THE CONCEPT OF COMPARISON INCOME: AN HISTORICAL PERSPECTIVE

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12 May 2008

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May 2008

ABSTRACT

Theories of social comparison have a long presence in the social sciences and have provided many useful insights. In economics, the idea of comparison, aspiration or relative income belongs to this theoretical framework. The first systematic usages of this idea can be found in the works of Keynes and Duesenberry. After these works the concept was relatively ignored by orthodox theorists until its recent re-appearance mainly in the fields of labour and macroeconomics. To the contrary, however, income comparisons continued to play a role in much of Keynesian inspired and Behavioural economics literature. In the last few years it has made a strong comeback in the literature of job satisfaction and of the economics of happiness. This paper attempts to trace the development of the concept in the modern history of economic thought. It also discusses the main theoretical implications of adopting income comparisons and possible reasons for its relative disregard by orthodox economics.

Keywords: Relative Income, History of Economic Thought, Wages
JEL Classification: B2, J30, D31

Paper prepared for the annual ESHET conference in Prague, May 2008.

I. Introduction

The idea of comparing rewards with others has a long and persistent presence in social sciences. Its importance in explaining social phenomena has been recognized by many and this is the basic reason why it can be found in many psychological, social and managerial theories. Examples of theories where the idea of comparing rewards is central are: social comparison theory, reference group theory, relative deprivation theory, adaptation level theory, dissonance theory and equity theory (see for instance Festinger, 1954; Adams, 1963; Martin 1981; Greenberg,1990; Deci and Ryan, 2000) and for surveys see Kapteyn and Wansbeek 1982, and Earl, 1990). As was mentioned, these social comparisons theories have provided numerous insights in many research fields. In the specific form of the comparison wage or income, it can also be found in numerous social study fields and especially in the context of equity theory and motivation theory (see Homans,1961; Valenzi and Andrews, 1971; Sweeny, 1990; Levine, 1993; Ambrose and Kulik, 1999; Deci and Ryan, 2000).

In economics, the concept of comparison income or wage belongs to this general theoretical framework.[1] One of the first systematic uses of the idea of comparison (relative) wage with important analytic consequences can be found in Keynes (1936 [1973], pp.13-14). The next notable extension of the concept was the relative consumption hypothesis based on the notion of relative income and consumption in Duesenberry's (1949) book.

[1] Recently, economists by using the idea of comparison income have attempted to provide a choice-theoretic justification for the kinds of behavioural rules predicted by social psychologists (such as in Adams' equity theory and Homans' social exchange theory). See for instance Clark and Oswald 1998.

However, in spite of its increasing popularity in other social fields, it was relatively ignored by mainstream economists. Until recently, most mainstream economists were convinced that individual utility depends on absolute income alone. As L. Summers points out:

Keynes' emphasis on relative wages has not been reflected in most contemporary discussions (Summers, 1988, p.383)

The concept though continued to play a role in many non-orthodox approaches like Post-Keynesian and Behavioural economics where the idea has been used in a variety of theoretical settings. It was also employed in sporadic works which were then considered to be in the fringe of economics research. The best example here was the work of Easterlin who formulated the hypothesis that well-being depends on relative income, not absolute income (Easterlin, 1974 and also Easterlin, 2001).

However, in the last two decades, its fruitfulness has started to be realized by an increasing number of economists and thus it has started to re-enter mainstream economic literature. The subfields of macro and labour economics are indicative examples. In particular, the idea that unions and workers compare income or wages with others has been expressed in a plethora of terms such as relative wage, fair wage, aspiration wage, comparison or target wage[2]. [see for instance, Oswald (1979, 1986), Frank (1984), Gylfason and Lindbeck (1984, 1986), Summers (1988), Lommerud (1989), Akerlof and Yellen (1990), Clark and Oswald (1996), Drakopoulos

[2] Many authors use the above terms interchangeably. However, in some formal specifications y is income, y* is called reference group or comparison income, while the ratio y/y* is called relative income. The same apply to the more specific term of wage (see also Clark, Frijters and Shields, 2007).

and Theodossiou (1997), Charness and Grosskopf (2001)]. It has gained analytical strength with empirical studies indicating that wage settlements in key sectors of the economy determine settlements in other sectors (e.g. Jacoby and Mitchell,1990).

In the last two decades the notion of comparison income has also entered the job satisfaction literature and more recently the quite fashionable subfield of happiness research mainly in formulations examining the relationship between income and happiness (e.g. Clark and Oswald, 1996, Frey and Stutzer, 2002a; Drakopoulos, forthcoming).

The review of the literature on the adoption of the notion of relative income indicates some important consequences for widely accepted economic results. Apart from the Keynesian-inspired notions of wage rigidity and unemployment equilibrium, its usage might entail serious rethinking concerning economic growth, income inequality and taxation theories. This might help explain its relative neglect for many years by mainstream theorists. In this paper we will start with a discussion of the introduction of the idea of comparing rewards in Keynes and Duesenberry and also its presence in the works of some Post-Keynesian and Behavioral theorists. The third part will investigate its re-introduction mainly in the field of macroeconomic theory and in labour economics. In the following part of the paper, we will examine its current usage in the subfields of job satisfaction and of the economics of happiness. The fifth part will discuss the main implications for standard economic results of incorporating comparisons. A concluding section will close the paper.

II. Keynes, Duesenberry and Non-mainstream Schools

The idea of comparing rewards is present in the works of a number of economists in the history of economic thought. For instance, the notion of conspicuous consumption first proposed by Veblen (1899), rests on the assumption that individuals compare rewards. However, the first systematic use the concept with its analytical consequences can be found in the work of Keynes. In the "General Theory", Keynes writes:

"… any individual or group of individuals, who consent to a reduction of money-wages relatively to others, will suffer a relative reduction in real wages, which is a sufficient justification for them to resist it. On the other hand it would be impracticable to resist every reduction of real wages, due to a change in the purchasing-power of money which affects all workers alike" (Keynes 1936, p.14)

It is well known that in his "General Theory", Keynes paid a lot of attention to wage relativities as an integral part of his underemployment equilibrium analysis. He pointed out that the main reason why workers resist a cut in money wages is to maintain their relative position in the wage structure and not so much to avoid a cut in their absolute income Thus the reference wage can be linked to the average wage settlement in the industry or to the previous year wage rate (Keynes, 1936, pp.13-14, see also Trevithick,1976).

James Duesenberry's work on income and consumption was the next major analytical use of the concept of reward comparisons in economic theory. In particular, Duesenberry is known as the proponent of relative consumption hypothesis, the basic idea of which was that "Any particular consumer will be influenced by consumption of people with whom he has social contacts" (Duesenberry, 1949, p. 48). Duesenberry proceeded further to analyse the basis of such behaviour. As he writes:

We can maintain then that the frequency and strength of impulses to increase expenditure depends on frequency of contact with goods superior to those habitually consumed. This effect need not depend at all on considerations of emulation or "conspicuous consumption" (Duesenberry 1949: 27-28).

In order to provide further foundations of this notion, he suggested self observation to experience the relative deprivation of the demonstration effect:

The best way to demonstrate that consumption expenditures can be forced up by contact with superior consumption goods is to ask the reader to consult his own experience. What kind of reaction is produced by looking at a friend's new car or looking at houses or apartments better than one's own? The response is likely to be a feeling of dissatisfaction with one's own house or car. If this feeling is produced often enough it will lead to action which eliminates it, that is, to increase expenditure (Duesenberry 1949: 27).

Duesenberry's approach was directly connected with Keynesian views and attempted to explain a number of important issues like the pattern of savings and growth. Following Duesenberry, savings rates depend on the position of income distribution and not exclusively on the income level, as in a traditional savings function. However, it never gained popularity among mainstream theorists also because "it fell victim to its own analytic gaps and to competition from allegedly simpler explanations offered by Modigliani and Brumberg and Friedman" (Harbaugh, 1996). In spite of this, the notion of relative consumption found early followers within psychology as in the work of Runciman (1966)

The theme of wage relativity is thus very important in Keynes and the subsequent Keynesian inspired literature (see for instance, the papers in Rotheim, 1998). In particular, some Keynesian oriented economists have employed it recently in wage setting and business cycle models (e.g. Arestis and Biefang-Frisancho Mariscal 1998; Danthime and Kurmann, 2004).

Apart from the Keynesian oriented economists, the idea of comparing rewards was also present in the behavioural economics literature. One of the basic premises of behavioural economics which grew in the post war decades, was the social and psychological dimension of economic behaviour. Thus, it is not surprising that the idea of social comparisons and comparing rewards was an integral part of most behavioural economic analysis (see also Earl, 1988). One of the first authors to challenge the established mainstream assumptions about individual economic behaviour was Harvey Leibenstein. Although he is basically known for his work in the theory of the firm, Leibenstein's theory of consumer behaviour has been less popular. In the same conceptual framework as Duesenberry, Leibenstein, suggests that an individual's preferences are positively affected by the preferences of other individuals for a particular product. This interdependence of individual preference functions, is called the 'bandwagon effect.' (Leibenstein, 1950, 1976). Furthermore, the notions of social status and relative income are central in his microeconomic approach. As he points out:

The household's view of status depends on a reference group of 'important others' who influence the consumption decisions of the household. The utility of such expenditures are in part a reflection of expectations of explicit or *implicit approval or disapproval of the important others. We live in social groups. Beyond basic sustenance, consumption has a broad social status (life style) basis* (Leibenstein1975: 5).

In particular, the concept of social status refers to a household's relative position in the hierarchy of social status groups or the class structure of society and the concept of relative income refers to the income of a household relative to the average income within a given social status group. These ideas played an important role in much of Leibenstein's analysis including that of fertility decline (see also Albanese, 1988).

J. Baxter is a representative example of the emphasis that many contemporary behavioural economists put on the concept of reward comparison. In his work, Baxter argues that social comparison processes play an important role in forming individual preferences (Baxter, 1988, 1993). Furthermore he makes a distinction between needs and wants and favours a hierarchical ordering of irreducible needs. All these imply that standard economic analysis based on utility and indifference curves is seriously limited. Baxter employs interdependent utility functions which are applied to labour market analysis. As he claims, the notion of social comparisons and hierarchical needs could account for the Keynesian idea of downward wage inflexibility (Baxter, 1988).

The combination of the comparison income and hierarchical needs structure has been used by other authors in order to show non-market clearing effects. For instance, in a dynamic setting the definition of basic or lower order needs alters in the sense that what was deemed a luxury a few years ago becomes a necessity today (Kaufman, 1999 and Berry, 1994). Thus there will be unsatisfied needs and this is equivalent to the difference between reference income and actual income (see also Drakopoulos, 1992 and Altman, 2001).

III. Macro and Labour Economics

As was mentioned in the beginning, the concept of comparison income or wage was relatively ignored by mainstream economists for many years after Keynes brought it on the surface. However, there were some early empirical findings which suggested that wage considerations in one industry might affect wage settlements in similar industries. More specifically, there were indications that for many years "key groups" industries in US manufacturing determine to a large extent wage changes in "non-key Groups" industries (Eckstein and Wilson,1962; Hamermesh (1975); Flanagan 1976). Furthermore, in countries like Sweden, wage changes in the non-manufacturing sector were found to be influenced by changes in the manufacturing sector and that outside or reference wages are quite important for wage setting at the local level (Jakobsson and Lindbeck, 1971;.

In the late 1970's and 1980's the notion started to appear in a few theoretical macroeconomics papers. In one of the early papers, Boskin and Sheshinski, (1978) assume that the welfare of individuals depends in part on relative after-tax consumption. This implies that "an additional incentive for income redistribution from wealthy to poor citizens is created" (Boskin and Sheshinski, p.590, 1978). In the same spirit, Kapteyn and Van Herwaarden, (1980), adopt interdependent individual welfare functions in order to study their implications for income distribution. The authors show that a neglect for interdependence leads to incorrectly weighing economic growth against income redistribution.

A few years later, Akerlof's idea of adherence to social custom which implies that the agents' utility is influenced by other agents' utility, is another early example of comparing rewards. Akerlof presents the fair wage hypothesis as the main example of such a social custom. He proceeds to show that this might help explain involuntary unemployment (Akerlof, 1980). The concept of comparing rewards is also embodied in Oswald's notions of jealousy and altruism. In particular, Oswald shows that if agents exhibit such behaviour, the optimal tax theory's general results either no longer hold or need not hold (Oswald, 1983). Another early example was the work of Gylfason and Lindbeck (1984, 1986) who employ the idea that unions wage decisions are interdependent, in the sense that a union aspires to an appropriate wage by taking into account the rest of the industry's wage or the average national wage. The analysis is used in order to investigate the relationship between inflation and unemployment in the short and long run. In the same spirit, the work of Frank (1984) employed the assumption that workers care about relative income in a framework of competitive wage determination in order to study the relationship between the equilibrium distribution of wages and marginal products.

A few years later, Summers (1988) focused on the idea of relative wage and attempted to integrate it in the modern understanding of unemployment equilibrium. Summers acknowledges Keynes emphasis on the concept and the fact that it has been largely disregarded by contemporary macroeconomic theory. Thus as can be seen, the use of the notion of comparing rewards was regaining popularity in mainstream macroeconomics. Most of the above representative works indicated that the incorporation of the concept has other important macroeconomic implications apart from the traditional explanation for downward wage rigidity and involuntary unemployment. Namely, its incorporation in macroeconomic formulations has important consequences for income distribution, growth and tax policy.

In the field of labour economics, the idea that trade unions care about relative wages had been suggested as early as 1948. More specifically, one of the earliest labour economists, A. Ross, argued that unions are not so much concerned with the maximum possible wage increase, as with relative as opposed to absolute wages (Ross, 1948). However, the idea was dormant until the early eighties when the lead taken by the gradual reintroduction of the idea of comparison income in macroeconomics was followed by a number of labour economists. Its promotion was also assisted by the above mentioned empirical indications of union wage interdependence.

In the 1980' and early 1990's there were further empirical indications of the importance of relative considerations at both the individual and at the aggregate level. For instance an early paper by Van de Stadt, Kapteyn, and Van de Geer, (1985) using panel data found empirical evidence for relative considerations on the individual level. Similarly, Clark and Oswald (1996) found that workers care about comparison wage rates. At the aggregate level, there were also a number of empirical papers which seem to support the idea of interdependent wage decisions among industries in US and in many European countries (see for instance, Holmlund and Skedinger, 1990; Jacoby and Mitchell, 1990; Flanagan, Moene and Wallerstein, 1993; de la Croix, 1993,1994)

The empirical phenomenon of wage interdependence could not easily be explained by the conventional approaches to union objectives. Many authors ascribed it to union preferences and other factors without specifying how those preferences can be the source of such behaviour (see for instance, Hochman and Rogers, 1969). However, the above findings combined with empirical results at the individual worker level, can easily be explained by employing the idea of comparison wages: unions and workers do not care only about their own wages but also about other unions wage settlements. This implies that the inclusion of own wages only in the union objective function might be seriously incomplete. On the contrary there were a number of theoretical reasons which can justify the importance of a comparison or reference wage in union utility (see Pencavel, 1991; Clark and Oswald,1996 and Frank,1997).

The first step was the attempt to integrate such preferences in the objective function of the union. Thus, in an influential paper on union literature, Oswald (1979) starts with the stylized fact the unions seem to follow each other's wage demands. He then proceeds to construct a model of an economy with many trade unions with wage interdependence as a basic characteristic. A few years later, the same author, Oswald (1986) explicitly draws on the idea of relative wage in a trade union utility function as a possible explanation of wage rigidity (1986). Oswald utilizes some work in psychology to suggest two ideas: a) that there is an asymmetry between responses to "over-pay' and "under pay" and b) that there is an aspiration wage which is the level of pay which is seen as the fair amount or the norm, and which depends on past achievements or comparisons with the wage of other workers. Once this aspiration wage has been achieved, extra increases of wages provide less utility. J. King's (1990) work is along these lines. Similarly, the fair wage hypothesis of Akerlof and Yellen (1990) can also be placed in the same framework. Thus, by the early 90's although the idea of relative concerns was not considered a standard specification in the union utility function, it had started to be taken more seriously by some labour economists.

IV. Job Satisfaction and Happiness

For many decades, job satisfaction research was thought to be the concern of industrial and occupational psychology specialists. Economists were reluctant to investigate job satisfaction because of its allegedly highly subjective nature and also because personal judgements of satisfaction and other subjective opinions were considered as a research field more appropriate to other social scientists. However, in the late 1970's a number of economists started to realize the significance of job satisfaction as an economic variable. In particular, job satisfaction research was thought to be important for analysing and predicting labour turnover, labour productivity and also for its relation to the degree of unionism in the labour market.

Almost from the first systematic studies of job satisfaction by economists, the research potential of the notion of relative wages or income was realized. The work of Hamermesh (1977) is considered to be the earliest article of its kind in the economics literature. The author utilizes a sample of American employees and estimates job satisfaction equations. Hamermesh's work focuses 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 is followed a few years later by Layard (1980) for whom well-being depends on income and status relative to expectations.

As the literature on job satisfaction started to proliferate, more authors found that the inclusion of relative wage in job satisfaction equations was fruitful. For instance, a study by Cappelli and Sherer (1988) concentrating on the airline industry employed the idea of an outside "market wage', calculated by averaging pay for specific occupations in other airlines. The results indicated that the market wage was statistically significant and negative in one of the two equations reported for pay satisfaction. This sort of specification was quite close to a pure relative wage effect.

The paper by Clark and Oswald (1996) concentrated exclusively on testing the role of relative or comparison income on job satisfaction. The authors used data from 5000 British workers in order to test the hypothesis that utility depends on income relative to a comparison or reference level. The authors conclude that:

“These results appear to offer statistical credence to the hypothesis that feelings of well-being depend on a reference or comparison level of income.

By contrast, they 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, p.373)

In the last few years research on job satisfaction which incorporates the notion of comparison income is abundant. There are many papers which have tried to test the hypothesis using various datasets (see for instance Drakopoulos and Theodossiou, 1997; Ferrer-i-Carbonell, 2005 and references therein).

Similarly to the case of job satisfaction, for many years economists were not interested in concepts like well-being and happiness for the same reasons that they ignored the study of job satisfaction. Research on happiness and its relation to economic variables was conducted by a few social scientists. The exception was the pioneering work of R. Easterlin in 1974 which dealt with the relation between income and happiness. Gradually though and especially in the last decade, the interest of economists on happiness has increased dramatically. The main reason for that was the realization that in the final analysis the purpose of economic growth was the presumed overall increase in happiness levels. Additional reasons that helped the promotion of happiness research was the realization that government intervention can help increase overall happiness by reducing unemployment and inequality levels (see also Layard, 2005). Thus as one would expect, the focus of happiness research by economists was the study of the relationship between income and happiness.

There have been many empirical studies which examine this relationship in many countries using a variety of micro and macro data. A fairly common empirical result is that substantial increases in real per capita income do not correspond to equivalent increases of individual happiness. More strangely, there are examples where a negative correlation between real income and happiness were observed (see for instance, Easterlin, 1974, 1995; Oswald, 1997; Wright 2000; Lane, 2000; Blanchflower and Oswald, 2004). As one would expect, these empirical findings have puzzled many economists and some have called it the "paradox of happiness" or the "Easterlin paradox"(e.g. Phelps, 2001; Bruni and Porta, 2007).

In attempting to explain the happiness paradox, economists have suggested a number of theoretical reasons such as social capital depreciation, level of inequality, changing aspirations etc. A large body of literature employs the idea of relative income or relative consumption hypothesis as an appropriate approach towards tackling the paradox of happiness. The main thrust of the relative income argument in the context of happiness research is that individuals do not extract much happiness from their absolute income but from their position relative to other people's incomes. Thus, raising everybody's income does not increase general happiness. This is because in comparison to others, income has not improved. (Frank, 1985, 1997: Andrews, 1991; Veenhoven, 1991; Kenny, 1999; Easterlin, 1974, 2001; Ferrer-i-Carbonell, 2005).

The notion of relative income as a possible way of explaining the paradox was first suggested by Easterlin (1974). The same author uses it in a later paper in which he elaborates on the idea of aspirations in relation to income. A basic part of his argument is the concept of interdependent individual utilities (Easterlin, 2001). Before the boom in the happiness literature, there were a few papers where happiness levels were linked to the notion of relative income or more generally interdependent utilities. In a relatively early paper, Tomes (1986) utilizes social-psychological measures of happiness and satisfaction in order to test the presence of interdependent preferences. The author uses Canadian survey data to test this hypothesis and the empirical results support the interdependent preferences model.

On individual happiness, McBride (2001) presents an empirical analysis to test for the effect of an individual's own income, past financial situation, and cohort (reference) income on subjective well-being. McBride (2001) finds, that the higher the income of the peers, the less satisfied is the individual. There are numerous empirical studies on the aggregate level. A recent study by Blanchflower, and Oswald (2004) investigates happiness in the United States and Great Britain. Apart from confirming the existence of the happiness paradox for US and UK, the authors find that people care about relative income. They also find indications that income is still important for lower income groups. Finally, a survey of empirical research on happiness and income shows a clear connection between comparing rewards and happiness levels. As Frey and Stutzer write “It is not the absolute level of income that matters most but rather one’s position relative to other individuals” (Frey and Stutzer, 2002b, p.411, see also Layard, 2005).

V. Main Economic Implications of Comparing Rewards

The incorporation of relative income or more generally the existence of interdependent individual utilities, has serious implications for many standard results in economics. In this section we concentrate on the issues of wage rigidity and unemployment, economic growth and inequality and tax policy.

First of all and in more general terms, a number of theorists have indicated that basic results concerning free-market efficiency might be problematic. For instance, in an early paper incorporating interdependent preferences Pollak (1976) studied the long run per capital consumption patterns and demand functions. The author demonstrates that "with interdependent preferences we cannot base judgements about individual welfare and the preference ordering revealed by market behaviour" (Pollak, 1976, p.320). Many years later, Clark and Oswald (1996) argue in similar terms that because preferences are intrinsically interdependent, the standard optimality results of the free market may fail to hold. Furthermore, the standard approach to individual demand functions based on Samuelsons' revealed preference theory seems problematic if we take into account interdependent utilities and the recent literature on subjective well-being. More specifically, the lack of measurability implies that statements of individual welfare based on the revealed preference approach to utility are difficult to be put to test. On the other hand, if utility is understood as subjective well-being, the available data discredit the standard theory and fully support the interdependent utilities (e.g. Duesenberry's) approach (for an extensive discussion see Holländer, 2001).

One of the first specific consequences that come to mind when adopting the notion of reward comparisons and especially of relative wage is the Keynesian idea of wage rigidity and equilibrium unemployment. As was seen, the Keynesian idea of relative wages was forgotten by many macroeconomists until the 1980's. However, a number of contemporary influential macroeconomic theorists such as and Akerlof (1980) and Summers (1988) have re-employed this notion in more sophisticated theoretical frameworks in order to show the connection between relative wages, wage rigidity and equilibrium unemployment. Similar results are obtained in the intra-firm level: the wages offered by firms may have low variance if there are intra-firm comparison effects. Furthermore, employers are more likely to offer contracts guaranteeing no income reductions thus generating institutionalised downward wage rigidity. This wage rigidity at the level of firms produces Keynesian business cycles at the macro level (Mc Donald, 2002 and for empirical evidence for the non-existence of wage reductions see Teulings and Hartog (1997). Oswald (1986) arrives at the same conclusions in labour economics by using a union utility function which incorporates relative wages. Starting from the perspective of behavioural economics, Baxter (1988) also links the notion of reward comparisons to downward wage rigidity.

One other serious consequence of the idea of comparing rewards is that the case for economic growth especially in developed countries is less strong. This conclusion is reached through two distinct strands of literature. In particular, from a macroeconomic point of view, the existence of interdependent utility functions might imply that economic growth is less important than income redistribution from wealthy to less wealthy citizens (see Boskin and Sheshinski, 1978; Kapteyn and Van Herwaarden, 1980). The same conclusion is reached in the context of income and happiness literature. The explanation of the happiness paradox by means of relative income implies that a general increase in absolute income has little effect on happiness levels given that individuals care about their relative position. This is backed by empirical and theoretical arguments that economic growth in developed countries does not lead to greater happiness (Easterlin, 1974; Lane, 2001). In the same framework, the case for a more equal income distribution is also strong. For instance, if we accept that there is a national norm for a reference income then a more equal income distribution will increase happiness levels in a country (Clark, Frijters and Shields, 2007, p.38). This is also reinforced by empirical studies of the negative effect of inequality on happiness of a country (Alesina, Di Tella and Mac Culloch, 2004).

The adoption of the concept of comparing rewards has also serious implications for optimal taxation theory. The main idea here is that the presence of income or consumption comparisons results to a negative externality which undermines standard optimal tax theory. In general terms, if consumption decisions are influenced by others' consumption, consumption causes a negative externality by reducing the welfare of other individuals (Layard, 1980; Frank, 1985). In the specific case of an asymmetric structure of externalities as the one suggested by Duesenberry, this implies that wealthier individuals impose a negative external effect on poorer individuals but not vice versa. Furthermore, progressive income tax may well improve efficiency under Duesenberry's assumptions rather than to impair it as deduced in standard welfare economics (see Holländer, 2001). In the case of income, the presence of income comparisons imply negative externalities from high income earners (Oswald, 1983). Following this argument in a specific example for educational subsidies, Lommerud (1989) suggests that some of the differences from labour income should be taxed in order to use educational subsidies to restore peoples's incentives to undertake education. Thus, it is clear that the there are theoretical justifications for altering the standard results of income and consumption taxation.

Apart from the above, there are other studies examining the impact of income comparisons and interdependent utilities to more specific economic issues. For instance, the presence of relative concerns implies that poverty lines should be based on relative rather than absolute consumption as has been suggested by Sen (1983) and many others. The application of the idea to voting behaviour models means that individuals favouring the same policy or candidate are members of a common reference group, and the voting decision is determined by inter- and intra-group relations (Schram and Sonnemans, 1996). Finally, the incorporation of relative income in migration theories enhances our understanding of related phenomena as for instance why the elites in poor countries do not emigrate (Stark and Taylor, 1991). Thus, the concept of reward comparisons seems to be quite helpful in extending our understanding of a wide range of economic phenomena.

VI. Concluding Comments

The idea that people compare rewards has long been used by many social scientists and it has also provided the basis for interesting approaches to many social phenomena. In spite of its long presence in economics especially in the works of Veblen, Keynes and Duesenberry, the idea was relatively ignored by economists until effectively the 1980's with a few exceptions mainly by non-mainstream economists like Leibenstein and Easterlin. The concept however, has started to draw the attention of an increasing number of economists in the last two decades. The empirical indications of its validity and the gradual realization that it can provide new insights to many economic issues were the main reasons for this relative revival. Moreover, the refreshing perspective that the new research area of subjective well-being (job satisfaction and happiness) seems to have given a push to the weak interest previously found in a few macro and labour economics papers.

In spite of the above, the concept with its specific expression in economics of comparison income or interdependent utilities, is still not accepted by the economics orthodoxy. Many economists believe for instance, the utility is based on absolute income only. Our discussion indicated that this might be due to two main reasons. First, many orthodox theorists regard empirical findings based on subjective well-being with mistrust, believing that they are not of high scientific value, a stance not shared however, by other social scientists. The second reason, and to our view, the more important one is that the full incorporation of comparison or relative income in economic theory would cast serious doubts in many well-established and important results. More specifically, the free-market efficiency results both at the micro and at the macro level might not hold. In addition, optimal taxation, economic growth and income distribution theories might need serious rethinking towards more progressive taxation and more emphasis on more equal income distribution. The important point concerning the incorporation of relative considerations is that their implications are often confirmed via different research approaches. For instance, similar conclusions regarding the issue of growth over inequality are reached in macroeconomics papers and also in the aggregate happiness papers which employ relative income concerns .

Thus, in spite of its wide usage in other social sciences, its empirical significance (coming from a number of research approaches) and its theoretic enhancing dimensions, the idea of comparing rewards is still not widely accepted. Given its implications for many crucial economic results and their policy extensions, one might wonder about the relevance of the old issue of the influence of value judgements on economic theory. However, more extensive research is required in order to provide a plausible explanation of the resistance to fully incorporate reward comparisons in orthodox economic theory.

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