Comparison Wage in Trade Union Decision Making

Drakopoulos, Stavros A.

University of Athens

2007

COMPARISON WAGE IN TRADE UNION DECISION MAKING

June 2007

BY
STAVROS DRAKOPOULOS
UNIVERSITY OF ATHENS

Abstract

The starting point of this paper is the idea that trade unions and individual workers pay attention to wage settlements in similar sectors of the economy. The foundations of this concept can be found in other social sciences and also in the literature of psychological economics. However, it has not received much attention in connection to union decision making. This comparison or reference wage enters the decision making of the union (i.e. the union utility function). In this paper, we employ a union utility function which incorporates this concept. The analysis is conducted in a bargaining framework and the results show the effects on the optimal wage of important variables like comparison wage, unemployment benefit, union power and of the weight that the union places on the comparison wage

I. Introduction

Social comparisons theories have a long history in the social sciences and they have provided numerous insights in many research fields. In economics, the concept of comparison income or wage belongs to this general theoretical framework. 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 in Duesenberry's (1949) book. It was followed by the work of Easterlin who formulated the hypothesis that well-being depends on relative income, not absolute income (Easterlin, 1974 and also Easterlin, 2001). Furthermore, the idea has been used by a number of behavioural economists in a variety of theoretical settings (for a review see Baxter, 1993). In the last decades, its fruitfulness has been realized by an increasing number of economists and thus it has started to be used in connection to labour economics.

The idea that unions and workers compare wages with others has been expressed in a plethora of terms such as relative wage, fair wage, aspiration wage, comparison or target wage. [see for instance, Oswald (1979, 1986), Layard (1980), Frank (1984), Gylfason and Lindbeck (1984, 1986), Summers (1988), Lommerud (1989), Akerlof and Yellen (1990), Chappell and Sampson (1990), Clark and Oswald (1996), Drakopoulos (1996), Drakopoulos and Theodossiou (1997), Arestis and Biefang-Frisancho Mariscal (1998), Charness and Grosskopf (2001) and Altman (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). The concept has also been employed in formulations examining the relatioship between income and happiness (e.g.

Frey and Stutzer, 2002; Drakopoulos, forthcoming). Furthermore, the idea of comparison wage has been used extensively in other social sciences especially in the context of equity theory and motivation theory (see Sweeny, 1990; Levine, 1993; Ambrose and Kulik, 1999; Deci and Ryan, 2000).

With this in mind, the paper utilises a union utility function that incorporates the idea that there is a comparison or reference wage which affects union utility. The comparison or reference wage can be linked to the previous wage level in a Keynesian framework and to the rest of the industry's wage settlements. The paper suggests that unions compare their wage with other wages in the sector and this implies that this reference wage enters the union utility function. Thus the paper will start with a discussion of the concept of comparison wage and its possible empirical manifestations in wage settlements. Part III will construct a simple model of union behaviour incorporating the idea of wage comparisons. Subsequently, in part IV there will be a discussion of the comparative static results and a comparison with those of the conventional approach. Finally, a concluding section will close the paper.

II. Wage Settlements and Comparison Wage

Empirical evidence seems to support the idea of interdependent wage decisions among industries in US and in many European countries (see for instance, de la Croix, 1994; Urban, Palm and de la Croix, 2000). More specifically, there are 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; Flanagan 1976; Flanagan, Moene and Wallerstein, 1993: McBride, 2001). In Germany, wage settlements in one region and for a specific sector or industry act as indicators for others. For example, other sectors take the negotiated wage increases of the "leading" sector in the annual

wage round as an important benchmark (Fitzenberger and Franz, 1999). In 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; Holmlund and Skedinger, 1990). There is also empirical support for relative wage considerations in Italy and Belgium (Galizzi and Lang, 1998; de la Croix, 1993). Further empirical evidence points to the idea that the notion of fair wage (connected to national or industry's level) is very important in union negotiations in the US (Jacoby and Mitchell,1990; de la Croix, 1994 and for specific empirical studies Gramm and Schnell, 2001). On the individual worker level, Clark and Oswald (1996) found that workers care about comparison wage rates (see also Van de Stadt, Kapteyn, and Van de Geer, 1985; McBride, 2001; Ferrer-i-Carbonell, 2005). Furthermore, Hamermesh (1975) and Skott (2005) maintain that interdependence affects not only the decisions of workers but also of firms.

The phenomenon of wage interdependence can not easily be explained by the conventional approaches to union objectives. They usually ascribe it to union preferences and other factors without specifying how those preferences can be the source of such behaviour. 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 are a number of theoretical reasons which can justify the importance of a comparison or reference wage in union utility (see Clark and Oswald,1996 and Frank,1997).

One possible justification can be found in Keynes's views. 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, 1973, pp.13-14). 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). In the same spirit, Gylfason and Lindbeck (1984) 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. Analogous views can be found in the work of Frank (1984).

Another possible theoretical justification of the reference wage can be on the grounds of asymmetric response to over-pay and under-pay and to the level of pay that is seen as the "fair" amount. Evidence from experimental psychology seems to support the role of such response (e.g. Taylor,1982; Deci and Ryan, 2000). A signalling interpretation might be an additional justification. In particular, the wage agreed by firm A might be a signal, containing information about market conditions affecting firm B (see for instance Chappell and Sampson, 1990).

The theoretical justification concerning the importance of comparison wage can be extended to the individual worker level. The foundations of such an approach can be found in the behavioural and psychological economics literature. More specifically, a hierarchical structure of needs implies that the individual is motivated to meet unrealized needs step by step starting with the most important needs (for the basic argument see Maslow, 1954 and for a review Drakopoulos, 1994). However, 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, 1989 and Berry, 1994). Thus there will be unsatisfied needs and this is equivalent to the difference between reference income and actual income (see also Baxter, 1993 and Altman, 2001).

Furthermore, the importance of the idea of comparing rewards with others can be placed in the general framework of sociological, psychological and managerial perspectives which contain theories such as 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, Baxter 1988 and Earl, 1990). In the specific form of the comparison wage, it can also be found in other social study fields (see Homans,1961; Valenzi and Andrews, 1971; Sweeny, 1990; Kahnemann et al 1997).

Given the above, we can construct a union utility function which contains a comparison wage. In particular, the comparison wage enters the utility function and provides negative utility. Thus the union's utility is based positively on union's wage but negatively on the reference wage.

III. The Model

Having in mind the previous discussion, one can construct a union utility function which incorporates the idea of comparison wage. As was mentioned, the setting of w* can be related to the previous income level or to a perception of the "appropriate" income. (For a further discussion on this issue see Oswald, 1986, Summers 1988, Akerlof and Yellen,1990 and Clark and Oswald, 1996; Corneo and Jeanne, 2001). In particular, the comparison wage (w*) enters the utility function and provides negative utility. The negative

utility that w* gives can be linked to general formulations where deviation from a social norm causes a loss of utility (see Bernheim, 1994; Frank, 1985; Lindbeck, 1997; Clark and Oswald 1998; Cooper, Garcia-Penalosa and Funk, 2001; Stutzer, 2004). It can also be supported by empirical evidence which shows the negative impact on utility of a rise in comparison income (see for instance, Solnick and Hemenway, 1998; Blanchflower and Oswald, 2004). Thus the union's utility is based positively on union's wage but negatively on the comparison wage. For simplicity, the union is assumed to have a utilitarian maximand Φ, defined as the sum of utilities of its employed and unemployed members.

$$\Phi = N(\alpha w - \beta w^*) + (M-N)b \qquad (1)$$

Where w is the wage rate, w* the reference or comparison wage, N is the number of trade union members who are employed, M is the number of union members and b is the unemployment benefit. It also holds that $\alpha > \beta$ and $M > N$ (interior solution) and that $\alpha w > \beta w^*$.

The comparison wage can be conceived as a mark-up of the other's sector wage or the industry wage. Thus

$$w^* = (1+ \mu) \ddot{y} \qquad (2)$$

where $\ddot{y}$ is the industry wage and μ is the mark-up. Thus union utility becomes:

$$\Phi = N(\alpha w - \beta(1+ \mu) \ddot{y}) + (M-N)b \qquad (3)$$

The firm employs N workers to produce output f(N) according to

$$Q = f(N), \text{ with } f'(N) > 0, f''(N) < 0 \qquad (4)$$

The firm's profits are given as

$$\Pi = pf(N) - wN \qquad (5)$$

Where p denotes product price.

The wage rate is determined by negotiation between the firm and the union which has M members. Given the wage, employment is determined by the demand for labour, so that

$$f'(N) = w \qquad (6)$$

Therefore employment can be written as

$$N = g(w) \text{ with } g'(w) < 0 \qquad (7)$$

IV. Bargaining and Comparative Statics

The firm and the union negotiate over the wage w, according to a Nash bargain, following which employment N = g(w) is determined according to relation (6). Without loss of generality, we can normalize both the firm's fallback profits and the union's fallback utility at zero. Thus the Nash bargain will maximize:

$$\Phi^s \Pi^{1-s}$$

Where s is the union's bargaining power. If s=1 then the model corresponds to the Monopoly Union model. If 0<s<1 it corresponds to the "Right to manage" model. The Nash bargaining solution can be described as:

Max B = [N(αw −β(1+ μ) ÿ) + (M-N)b]^s [pf(N) −wN] $^{1-s}$ (9)
  w

The aim now is to see how the bargained wage and therefore employment alter in response to changes in the exogenous variable. The general first order condition is the following:

B_w = sΦ_w/Φ + (1-s) Π_w/Π = 0   (10)

We can write the following partial derivatives (also noting that N= g(w)).

Φ_w = g'(w)[αw −β(1+ μ) ÿ] + g(w) − g'(w)b > 0   (11)

Φ_{wb} = -g'(w)   > 0   (12)

Φ_b = M- g(w) > 0   (13)

$\Phi_{wÿ}$ = -g'(w) β(1+ μ) > 0   (14)

$\Phi_ÿ$ = -g(w) β(1+ μ) < 0   (15)

$\Phi_{wμ}$ = -g'(w) β ÿ   > 0   (16)

$\Phi_μ$ = -g(w) β ÿ   < 0   (17)

$\Phi_{wα}$ = g'(w)w +g(w) < > 0   (18)

$\Phi_α$ = g(w)w   > 0   (19)

$\Phi_{wβ}$ = -g'(w) ÿ (1+ μ) > 0   (20)

$\Phi_\beta = -g(w) \ddot{y} (1+\mu) < 0$ (21)

In order to proceed, we differentiate along relation (10) noting that $\Phi_w > 0$, and we obtain the following comparative statics:

$$\frac{\partial w}{\partial \theta} = \frac{-B_{w\theta}}{B_{ww}} \quad (22)$$

Where θ is an exogenous variable. Furthermore we assume that the second order conditions hold.

$$B_{ww} < 0 \quad (23)$$

Given (22) and (23) we have:

$$\text{sign}(\partial w / \partial \theta) = \text{sign}(B_{w\theta})$$

Thus we obtain a simple expression for $B_{w\theta}$

$$B_{w\theta} = \frac{s(\Phi\Phi_{w\theta} - \Phi_w \Phi_\theta)}{\Phi^2} + \frac{(1-s)(\Pi\Pi_{w\theta} - \Pi_w\Pi_\theta)}{\Pi^2} \qquad (24)$$

Given the all the above we can deduce the following propositions:

Proposition 1

An increase (decrease) in the industry (comparison) wage causes the union wage to increase (fall). Proof: Changes in ÿ affect only the union utility and not the firm's profits. From (22) and (24) and also from relations (11), (14), (15) we can see that:

$B_{w\ddot{y}} > 0$ and $\partial w/\partial \ddot{y} > 0$

Proposition 2

An increase (decrease) in the unemployment benefit causes the union wage to increase (fall). Proof: Changes in b affect only the union utility function and not the firm's profits. From the first order condition, it is clear that the impact of a change in b has the same direction as a change in comparison income. Thus from the previous proposition we can see that:

$B_{wb} > 0$ and $\partial w/\partial b > 0$

Proposition 3

An increase (fall) in the mark-up causes union wage to increase (fall). Proof: The same as before: using relations (22) and (24) and from (11), (16), (17), it is clear that:

$B_{w\mu} > 0$ and $\partial w/\partial \mu > 0$

Proposition 4

An increase (decrease) in union power causes wages to increase (fall). Proof: we know that:

$$B_{ws} = \frac{\Phi_w}{\Phi} - \frac{\Pi_w}{\Pi}$$

From relation (11) and the fact that $\Pi_w = -N$ we have:

$B_{ws} > 0$ and $\partial w/\partial s > 0$

Proposition 5

An increase (fall) to the weight that the union places on the comparison wage causes union wage to increase (decrease). Proof: from (22) and (24) and also from (11), (20) and (21) we can see that

$B_{w\beta} > 0$ and $\partial w/\partial \beta > 0$

V. Concluding Comments

The starting point of this paper was the idea that there is a comparison or reference wage which enters the union utility function. As we saw, the justification of the presence of a comparison wage in unions' considerations is well-based on social comparisons theories and

findings from economic psychology. This implies that standard union behaviour models which do not take into account wage comparisons might be inadequate and limiting. The paper then discussed the effects of the presence of a comparison wage in a bargaining setting where the firm and the union negotiate over the wage in a partial equilibrium framework. The results showed that the union wage exhibits a positive relationship with the comparison wage, unemployment benefit, the mark-up over the industry wage, union power and the weight that the union places on the comparison wage. The results concerning unemployment benefit and union power are not surprising given the general literature on union behaviour (see for instance Pencavel, 1991; Booth and Chatterji, 1995; Hart and Moutos, 1995).

However in the context of this paper, the rest of the results indicate the way that key variables are affected by the presence of the comparison wage in a union bargaining setting. For instance, if the union pays a lot of attention to other wage settlements in the industry then this will influence its own bargained wage and thus the level of employment. In particular, the concern that the union exhibits over other wage settlements in similar sectors has a positive effect on its own wage but a negative effect on the level of employment. Furthermore, the empirical findings of the existence of wage interdependence among industries in many countries might be better explained if the idea of comparison wage is taken into consideration. Finally, one possible benefit of this paper is that it might attract more attention to the wider effects of the idea of the comparison wage especially in a general equilibrium setting where the industry wage is also endogenous.

References

Adams, J. (1963). Towards an Understanding of Inequity, <u>Journal of Abnormal and Social Psychology</u>, 67, pp.422-436.

Akerlof, G. (1980). A Theory of Social Custom, of which Unemployment May Be One Consequence, <u>Quarterly Journal of Economics</u>, 94, pp.749-75.

Akerlof, G and Yellen, J. (1990). The Fair Wage-Effort Hypothesis and Unemployment, <u>Quarterly Journal of Economics</u>, 105, pp.255-84.

Ambrose, M. and Kulik, T. (1999), Old Friends, New Faces: Motivation Research in 1990s, <u>Journal of Management</u>, 25, pp.231-280.

Altman, M. (2001) A Behavioural Model of Labour Supply: Casting Some Light into the Black Box of Income-Leisure Choice, <u>Journal of Socio-Economics</u>, vol.30, pp.199-219.

Arestis, P. and Biefang-Frisancho Mariscal, I (1998). Elements of Conflict in UK Wage Determination, in <u>New Keynesian Economics/ Post Keynesian Alternatives</u> (Ed. R. Rotheim), London: Routledge.

Baxter J. (1993) <u>Behavioral Foundations of Economics</u>, New York: St Martin's Press.

Bernheim, D. (1994) A Theory of Conformity, <u>Journal of Political Economy</u>, 102, pp.841-77.

Berry, C. (1994) <u>The Idea of Luxury: a Conceptual and Historical Investigation</u>, Cambridge: Cambridge University Press.

Blanchflower, D. and Oswald, A. (2004) Well-being Over Time in Britain and the USA, <u>Journal of Public Economics</u>, 88, 1359-86.

Booth, A. and Chatterji, M. (1995) Union Membership and Wage Bargaining when Membership is not Compulsory, <u>The Economic Journal</u>, 105, pp.345-360.

Chappell, D. and Sampson, A. (1990). Wage Rounds: a Signalling Interpretation, <u>Economics Letters</u>, 32, pp.389-392.

Charness, G. and Grosskopf, B. (2001). Relative Payoffs and Happiness: An Experimental Study, <u>Journal of Economic Behavior and Organization</u> , 45 pp. 301–328.

Clark, A. and Oswald, A. (1996). Satisfaction and Comparison Income, <u>Journal of Public Economics</u>, 61, pp.359-381.

Clark, A. and Oswald, A. (1998) Comparison-Concave Utility and Following Behaviour in Social and Economic Settings, <u>Journal of Public Economics</u>, 70, pp.133-55.

Cooper, H, Garcia-Penalosa, C. and Funk, P. (2001). Status Effects and Negative Utility Growth, <u>Economic Journal</u>, 111, pp.642-65.

Corneo, G. and Jeanne, O. (2001) On Relative Wealth Effects and Long-Run Growth, <u>Research in Economics</u>, 55, pp.349-58.

Danthime J-P. and Kurmann, A (2004) Fair Wages in a New-Keynesian Model of the Business Cycle, <u>Review of Economic Dynamics</u>, 7, pp. 107-42

Deci, E. and Ryan, R. (2000) 'The 'What ' and 'Why' of Goal Pursuits: Human Needs and the Self-determination of Behavior", <u>Psychological Inquiry</u>, 11, pp.227-268.

De la Croix, D. (1993) Wage Interdependence and Competitiveness, <u>Recherches Economiques de Louvain</u>, 59, pp.395-425.

De la Croix, D. (1994) Wage Interdependence through Decentralized Bargaining, <u>Journal of Economic Surveys</u>, 8, pp.371-403.

Drakopoulos, S. (1994) Hierarchical Choice in Economics, <u>Journal of Economic Surveys</u>, vol.8, pp.133-153.

Drakopoulos, S. (1996). Towards a Hierarchical Approach to Trade Union Behaviour, <u>Economic Notes</u>, 25, pp.47-56.

Drakopoulos, S. (forthcoming) The Paradox of Happiness: Towards an Alternative Explanation, <u>Journal of Happiness Studies.</u>

Drakopoulos, S. and Theodossiou, I. (1997). Job Satisfaction and Target Earnings, <u>Journal of Economic Psychology</u>, 18, pp.694-704.

Duesenberry, J S. (1949). <u>Income, Saving and the Theory of Consumer Behaviour</u>, Cambridge: Harvard University Press.

Earl, P. (1990). Economics and Psychology: a Survey, <u>The Economic Journal</u>, 100, pp.718-55.

Easterlin, R. (1974). Does Economic Growth Improve the Human Lot? Some Empirical Evidence, in <u>Nations and Households in Economic Growth</u> (eds. P. David and M. Reder). New York: Academic Press.

Easterlin, R. (2001) "Income and Happiness: Towards a Unified Theory", <u>Economic Journal</u>, 111, pp.465-484.

Eckstein, O and Wilson, T. (1962). The Determination of Money Wages in American Industry, <u>Quarterly Journal of Economics</u>, 76, pp.379-414.

Ferrer-i-Carbonell, A. (2005) "Income and Well-being: an Empirical Analysis of the Comparison Income Effect", <u>Journal of Public Economics</u>, 89, pp.997-1019.

Festinger, L. (1954) A Theory of Social Comparison Processes, <u>Human Relations</u>, 3, pp.117-140.

Fitzenberger, B. and Franz, W. (1999). Industry-level Wage Bargaining: A Partial Rehabilitation -The German Experience, <u>Scottish Journal of Political Economy</u>, 46, pp.437-457.

Flanagan, R. (1976). Wage Interdependence in Unionized Labor Markets, <u>Brookings Papers on Economic Activity</u>, 3, pp.635-73.

Flanagan, R., Moene, K. and Wallerstein, M. (1993). <u>Trade Union Behaviour, Pay-Bargaining and Economic Performance</u>, Oxford: Clarendon Press.

Frank, R. (1984). Interdependent Preferences and the Competitive Wage Structure, <u>Rand Journal of Economics</u>, 15, pp.510-520.

Frank, R. (1985). <u>Choosing the Right Pond</u>, New York: Oxford University Press.

Frank, R. (1997). The Frame of Reference as a Public Good, <u>The Economic Journal</u>, 107, pp.1832-47.

Frey, B. and Stutzer, A. (2002) <u>Happiness and Economics</u>, Princeton: Princeton University Press.

Galizzi, M. and Lang, K. (1998) Relative Wages, Wages Growth and Quit Behaviour" <u>Journal of Labor Economics</u>, 16, pp.367-91.

Gramm, C. and Schnell, J. (2001). The Use of Flexible Staffing Arrangements in Core Production Jobs, <u>Industrial and Labour Relations Review</u>, 54, pp.245-68.

Greenberg, J. (1990). Organizational Justice: Yesterday, Today and Tomorrow, <u>Journal of Management</u>, 16, pp.399-432.

Gylfason, T. and Linbeck, A. (1984). Competing Wage Claims, Cost Inflation, and Capacity Utilization, <u>European Economic Review</u>, 24, pp.1-21.

Gylfason, T. and Linbeck, A. (1986). Endogenous Unions and Governments, <u>European Economic Review</u>, 30, pp.5-26.

Hamermesh, D. (1975). Interdependence in the Labour Market, <u>Economica,</u> 42, pp.421-29.

Hart, R. and Moutos, T. (1995) <u>Human Capital, Employment and Bargaining</u>, Cambridge: Cambridge University Press.

Holmlund, B. and Skedinger, P. (1990). Wage Bargaining and Wage Drift: Evidence from the Swedish Wood Industry, in L. Calmfors (ed.) <u>Wage Formation and Macroeconomic Policy in the Nordic Countries</u>, Oxford : Oxford University Press.

Homans, G. (1961). <u>Social Behaviour: Its Elementary Forms</u>, New York: Harcourt Brace.

Jakobsson, L. and Lindbeck, A. (1971). On the Transmission Mechanism of Wage Change, <u>Swedish Journal of Economics</u>, 73, pp.273-293.

Jacoby S. and Mitchell, D. (1990). Sticky Stories: Economic Explanations of Employment and Wage Rigidity, <u>American Economic Review Papers and Proceedings</u>, 80, pp.33-37.

Kahneman, D. Wakker, P. and Sarin, R. (1997) "Back to Bentham? Explorations of Experienced Utility", <u>Quarterly Journal of Economics</u>, 112pp.375-405.

Kapteyn, A. and Wansbeek, T. (1982). Empirical Evidence on Preference Formation, <u>Journal of Economic Psychology</u>, 2, pp.137-54.

Kaufman, B. (1989) Models of Man in Industrial Relations Research, <u>Industrial and Labor Relations Review</u>, vol.43, pp.72-88.

Keynes, J. (1936) <u>The General Theory of Employment Interest and Money</u>, London: Macmillan (1973 edition).

Layard, R. (1980). Human Satisfactions and Public Policy, <u>Economic Journal</u>, 90, pp.737-750.

Levine, D. (1993). What do Wages Buy? <u>Administrative Science Quarterly</u>, 38, pp.462-483.

Lindbeck, A. (1997). Incentives and Social Norms in Household Behavior, <u>American Economic Review Papers and Proceedings</u>, 87, pp.370-77.

Lommerud, K. (1989). Educational Subsidies when Relative Income Matters, <u>Oxford Economic Papers</u>, 41, pp.640-652.

McBride, M. (2001). Relative-income Effects on Subjective Well-being in the Cross-section, <u>Journal of Economic Behavior and Organization</u> , 45, pp. 251-278.

Martin, J. (1981). Relative Deprivation: a Theory of Distributive Justice for an Era of Shrinking Resources, in L.Cummings and B. Staw (eds) <u>Research in Organizational Behavior: an Annual Series of Analytical Essays and Critical Reviews</u>, vol.3, Greenwich CT: JAI Press.

Maslow, A. (1954) <u>Motivation and Personality</u>, New York: Harper and Row.

Oswald, A. (1979). Wage Determination in an Economy with Many Trade Unions, <u>Oxford Economic Papers</u>, 31, pp.369-85.

Oswald, A. (1986). Is Wage Rigidity Caused by 'Lay-offs by Seniority'?, in W. Beckerman (ed) <u>Wage Rigidity and Employment</u>, London: Duckworth.

Pencavel, J. (1991) <u>Labor Markets under Trade Unionism</u>, Oxford: Basil Blackwell.

Rotheim, R. (ed) (1998) <u>New Keynesian Economics/ Post Keynesian Alternatives</u>, London: Routledge.

Skott, P. (2005) Fairness as a Source of Hysterisis in Employment of Relative Wages, <u>Journal of Economic and Behavioral Organization</u>, 57, pp.305-31.

Solnick, S. and Hemenway, D. (1998) Is More Always Better? A survey on Positional Concerns, <u>Journal of Economic Behavior and Organization</u>, 37, pp.373-83.

Summers, L. (1988). Relative Wages, Efficiency Wages, and Keynesian Unemployment, <u>American Economic Review, Papers and Proceedings</u>, 78, pp.383-88.

Stutzer, A. (2004) The Role of Income Aspirations in Individual Happiness, <u>Journal of Economic Behaviour and Organization</u>, 54, pp.89-109

Sweeny, P. (1990). Distributive Justice and Pay Satisfaction: A Field Test of an Equity Theory Prediction, <u>Journal of Business and Psychology</u>, 4, pp.329-341.

Taylor, M. (1982). Improved Conditions, Rising Expectations, and Dissatisfaction: A Test of the Past/Present Relative Deprivation Hypothesis, <u>Social Psychology Quarterly</u>, 45, pp.24-33.

Urban J. P., Palm, F. and de la Croix, D. (2000) Labor Market Dynamics when Effort depends on Wage Growth Comparison, <u>Empirical Economics</u>, 25, pp.393-419.

Valenzi, E. and Andrews, R (1971). Effects of Hourly Overpay and Underpay Inequity when Tested with a new Induction Procedure, <u>Journal of Applied Psychology</u>, LV, pp.22-27.

Van de Stadt, H., Kapteyn, A. and Van de Geer, S. (1985). The Relativity of Utility: Evidence from Panel Data, <u>Review of Economics and Statistics</u>, 67, pp. 7-15.