated. The final conference in Brussels invited potential end-users. The new **EPICURUS database** for the EPICURUS project is created by carrying out the EPICURUS survey.

EPICURUS has added to the literature a novel technique for measuring satisfaction, namely the conjoint analysis. With this technique, individuals are asked to value a set of hypothetical job situations. These individual answers provide information on ex-ante or anticipated satisfaction. Subjective questions that by contrast ask individuals to evaluate their current situation relate to individual ex-post or experienced utility. This means that these two methods provide different information on an individual's utility and preferences. Comparing the information provided by these two methods has given us a unique opportunity to further understand how individuals build their satisfaction.

Another important novelty of this project is the use of laboratory experiments. Among others, these experiments help (1) to understand how individual answers vary in different settings, namely questionnaires (stated preferences) and experiments (revealed preferences), and (2) to increase our knowledge of how real labour markets work. Given the increasing popularity of subjective measures, the first issue (validating the responses to questionnaires using an experimental setting) is of extreme importance for the advancement of science. Interestingly, the experiments, which are set up uniformly, also enabled international comparison.

The experimental protocol presented in the study constitutes a novel approach to ultimatum games labelled and implemented as wage bargaining experiments and to preference elicitation concerning labour market conditions. The most novel features are the introduction of the real task and that it includes the incentive-compatible valuation procedure. A further important novelty is the combination and comparison of the incentive compatible valuation sheet with a hypothetical elicitation of preferences concerning phenomena which are closely related to the real world labour markets. In line with the standard recruitment protocols used by experimentalists in economics, the

subjects were recruited among university students. In addition, an equal number to the experimental subjects was randomly selected from the EPICURUS questionnaire respondents who answered the same control questions on the hypothetical valuation of the experimental setup in order to control for differences between the two populations (experimental subjects vs. EPICURUS questionnaire respondents).

Other aspects of dissemination (see also Dissemination report)

An extensive number of **papers and reports** have been produced and will be available on the web site. The working paper archive on the web at the partner's only area contains papers, many of which have been submitted to high quality peer-reviewed academic journals. **Press releases** have been made from partners.

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2. Bibliography

Plans to publish the outcomes of the EPICURUS project include:

- I) A standard review book of the SYNTHESIS workpackage.
- II) Papers by each of the partners, as follows.

1. Centre for European Labour Market Research (CELMR), University of Aberdeen, Scotland and Department of Economic and Social Sciences, University of Macedonia, Greece.

Socio-Economic Differences in the Perceived Quality of High and Low-Paid Jobs in Greece by K. Pouliakas and I. Theodossiou (Economic Bulletin of the Bank of Greece, vol. 24, 2005, p. 91-132).

Hedonic and Envy Effects on the Utility from Work: A Study of the Earnings Aspirations-Job Satisfaction Relationship by G. Panos, I. Theodossiou and A. Nikolaou.

Does Job Security Increase Job Satisfaction? A Study of the European Experience by A. Nikolaou, I. Theodossiou and E. Vasileiou (Submitted).

Do Career Prospects Make Happy Workers? Evidence from Panel Data by I. Theodossiou and A. Zangelidis (Submitted).

Confronting objections to performance pay: An analysis of the incentives-job satisfaction relationship after controlling for endogeneity, by K. Pouliakas and I. Theodossiou (Submitted).

Some are Punished and Some are Rewarded: A Study of the Different Impact of Performance Pay on Job Satisfaction by W. D. McCausland, K. Pouliakas and I. Theodossiou. *The International Journal of Manpower*, (2005), Vol. 26 (7/8).

Jobs as Lancaster Goods: Facets of Job Satisfaction and Overall Job Satisfaction, by A. Skalli, I. Theodossiou and Vasileiou E. (Submitted).

Workers Stated Preferences on Wages Premiums and Job Satisfaction for Dangerous Jobs. Evidence from the European Labour Market, by Vasileiou E. Working Paper to be submitted.

Making the Risk of Job Loss a Way of Life: Does it Affect Job Satisfaction?, by Theodossiou I. and Vasileiou E. Working paper to be submitted.

Socio-Economic Differences in the Perceived Quality of High and Low-Paid Jobs in Europe, by Pouliakas, K. and Theodossiou, I. (Submitted).

Rewarding Carrots, Crippling Sticks: Uncovering the Preferred Incentives of European Employees, by Pouliakas, K. and Theodossiou, I. (Submitted).

Individuals Stated Job Preferences: A Conjoint Analysis Approach. By Theodossiou, I and EPICURUS team.

2. Aarhus School of Business (ASB), Denmark.

Job satisfaction and quits: Which job characteristics matters most? by N. Kristensen and N. Westergaard-Nielsen. (Re-submitted).

Work Environment and Employee Health - Panel evidence from Denmark, France. The results from the latter paper will also appear in Geneva Association Information Newsletter, October 2005.

Reliability of Job Satisfaction Measures, by Nicolai Kristensen and Niels Westergård-Nielsen. Submitted.

Analysis of Cross Country Differences in Job Satisfaction using Anchoring Vignettes, by Nicolai Kristensen and Edvard Johansson. Submitted.

Does nominal wage rigidity prevail?, by Nicolai Kristensen and Niels Westergård-Nielsen. In preparation.

A Large Scale Study of Measurement Error in Longitudinal Survey Data, by Nicolai Kristensen and Niels Westergård-Nielsen. Submitted.

Work Environment and Employee Health - Panel evidence from Denmark, France, by Nabanita Datta Gupta and Nicolai Kristensen. Re-submitted.

Satisfaction and the Firm Wage Distribution, by Andrew Clark, Nicolai Kristensen and Niels Westergård-Nielsen. In preparation.

3. The Research Institute of the Finnish Economy (RIFE), Finland.

Johansson, Edvard: Job satisfaction in Finland – some results for the European Community Household panel 1996-2001. Discussion Paper no. 958, The Research Institute of the Finnish Economy, 2004.

Johansson, Edvard: "Irtisanomissuojan tiukentaminen ei paranna tyytyväisyyttä työturvaan" Tietoaika – Economic Trends, 2005, 4, pp. 56-59.

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4. Université Panthéon-Assas (Paris 2) (UNIP2), ERMES UMR CNRS 7017, France.

Job Satisfaction: Its Determinants and its Composition by A. Skalli, I. Theodossiou and E. Vasileiou (Submitted).

5. Laboratorio de Economia Experimental, Universitat Jaume I, Spain.

Ultimatum bargaining and preference elicitation in real-task experimental labour markets by A. García-Gallego, N. Georgantzís and I. Theodossiou (in preparation).

6. Amsterdam Institute for Advanced Labour Studies, University of Amsterdam, The Netherlands.

Ada Ferrer-i-Carbonell, Bernard M.S. van Praag and Ioannis Theodossiou. Image and Reality: the case of Job Satisfaction.(Submitted).

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[This article has received media attention in a Spain, both newspaper and the Radio]

Ada Ferrer-i-Carbonell and Frijters, P. How important is methodology for the estimates of the determinants of happiness? The Economic Journal, 114(July): 641-659.

[This article has received a large amount of media attention in various countries. The article was discussed in, among others, The Times, the Financial Times, BBC-News and

BBC-Radio, The Independent, The Guardian, Yahoo News, and several non-English speaking newspapers.]

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[This book has received press attention in the Netherlands].

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VII. ANNEXES

1. Conferences/seminars presentations

1. Centre for European Labour Market Research (CELMR), University of Aberdeen, Scotland

"Does Job Security Increase Job Satisfaction. A Study of the European Experience" (2004) with A. Nikolaou I. Theodossiou and Vasileiou E. Working Paper presented in workshop "Happiness, economics and interpersonal relationship" in Trento, 3-4 December 2004.

"Jobs as Lancaster Goods: Facets of Job Satisfaction and Overall Job Satisfaction" (2005) with A. Skalli, I. Theodossiou and Vasileiou E. Working Paper presented in the international conference "Capabilities and Happiness" in Milan, 16-18 June 2005.

"Does Job Security Increase Job Satisfaction. A Study of the European Experience" (2004) with A. Nikolaou I. Theodossiou and Vasileiou E. Paper presented in SOLE/EALE conference, San Francisco, June 2005.

Pouliakas and Theodossiou: Annual conference of the Scottish Graduate Program in Economics, Dunblane, Scotland, 14-15 Jan 2005.

Pouliakas and Theodossiou: Internal Seminar of University of Aberdeen Business School, Aberdeen, Scotland, 23 Feb 2005.

Pouliakas and Theodossiou: Annual conference of the European Low-wage Employment Research Network (LoWER), Mannheim, Germany, 15-16 Apr 2005.

The 2nd LSE PhD Symposium on Modern Greece, London, 10 June 2005.

Applied Econometrics Association, Econometrics of Labour Demand (AEA), VXXXVIII International Conference - Mons, Belgium, 7-8 October 2004.

Paper presented: Confronting objections to performance pay: An analysis of the incentives-job satisfaction relationship after controlling for endogeneity. K. Pouliakas and I. Theodossiou

Applied Econometrics Association, Econometrics of Labour Demand (AEA), VXXXVIII International Conference - Mons, Belgium, 7-8 October 2004.

Paper presented: Do career prospects make happy workers? Evidence from panel data. I. Theodossiou and A. Zangelidis

International Association for Research in Income and Wealth (IARIW), Twenty-Eighth General Conference, 2004. Cork, Ireland, 22-28 August 2004.

Discussant presentation I. Theodossiou on the paper: Are there Regional Variations in Psychological costs of Unemployment in South Africa? Psychological Evidence from SALDRU93.

University of Dundee, Department of Economics, Seminar, (April 2003, Scotland). Paper presented: Joblessness and part-time employment: Is it a matter of workers' choice. I. Theodossiou

European Science Foundation Exploratory Workshop on Subjective Well-Being Conference (September 2003, Paris). Professor I. Theodossiou was invited to chair a session on the above conference.

University of Milwaukee, Department of Economics, Seminar, USA (January, 2003). Paper presented: Labour market status and well-being. I. Theodossiou

European Society of Population Economics (ESPE), 2005, Paris, France, 16-18 June. Paper presented: Do career prospects make happy workers? Evidence from Panel data, (With A. Zangelidis),

2. Aarhus School of Business (ASB), Denmark

"Work Environment and Employee Health - Panel evidence from Denmark, France" was presented by N. Datta Gupta at IHEA, 2005 in Barcelona.

Analysis of Cross Country Differences in Job Satisfaction using Anchoring Vignettes (see section 4.3) has been presented by N. Kristensen on October 23rd at Aarhus School of Business.

Performance Measurement and Management: Public and Private (PMA), Edinburgh, UK, 28-30 July, 2004.

Paper presented: Does low job satisfaction lead to quits?

European Association of Labour Economists (EALE), Lissabon, Portugal, 9-11 September, 2004. Paper presented: Job Satisfaction and quits: Which job characteristics matters most?

Applied Econometrics Association, Econometrics of Labour Demand (AEA), VXXXVIII International Conference - Mons, Belgium, 7-8 October 2004. Paper Presented: Do all workers want training? Evidence from job satisfaction data (poster session). N. Kristensen and N. Westergård-Nielsen.

Center for Corporate Performance (CCP), Aarhus School of Business, Seminar, May 27, 2004. Presentations on a series of topics including both job satisfaction and quits and job satisfaction and income. Participants: Private business leaders, CEO's and HRM leaders.

Center for Corporate Performance (CCP), Aarhus School of Business, Concurrent meetings with partners associated to CCP (HRM managers from some of the largest Danish private companies). At these meetings work in the area of job satisfaction has also been presented.

Other publicity/dissemination: Interview on radio, August, 2004 and Interviewed for "The Engineer", in relation to a new survey about job satisfaction and search behaviour of Engineers.

3. The Research Institute of the Finnish Economy (RIFE), Finland

Partner 3 has presented results on Finnish job satisfaction from the CONVENTIONAL WP at the Summer Meeting of Finnish economists in Jyväskylä, Finland, in June 2005.

4. Université Panthéon-Assas (Paris 2) (UNIP2), ERMES UMR CNRS 7017, France

For the scientific team of Partner 4, Makram Laruem has attended the following four conferences presenting the paper: Unhappy at home? Should you blame your partner's job? An empirical study of happiness transmission:

IZA European Summer School in Labor Economics, Buch am Ammersee, April 18, 2005 - April 24, 2005.

22èmes Journées de Microéconomie Appliquée, Hammamet, 26th and 27th of may, 2005.

Capabilities and Happiness, An International Conference, University of Milano-Bicocca, 16-17 and 18th of June 2005.

Conference Ora et Labora, Rome, July 2005

"Jobs as Lancaster Goods: Facets of Job Satisfaction and Overall Job Satisfaction" (2005) with A. Skalli, I. Theodossiou and Vasileiou E. Working Paper presented in the international conference "Capabilities and Happiness" in Milan, 16-18 June 2005.

Partner 4 has attended the European Science Foundation Exploratory Workshop on Subjective Well-Being (September 2003, Paris).

5. Laboratorio de Economia Experimental, Universitat Jaume I, Spain

Aurora García-Gallego, Nikolaos Georgantzis, Georgios A. Panos, and Ioannis Theodossiou. Ultimatum salary negotiation and preference elicitation in experimental labour markets with a real task. Presented at the Trento (Italy) Conference on Economics and Happiness, December, 3-4, 2004.

Aurora García-Gallego, Nikolaos Georgantzís, Miguel Ginés-Vilar, and Ainhoa Jaramillo-Gutiérrez. Gender and Risk Attitudes in Salary Bargaining Experiments.

* Presented at the ASSET Meeting in Crete, Rethymnon, October 27-29, 2005.

* Presented at the Simposio de Analisis Económico, December 15-17, 2005, (Murcia, Spain).

* International association for Research in Economic Psychology, September 21-24, 2005 (Prague).

Aurora Garcia-Gallego, Nikolaos Georgantzis, Miguel Gines-Vilar and Ainhoa Jaramillo-Gutierrez. Cultural and Risk-related Determinants of Gender Differences in Ultimatum

Bargaining. Presented at: * International Meeting on Experimental and Behavioral Economics (IMEBE), University of Valencia, December 1-4, 2005.

6. Department of Economic and Social Sciences, University of Macedonia, Greece

"Does Job Security Increase Job Satisfaction. A Study of the European Experience" (2004) with A. Nikolaou I. Theodossiou and Vasileiou E. Working Paper presented in workshop "Happiness, economics and interpersonal relationship" in Trento, 3-4 December 2004.

Paper presented in SOLE/EALE conference, San Francisco, June 2005.

"Jobs as Lancaster Goods: Facets of Job Satisfaction and Overall Job Satisfaction" (2005) with A. Skalli, I. Theodossiou and Vasileiou E. Working Paper presented in the international conference "Capabilities and Happiness" in Milan, 16-18 June 2005.

“Workers Stated Preferences on Wages Premiums and Job Satisfaction for Dangerous Jobs. Evidence form the European Labour Market” (2005) Vasileiou Efi. Working Paper presented in 30th Annual Congress “Absurdity in the Economy” in Prague, 21-24 September.

Seminar to Bank of Greece, October 2003. Socio-Economic Differences in the Perceived Quality of High and Low-Paid Jobs in Greece by K. Pouliakas and I. Theodossiou.

Applied Econometrics Association, Econometrics of Labour Demand (AEA), VXXXVIII International Conference - Mons, Belgium, 7-8 October 2004.

Paper presented: Do career prospects make happy workers? Evidence from panel data. I. Theodossiou and A. Zangelidis.

University of Dundee, Department of Economics, Seminar, (April 2003, Scotland). Paper presented: Joblessness and part-time employment: Is it a matter of workers' choice. I. Theodossiou

European Science Foundation Exploratory Workshop on Subjective Well-Being Conference (September 2003, Paris). Professor I. Theodossiou was invited to chair a session on the above conference.

University of Milwaukee, Department of Economics, Seminar, USA (January, 2003). Paper presented: Labour market status and well-being. I. Theodossiou

Atlantic Economic Association Meeting (April, 2003, Vienna). Paper presented: The employment wage relationship: Was Keynes right after all? Apergis N. and Theodossiou I.

7. Amsterdam Institute for Advanced Labour Studies, University of Amsterdam, The Netherlands

Ada Ferrer-i-Carbonell was an invited speaker at a workshop organised by the “Instituto de Estudios Avanzados de Andalucia” from the “Consejo Superior de Investigaciones Cientificas” (CSIC). CSIC is the biggest public research organisation in Spain. December 2004, Cordoba, Spain.

Bernard.M.S. van Praag was an invited speaker at the starting conference of the UNDP-International Poverty Centre in Brasil (29-31 August 2005). The subject of the conference was The Many Dimensions of Poverty.

European Science Foundation Exploratory Workshop on Subjective Well-Being (September 2003, Paris). Papers presented:

- Ada Ferrer-i-Carbonell and Bernard van Praag. Income Satisfaction Inequality and its Causes (also published in *Journal of Economic Inequality*, 1: 107-127, 2003).

- Ada Ferrer-i-Carbonell and Paul Frijters. How important is methodology for the estimates of the determinants of happiness? (*The Economic Journal*, July 2004).

European Commission

EUR 23133 — EU RESEARCH ON SOCIAL SCIENCES AND HUMANITIES — Societal and Economic Effects on Quality of Life and Well-being: Preference Identification and Priority Setting in Response to Changes in Labour Market Status - EPICURUS

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