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3 July 2018

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July 2018

Abstract

Although social scientists have been investigating the nature and impact of job satisfaction for many decades, economists only started to investigate job satisfaction systematically in the late 1980's. Almost from the first systematic studies of job satisfaction by economists, the research potential of the notion of pay level comparisons was realized. The idea of pay level comparisons in job satisfaction has proven particularly useful also because it has important implications for a number of standard theoretical and economic policy results. However, the inclusion of the variable of comparison wage in job satisfaction and the resulting supporting empirical findings, are in sharp contrast to the orthodox approach, given that in mainstream economic theory an individuals' utility is assumed to be a function of absolute income only. Despite the important theoretical and policy implications, mainstream economic theory has not paid much heed to the job satisfaction conceptual formulations and empirical findings. The paper argues that there are methodological reasons for this state of affairs which seem to be linked to the subjective well-being research in general, and to the job satisfaction literature in particular. A strong mistrust against the method of stated preferences and the inherent methodological bias against the integration of psychological findings, are suggested as the two prime reasons. Although a few prominent figures in job satisfaction research have realized the mainstream methodological attitude, it is necessary that job satisfaction specialists should consider more seriously the basic components of mainstream economic methodology that relate to their research field.

JEL codes: J28; B4; I31; J30

Key words: job satisfaction, pay level comparisons, wages; economic methodology

I. Introduction

Social scientists have been researching the nature and impact of job satisfaction for many decades. Psychologists and especially industrial and occupational psychologists, were the first to concentrate on the issue.[1] The seminal work of Edwin Locke who suggested one of the first job satisfaction models, is an indicative example (Locke, 1976). Other specialists such as industrial relations and human resource management followed, and nowadays the study of job satisfaction is an established research area in its own right (e.g. Argyle, 1989; Spector, 1997; Judge et al, 2017).

On the contrary, economists started to investigate job satisfaction systematically only in the late 1980's. Although there were a few pioneering papers mainly by Dan Hamermesh 1977; Richard Freeman 1978, and Richard Layard 1980, the impact of job satisfaction on economic variables were not considered a legitimate or an interesting field. Economists were reluctant to investigate job satisfaction mainly because of its allegedly highly subjective nature and also because personal judgements of satisfaction and other subjective opinions were considered a research field more appropriate to other social scientists. However, in the late 1980's an increasing number of economists started to appreciate the significance of job satisfaction as an economic variable. This trend was also strengthened by Akerlof et al (1988) finding that earnings and hours of work are not of sole or even of primary importance in determining productivity and well-being at work. Furthermore, the

[1] For a historical account of psychological research on job satisfaction, see Latham and Budworth, 2007.

emergence and growth of large-scale labour market surveys that included questions about how much workers are satisfied with their job, was another factor that contributed to the increasing interest to job satisfaction. Job satisfaction research was also deemed to be important for analysing and predicting many key economic variables such as: labour turnover, labour productivity, pay differentials, workers' absenteeism, quits, the role of gender and the degree of unionism in the labour market (e.g. Borjas, 1979; Clark, 1997; Clark, 2001; Hamermesh, 2001; Shields and Price, 2002; Böckerman and Ilmakunnas, 2008; Card, Mas, Moretti and Saez, 2012; Drakopoulos and Grimani, 2013). Finally and considering the recent boom of the related field of happiness research, job satisfaction is viewed as an important predictor of overall well-being (Clark and Oswald, 1996; Sousa-Poza and Sousa-Poza, 2000; Bonsang and Van Soest, 2012).

Almost from the first systematic studies of job satisfaction by economists, the research potential of the notion of pay level comparisons was realized. The early papers by Hamermesh (1977) and Layard (1980) suggested that pay level comparisons matter for job satisfaction. Subsequently, the seminal paper by Clark and Oswald (1996) concentrated exclusively on testing the role of relative or comparison income on job satisfaction. Since then, a substantial body of literature has found that pay level comparisons is an important variable affecting job satisfaction. Indicative examples are: Ferrer-i-Carbonell, 2005; Brown et al 2008; Senik, 2009; Card et al, 2012; Kifle 2014; Godeshot and Senik, 2015.

However, the inclusion of the variable of comparison wage in job satisfaction and the resulting supporting empirical findings, are in sharp contrast to the standard approach, given that in mainstream economic theory an individuals' utility is assumed to be a function of absolute income only (Clark and Oswald, 1996: 373)[2]. Apart from presenting a challenge to the standard utility analysis, the wider theoretical and policy implications of the pay level comparisons also undermine many established economic results. The negative externality of the high earners reference group implies that many conventional optimal tax policy conclusions and income distribution recommendations are challenged.

Despite the above important theoretical and policy implications, mainstream economic theory has not incorporated the conceptual formulations and empirical findings of the job satisfaction literature. Although the mainstream aversion to any criticism of the standard model of rational agents is also present here, there are other reasons relating to the specific job satisfaction findings. These reasons are to be found in the established economic methodology. First, mainstream economics exhibits a negative methodological attitude towards the validity of stated preferences and survey evidence approach that is employed in the vast majority of the pay level comparisons research (see Manski, 2004; Easterlin, 2004). The second methodological aspect has to do with the inherent anti-psychologism of mainstream economics (for a discussion, see Bruni and Sugden, 2007). Since its beginnings the study of job satisfaction in relation to economic variables has had a strong influence from psychological research. However, mainstream economics has a long negative tradition towards

[2] For a discussion of the definition and nature of mainstream economics, see Lawson, 2006.

integrating psychology-based research findings. The consequences of these issues for job satisfaction research is also part of the paper's concern. Thus, the paper will start by examining the main theoretical settings and empirical results of the pay level comparisons in job satisfaction. The next section will focus on the theoretical basis regarding the effect of comparison wage on job satisfaction. Section four will discuss the main theoretical and policy implications of the pay level comparisons. The next section will concentrate on the methodological reasons for the limited impact of the relevant literature on standard economic theory and policy. A concluding section will close the paper.

II. Pay Level Comparisons in Job Satisfaction

Traditionally, job satisfaction is assumed to be determined by a number of variables.).[3] The standard approach to an individual's utility from working is given as:

$$JS = f(w, h, i, j) \qquad (1)$$

Where JS is utility or satisfaction from work, w is the level of earnings, h is hours of work, i is a vector of individual characteristics, and j is a vector of job characteristics comprising variables that affect job satisfaction. Many authors accept as a standard assumption that satisfaction and earnings are positively related (e.g. Borjas, 1979; Warr, 2007). There is no accepted list of variables affecting job satisfaction, but most authors include age, gender, education, job

[3] Apart from the economics literature, psychological studies have also identified a number of crucial job satisfaction determinants such as salary, job autonomy, opportunities for promotion, quality of supervision, and good working conditions (e.g. Barling et al, 2003).

tenure, union membership, and firm location (see Hamermesh, 1977; Freeman, 1978; Borjas, 1979; Miller, 1990; Clark and Oswald, 1996; Clark, 1997; Montero and Vasquez, 2015). These variables may or may not affect earnings. Hence, the conventional approach to the econometric specification for job satisfaction can be written as:

$$JSi = a + b\mathbf{x} + zi \quad (2)$$

where JSi represents the i^{th} individual and is usually an ordinal variable which adopts discrete values corresponding to levels of job satisfaction recorded into the questionnaire; **x** is a vector of all control variables which influence an individual's utility from being in a job, including the level of earnings; z is a random error component with $z \sim N(0,1)$, and a and b are the relevant coefficients.

Although the standard conception of utility in economics involves own income only, the notion of pay level comparisons was present in the first systematic studies of job satisfaction by economists. Dan Hamermesh (1977) utilized a sample of American employees and estimated job satisfaction equations. Hamermesh's work focused on occupational choice and training, but his regression equations include the residual from a wage equation as an explanatory variable. That residual enters positively and significantly in a job satisfaction regression, which is the same as specifying that individual utility is affected by the difference of actual from expected income. The same reasoning was followed a few years later by Richard Layard (1980). By appealing to

relative deprivation theories and also to Keynes's concept of relative wages and to the works of Fred Hirsch and Tibor Scitovsky, Layard's central point was that well-being depends on income and status relative to expectations.

The trend set by the above two authors continued as more researchers realized that the inclusion of the relative or comparison wage in job satisfaction equations was very fruitful in terms of understanding and predicting several labor market phenomena. For instance, a subsequent study by Cappelli and Sherer (1988) concentrating on the airline industry, employed the idea of an outside 'market wage'. The level of the market wage was calculated by averaging pay for specific occupations in other airlines, controlling for individual wage and other job characteristics. This sort of specification was quite close to a pure relative wage effect.

The seminal paper by Clark and Oswald (1996) concentrated exclusively on testing the role of relative or comparison income on job satisfaction. The authors adopted a utility from work function that included "a comparison or reference income level against which the individual compares himself or herself." (Clark and Oswald, 1996: 361). Contrary to the established formulations in mainstream theory, a comparison or reference wage is included in the individual's utility from working (u).

$$u = u(y, y^*, h, l, j) \qquad (3)$$

Where y is income, y* is a comparison or reference income, h is hours of work, i and j are sets of individual and job parameters respectively. They further assumed that utility is increasing in income and decreasing in hours of work. Clark and Oswald drew from Adams (1963, 1965) equity theory and also from Runciman (1966) and Homans (1961) in social psychology literature. Consequently, they assumed that utility from work is declining in the comparison pay level (y*), linking this negative relationship to the concepts of relative deprivation, envy, jealously or inequity found in the above literature (Clark and Oswald, 1996: 361). The authors proceeded to utilize data from the British Household Panel Survey (5000 British workers) in order to test the hypothesis that utility depends on income relative to a comparison or reference level (equation 3). It is indicative that Clark and Oswald pointed out the difference with the mainstream view by stating that their findings "…provide little support for the simple view, presented in microeconomics textbooks, that a worker's level of well-being is a function of absolute income." (Clark and Oswald, 1996: 373).

Andrew Clark (1996) adopted a similar framework in order to test the existence of income comparison or relativity effects in a measure of individual subjective well-being or job satisfaction. In Clark's paper, the utility function from working is given as:

$$u = u(y, y^*, h, z), \qquad (4)$$

Where y is absolute income, y* is comparison income, h is hours of work, and z is a set of taste variables. Assuming that income is evaluated relative to some comparison level y*, the higher is comparison income in the above equation, the lower is the worker's relative income, and hence the lower is utility. It is also worth mentioning that according to Clark, comparisons could take place over any number of job characteristics other than income, such as: hours of work, promotion, autonomy, authority, size of office and so on (Clark, 1996: 153-54, 162). By utilizing data on individuals within the same household, Clark was able to show that job satisfaction falls as the pay of other workers in the household rises. According to Clark, this result "is the opposite of the prediction of the standard microeconomic model." (Clark, 1996: 161). The notion of comparison wage as affecting job satisfaction levels was also examined in a similar paper by Drakopoulos and Theodossiou (1997).

Subsequent empirical work focusing on the job satisfaction of academics and nurses supports the role of reference wage in job satisfaction (e.g. Sloane and Ward, 2001; Shields and Price, 2002). More recently, the work of Card, Mas, Moretti and Saez, (2012) examines the job satisfaction of academics of the University of California. Their findings suggest that those with lower relative pay report lower job satisfaction and have higher quitting intensions, while those with higher relative pay report no higher satisfaction. Similarly, Montero and Vasquez (2015) found that job satisfaction depends not only on individuals' own wage but also on the relative wage. Furthermore, their results indicate that a 10% increase in the reference group wage would need to be compensated for by a 24.9 % increase in the own wage to give the same level of job satisfaction.

The incorporation of pay comparisons into job satisfaction research has a wider acceptance in contemporary literature. Apart from the empirical findings, many researchers have elaborated on the theoretical basis of pay level comparisons in the job satisfaction function. As a result, the role of the level of comparison income or wage is more precise and there is also more accuracy in determining the appropriate sample to be examined.

III. The Theoretical Basis of Relative Pay

In most relevant work discussed so far, the presence of comparison income in the job satisfaction function has a negative effect on job satisfaction. In other words, the income of the reference group creates a negative externality. The standard justification for this negative sign, is mainly attributed to the *status effect* which means that the higher earnings of the reference group makes the individual unhappy and jealous, thus lowering the sense of well-being. The psychological basis of the status effect is closely related to the relative deprivation theory of individual welfare (see Hyman, 1942; Runciman, 1966).

However, there is also the theoretical possibility that comparison income might have a positive effect on job satisfaction. This is achieved through the *signal effect* which provides information about future job prospects. This possibility has recently been gaining attention. The conceptual basis of the signal effect can be found in Hirschman and Rothschild's (1973) *tunnel effect*. According to this conception, while other people's wage increases might make the individual jealous, they also provide information about the individual's own

future prospects. The fact that others in the reference group enjoy higher earnings acts as a signal of better prospects of doing well in the near future. Workers use other people's wage as a signal of their own future prospects, hence they like to work in organizations where other people's wages are high. This approach is similar to the *anticipatory feelings effect*, where an upper wage mobility of others provides information to the individual about pay rise expectations in the future (Caplin and Leahy, 2001). It must be noted though, that the original argument concerned a situation in which economic growth was accompanied by rising income inequality, and referred mainly to the position of the poor in developing countries. Hirschman and Rothschild focused on the relative importance of growth and inequality, and this important point does not seem to be taken into account by recent studies (for a discussion, see Davis, forthcoming).

The above two opposite effects can be included in a general job satisfaction function. Following Senik (2008), the individual's A job satisfaction U^A at time t, can be written as:

$$U^A = f[w^A, e^A(w^B), w^B] \qquad (5)$$

Equation (5) shows that the indirect utility from work of individual A depends on his/her own wage w^A, on his/her expected wage e^A, and on agent B's wage w^B. Moreover, the expectations of individual A partly depend on B's observed wage. It is also generally accepted that:

$$\partial f/\partial w^A > 0 \text{ and } \partial f/\partial e^A > 0 \qquad (6)$$

However, the sign of $\partial f/\partial w^B$ is ambiguous:

$$\partial f/\partial w^B = (\partial f/\partial e^A \,.\, \partial e^A/\partial w^B) + f_3 \qquad (7)$$

The first term of equation (7) is positive and it represents the signal effect of B's wage on A's utility. The second term (f_3) represents the direct effect of w^B on f, and its sign depends on how A feels about B. In case where the status effect dominates, this term is negative. If the sign of (7) is negative, then the status effect dominates the signal effect. A positive sign of (7) implies that the signal effect is dominant (for detailed discussion, see Senik, 2008 and Drakopoulos, 2016).

In accordance with the insights in Hirschman and Rothschild, some evidence of the signal effect is found in transitional economies in which income inequality is also significant (Senik, 2004, 2008). More specifically, Senik (2008) argues that the respective importance of status and signal effects depend on the level of economic uncertainty and labour market mobility. The empirical results in Senik (2008) imply that the status effect is dominant in more stable countries (e.g. "Old Europe"). Although there is some empirical evidence supporting the signal effect in industrialized countries, like in UK and Denmark (Theodossiou and Panos, 2007; Clark, Kristensen, and Westergaard-Nielsen, 2009), the vast majority of the relevant empirical literature have discovered the presence of

status effect rather than the signal effect.[4] Similar status effects have been found even for a transitional economy like China (GAO and Smyth, 2010; Clark and Senik, 2014). In a more general framework of life satisfaction, Clark and Senik (2010) find that the well-being effect of comparison income is predominantly negative which means that most people compare upward and that the signal effect does not outweigh the status effect. Furthermore, it should be pointed out that in many studies that include explicit subjective comparison questions in surveys, the empirical results indicate the dominance of relative income concerns rather than signal effect (see for instance, McBride, 2001; Senik, 2009; Knight and Gunatilaka, 2011).

Some studies follow a different approach and focus on the role of objective rank on job satisfaction. Contrary to the standard approach to relative income concerns, rank concerns imply that the worker engages in a comparison with the entire distribution of wages in his/her establishment. This theoretical viewpoint has also support from psychological research (Hagerty, 2000; Stewart et al, 2006). Following Boyce, Brown and Moore (2010), the standard specification is that the individual relative rank (Ri) is given by the ratio:

$$Ri = \frac{i-1}{n-1} \qquad (8)$$

The individual compares himself/herself to a sample of other people in their reference group and assesses whether each sampled individual earns more or less than themselves. Those assigned “worse than” (i-1) are compared to the total number within the reference group (n-1). Concentrating in a job satisfaction

[4] Status effects have been found for Great-Britain (Sloane and Williams, 2000), Germany (Ferrer-i-Carbonell, 2005), Sweden (Bygren, 2004), Europe (Senik, 2008; Clark and Senik, 2010). See also Warr (2007) for a survey.

framework, Brown et al (2008) showed that the normalized rank of an employee in the firm's wage distribution was a powerful predictor of utility from work.

In a more recent paper by Temesgen Kifle (2014), two different measures of reference group wages are created: a) cell average wages by age, gender and level of education; and b) the ranked position of an individual's wages in each cell. The empirical results based on Australian data indicate that both own wages and comparison wages play an important role in determining overall job satisfaction. Furthermore, the effect of comparison wages on job satisfaction is almost equal to that of own wages when constructed using the ranked position of an individual's wages in each cell. However, no significant effect of cell average wages on overall job satisfaction is found (Kifle, 2014).Finally, in other studies the concept of rank is centered not so much on income, but on the individual's power and status in his/her environment (Fafchamps and Shilpi, 2008; Powdthavee, 2009; Godeshot and Senik, 2015).

IV. Theory and Policy Implications of Pay Level Comparisons

As was observed previously, research on job satisfaction that incorporates the notion of comparison income is abundant and it is still growing. There are several papers which have attempted to test the hypothesis in its various forms and by using various datasets. Several studies seem to confirm the importance of comparison wages in predicting overall job satisfaction. One general finding is that increases in everyone's wages do not have the presumed large effect on job satisfaction because of the presence of the negative effect of comparison wages. The clear policy implication of this finding is the adaption of fairer and

more progressive tax system that helps the comparison wages to change, especially when relative income concerns dominate signal effects. Optimal tax policy may need to be geared towards a more equitable distribution given the negative externality of high earners (Clark and Oswald, 1996; Kifle, 2014). This policy suggestion though, is significantly weakened when the tunnel effect is stronger as in countries where the majority of the population lives in poverty and/or in an unstable economic and socio-political environment (Senik, 2004; 2008).

Furthermore, pay level comparisons can be viewed as a quest for status. In terms of economic theory, this is an example of a negative externality that requires corrective taxation. In order to demonstrate the argument, we can follow the simple model given by Layard (2006). The standard utility from work function is given as:

$u = u(y - \alpha y^*, h)$ (9)

Where y is real income, y* is comparison or the reference group income and h is hours of work. The reference group income can be proportional to average income. Assuming there are n people who are identical, with the same utility from work function and the same hourly wage of unity, the socially optimal level of individual work effort (h) is now given by:

$$u_1 - n\alpha\frac{1}{n} + u_2 = 0 \quad (10)$$

The second term reflects the negative utility which comes from the rise in average income and which adversely affects the utility of all n people. If everyone agreed with everyone else how hard to work in order to completely

offset the quest for social status, the optimal hours of work will be given by the equation:

$$u_1 - u_1\alpha + u_2 = 0 \quad (11)$$

This social optimum can be achieved by an imposition of a linear income tax with marginal rate that will be:

$$t = \alpha \quad (12)$$

The important implication here is that that social comparisons drive people to work longer hours than it is socially desirable, and this calls for an income tax which will reduce work effort to a level where the incentive for an individual to raise his/her relative income has been fully cancelled. Clearly, the concept of 'excess burden' of taxation that is used in standard cost-benefit analysis needs to be reevaluated (for an analytical discussion, see Layard, 2006; Powdthavee, 2007). Given the above and in a more general framework, the concern for relative wages can result in the over-spending on private consumption and under-provision of public goods (for a detailed discussion, see Ng, 2003).

The acceptance of the strong role of pay level comparisons in an individual's well-being, also imply a need for change to the structure of consumption taxes. A steeply progressive consumption tax is a policy suggestion which originates from the idea that status seeking is a positional externality. Similarly to effluent charges to curb environmental pollution, a progressive consumption tax could neutralize many of the most costly effects of positional externalities (Frank, 2008). In the same spirit, Ireland (1998) shows that the presence of positional goods can affect labour supply. As Ireland states "… an income tax may offset the distortion to labour supply caused by status-seeking, and hence an income

tax may yield an improvement in allocative efficiency… Taxes on positional goods may be Pareto optimal since they lessen the distortion…" (Ireland, 1998: 100). Similar conclusions concerning tax policies for positional externalities are reached by Ng, 1987; Ireland, 2001; Frank, 2005.

Finally and having in mind the empirical findings about the pursuit of rank, a number of authors have questioned the high importance of economic growth as a key component of economic policy, at least for high income countries. Since there are fixed amounts of rank in society – only one individual can be the highest earner, economic growth might not have significant effects on individual utility (Hopkins and Kornienko, 2004; Boyce et al, 2010).

V. Methodological Discussion

Given the theoretical and policy implications of pay level comparisons, the important issue of its impact on mainstream economics arises. In spite of abundant empirical evidence pointing to their crucial role, mainstream economics does not seem to pay much heed to the findings (see also the general account in Frey, 2008). The main reason for this stance is the prevalence of the core model of atomistic, utility maximizing agents with independent preferences. In mainstream economics, agents are assumed to operate in almost complete social isolation given that their utility functions include only absolute individual income and absolute amounts of individually consumed goods and leisure (Heffetz and Frank, 2011). The mainstream model of rational agents has been criticised by many influential economists

from different perspectives.[5] Clearly, the literature on the role of pay level comparisons on job satisfaction reinforces the criticism of the established model. Apart from the dominance of the mainstream agents, there are additional methodological reasons which seem to be linked to the subjective well-being research in general, and to the job satisfaction literature in particular. These are: 1. A strong mistrust against the method of stated preferences and 2. The inherent bias against the integration of psychological findings.

Mistrust towards stated preferences

The empirical literature examining job satisfaction as well as the literature on pay level comparisons is mainly based on questionnaire surveys analysis. The same holds true for life satisfaction research. Typical questions concerning job satisfaction levels and salary levels are: "how do you feel about your work?" and "how do you rate your satisfaction with your salary?" The participants must answer on a scale (usually from 1 to 7 or 10, where 1 is very bad). The question regarding the reference group asks, "With whom do you most tend to compare your salary?" (e.g. Montero and Vasquez; 2015; Hauret and Williams, 2017). In general, the stated preferences approach as a valid scientific method is almost universally accepted in the relevant literature of subjective well-being.

However, mainstream economics has a long tradition against accepting stated preferences. Instead, the revealed preference approach dominates. The negative attitude towards questionnaire surveys and opinion/perception

[5] There is a large literature on this important issue. A few recent indicative examples are: Akerlof, 1997; Sen, 2002; Sobel, 2005; Davis, 2010; Postlewaite, 2011; Heffetz and Frank, 2011.

surveys has historical roots which go back to the 1940's debate concerning theoretical and actual business's behavior (for a discussion, see Boulier and Goldfarb, 1998). In other words, the standard practice of many economists has been to infer decision processes from data on observed choices. This is the basis for making predictions concerning economic agents' choice behavior. Alan Blinder has long identified the mistrust regarding empirical findings based on subjective well-being related questions by mainstream economists: "Economists are skeptical that you can learn much by asking people. We are trained to study behavior by watching what people do (usually in markets), not by listening to what they say." (Blinder, 1991: 90).

Aside from the bias towards observed choices, there are other related reasons for the mainstream negative stance towards subjective well-being research. The satisfaction surveys approach implies an individual cardinal utility function, a concept which is rejected by current mainstream theory as having no scientific basis. Since Pareto's work, there is a long mainstream methodological tradition which accepts ordinal utility functions only (for an extensive discussion, see Van Praag, 1991; Van Praag and Ferrer-i-Carbonel, 2004). Apart from cardinality, another widespread argument against the use of stated preferences has to do with concerns that subjective well-being responses are subject to nonsampling bias (Powdthavee, 2007). In particular, it is claimed that the use of subjective data as dependent variables is questionable because the measurement error appears to correlate with a large set of characteristics and behaviors (Bertrand and Mullainathan, 2001). However, it is quite difficult to reconcile this position with the recent growth of the use of stated preferences

in many fields of economics including the extensive use of contingent valuation in environmental and health economics (e.g. Pearce, 2002; Bridges, 2003; see also List et al, 2004).

Although a number of authors on job satisfaction have identified the mainstream negative attitude towards one of the basic assumption of their field, only a few have attempted to supply a detailed response. Richard Easterlin, one of the pioneers of the subjective well-being research, focuses on the "sociological bias" of mainstream economics. According to Easterlin (2004), the general hostility of mainstream economists towards subjective empirical evidence has to do with unfounded preconceptions indoctrinated by graduate economic training and disciplinary structure against survey and questionnaire evidence. Following a similar line of explanation, Bernard Van Praag and Ada Ferrer-i-Carbonel refer to the mainstream position as "a dogmatic stand that it is impossible" (Van Praag and Ferrer-i-Carbonel, 2004: 4; see also Van Praag, 2011). Thus, there seems to be a growing tension between the available evidence and the standard mainstream conception of rational choice, and this tension is rooted in the history and method of mainstream economics (for a discussion, see Zouboulakis, 2014). Clearly, the mistrust towards stated preferences has to do with the dominant conception of economics as a science and its scientific foundations.

Bias against incorporating psychological findings

The strong links to psychological research was present since the beginnings of the job satisfaction analysis by economists. The first authors to consider the economic significance of job satisfaction made references to psychological

research in order to provide theoretical basis to their analysis (e.g. Hamermesh, 1977; Freeman, 1978). The connection to psychology become stronger and more explicit in the more specialized work examining the role of pay level comparisons in job satisfaction. As was seen above, in one of the most influential papers on pay level comparisons, Andrew Clark and Andrew Oswald based their formulation of job satisfaction function on the psychological theory of relative deprivation (Clark and Oswald, 1996). References to other social sciences findings and especially to psychology are common in other important papers on pay level comparisons such as in Clark, 1996 and Ferrer-i-Carbonell, 2005. Even in more recent work on job satisfaction, the appeal to psychological theories is explicitly stated (see for instance, Bryson et al, 2012; Kiffle, 2014; Hauret and Williams, 2017). In the more general framework of subjective well-being research, the psychological background is frequently connected to economic theory (e.g. Blanchflower and Oswald, 2004). The explicit links to other social sciences is a conscious methodological stance. As Richard Easterlin writes: "We cannot comprehend the world about us without knowledge of the facts and insights provided by the other social sciences." (Easterlin, 2004:19). In the same vein, Van Praag and Ferrer-i-Carbonel emphasize that "…it is hard to argue that economics has nothing to do with sociology or psychology or the other way around. [Their historical separation]…is unfortunate because those artificial scientific boundaries make it difficult to make a complete study of phenomena that have economic, sociological, and psychological aspects." (Van Praag and Ferrer-i-Carbonel, 2004).

However, incorporating concepts and findings from other social sciences and especially from psychological research, is not common in mainstream economic theory. The anti-psychology tradition of mainstream theory has deep roots in the evolution of its methodology. In particular, since the second generation marginalists, aversion to findings from other social sciences and especially from psychology, became the established trait. The stance of the influential neoclassical economist Irwin Fisher is indicative: Fisher was explicitly against the inclusion of psychological theories and concepts in economics mainly because psychology was considered as a 'soft' subject not worthy for consideration by the 'hard' science of economics (Fisher, 1892: 11, 23). In the same conceptual tradition, Vilfredo Pareto believed that the construction of the fictional model of economic man was adequate for the needs of economic theory, thus clearly implying that psychological findings are not necessary for economics (Pareto, 1906; see also McLure, 2010). Anti-psychologism was reinforced by Lionel Robbins' influential methodological contributions. Robbins' insistence that psychology ought to be kept out of economic analysis was partly motivated by a desire to protect the independence of economics as a scientific discipline (Robbins, 1932: 83–84).

In more modern times, one of the main intentions of Samuelson's revealed preference theory was to dismiss the alleged psychological concepts of utility theory (Samuelson, 1938; Samuelson, 1947). The tendency of mainstream economics to ignore concepts and findings from other social sciences and especially from psychology, continued in the post war era. The influential paper by Stigler and Becker (1977), where they claimed that preference theory can

free economics of any need to turn to other disciplines such as psychology, is a representative example (for a detailed account of the problematic relationship between mainstream economics and psychology, see Lewin, 1996; Rabin, 2002; Bruni and Sugden, 2007; Goodwin, 2016).

The gradual rise of the behavioural economics with its strong psychological dimension has weakened the mainstream position towards psychological research (see Sent, 2004; Frantz, 2009). However, the negative attitude towards importing psychology into economics is still prevalent. Expressing the dominant mainstream position, the leading economist David Levine strongly rejects the criticism of mainstream economics by behavioral economists. Levine argues that the connection of behavioral economics to psychology and neuroscience is doomed to fail because the goals of psychologists and economists are different, and that this has implications for importing ideas from psychology into economics (Levine, 2012:125).

The tendency to separate economics from other social sciences, including psychology, also has to do with the perception of economics as the most advanced of the social sciences, and hence the one that is closest to the physical sciences (see also Drakopoulos and Katselidis, 2015). The dismissal of psychological findings was linked to the effort of establishing the scientific character of economics. The rejection of all “metaphysical and psychological elements” was one of the main requirements for the creation of the ‘scientific’ status of economics (Dow, 2002: 170–175). This increasing insularity of mainstream economics seems to go in tandem with its conception as the

'superior social science' based on positivism and physical science inspired methodology (see also Frey and Benz, 2004; Fourcade, Ollion, and Algan, 2015).

VI. Concluding comments

Nowadays, the study of job satisfaction is an established research area in which many economists are involved. Decades of job satisfaction research have provided useful insights into several economic phenomena. The concept of pay level comparisons is widely employed in the job satisfaction literature as an important analytical tool which has strong empirical grounding and has helped the further comprehension of many labour market phenomena. Backed by similar results from life satisfaction research, pay level comparisons formulations have also important theoretical and policy implications. Given that pay level comparisons can theoretically be conceived as negative externalities and as a quest for status, the standard optimal tax conclusions need to be altered. The presence of pay level comparisons imply that income tax policies should be geared towards a more equitable distribution and consumption taxes should be more progressive.

In spite of the abundance of empirical findings confirming the strong role of pay level comparisons in job satisfaction, their impact on mainstream economics is minimal. The paper suggested that the dominant economic methodology is one main reason for this state of affairs. In particular, the mainstream methodological tendency to reject stated preferences and survey evidence, was identified as an important reason for the limited appeal of the relevant job

satisfaction research findings. Against the mainstream methodological preconceptions, job satisfaction researchers were and still are much more open in accepting stated preferences as a methodologically valid basis for subjective well-being research. The in-built bias against incorporating concepts from other social sciences and particularly from psychology, was suggested as the other major reason. Contrary to the mainstream tradition, subjective well-being specialists are willing to incorporate findings from other social studies fields. Drawing from work conducted by psychologists and sociologists, was a central feature of job satisfaction research even from its first appearance in economics literature.

It seems that few job satisfaction specialists have realized that the limited appeal of their findings among orthodox economics are mainly due to the nature of mainstream economic methodology. In a broader setting, the core assumption of economic rationality excludes social influences on economic decisions and is hostile to interdependent preferences. In addition, the conception of economics as a “hard” science similar to physical sciences is presumably at odds with subjective/survey based evidence. Observed choices only are conceived as having any scientific validity. In a similar vein, the importation of concepts and findings from psychological research are viewed with methodological suspicion.

Consequently, the continued reluctance of mainstream economics to pay serious heed to the job satisfaction empirical results and to policy suggestions arising from the relevant research, are of methodological origin. A few

prominent figures in job satisfaction research have realized the mainstream methodological attitude. It is necessary though, that job satisfaction specialists should consider more seriously the basic components of mainstream economic methodology that relate to their research field.

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