Income or Unemployment:
Which has a more significant impact on happiness? [1]

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Although it is routinely assumed that higher income per capita is a justifiable government policy objective, this assumption is rarely investigated. Here, Daniel Berman proposes an unusual approach to doing so, and provides both a meaningful context and interpretation for the results.

Should a government target real income growth or devote more resources to the reduction of unemployment? Which will yield more happiness?

In this paper I will assess the effects of income and unemployment on happiness. The objective is to highlight the potential happiness-yield of different economic and social policies, thus providing a quantitative context for the government's perennial problem of resource allocation.

My dependent variable is *happiness*, which will be regressed both individually and simultaneously on my two independent variables, *income* and *employment status*. My data source for all three variables is the Irish component of the 1986 Eurobarometer survey. The Eurobarometer surveys, which were first undertaken in 1970, are administered biannually in each of the European Union member countries. They use 28 attitudinal and 22 demographic variables to monitor the social and political attitudes of the publics in these nations. Each survey includes a standard battery of questions which focus on attitudes towards the Common Market, EU institutions and policies, while other related topics are intermittently examined.

After filtering for cases in which relevant data were missing, the sample size of the Irish November 1986 survey, BARO 26, was 588. This is only a small fraction of the total Irish data available from all Eurobarometers (31,447 cases). However, including responses from more than one survey would have entailed many methodological and conceptual complications. For instance, the basis for the quartile classification of income is survey-specific, as it relies on that sample's

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income distribution. This greatly reduces the comparability of income data across years, and would have reduced the significance of the income-to-happiness relationships computed.

Similar factors dissuaded the simultaneous use of cross-sectional data from all surveyed countries. Income quartiles would have been completely incomparable, and the linguistic complications surrounding the translation of questions into different languages would have had to be addressed.

The statistical disadvantages caused by the discontinuous nature of both the independent and dependent variables should be outweighed by the relatively large sample size, allowing the use of classical statistics. However, a PROBIT, or any model incorporating maximum likelihood estimation, might still be more suitable than multiple regression analysis, and would provide an alternative and more meaningful statistic to R-squared.

Dependent Variable - Happiness

Each respondent rated his *happiness* on a three-point Likert-type scale. The exact question was:

> Taking all things together, how would you say things are these days - would you say you're very happy, fairly happy, or not too happy these days?

Although it is only very recently that economists have started using this type of self-report data, social psychologists[2] have long found it a useful and reliable source.

While this question has no explicit occupational focus, which would encourage respondents to concentrate on factors such as their *income* and *employment status*, many top-down cognitive theories[3] indicate that individuals tend to spontaneously emphasise objective and universal factors rather than personal events when answering.

While it is virtually impossible to assess the reliability of self-reported happiness levels, commonly used proxies for utility, such as consumption, are clearly unsuitable in an analysis that seeks to identify the relationship between objective factors and internal well-being.

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[2] for example, Argyle (1989), Douthitt et al (1992), Fox and Kahneman (1992), Larsen et al (1984) and Mullis (1992)

[3] for example, Kahneman and Miller (1986)

The adoption of a happiness scale does not imply that interpersonal utility comparisons are feasible. Rather, the multiple regression analysis will assess whether *income* and *employment status* are significant factors effecting an individual's *happiness*.

Independent Variables
My first explanatory variable is *income*, which is coded by quartile for each respondent.

The standard utility functions of microeconomics almost universally assume that absolute income has a large positive correlation with utility. However, if there is no significant difference between the *happiness* of individuals with high and low incomes, this assumed causal link between *income* and *happiness* must be more closely examined.

In 1974, Richard Easterlin was among the first to question whether increasing national income does lead to a happier nation. He found that although national income was consistently growing in the United States during the 1950's and 1960's, happiness levels were not similarly increasing. Was economic policy largely misdirected, he wondered?
More recently Andrew Oswald, Danny Blanchflower, Peter Warr and Andrew Clark have renewed this investigation using more recent and complete data.
Oswald (1994) finds that reported happiness in the US has increased only fractionally over the post-war period and that reported levels of "satisfaction with life" in Europe are little higher than twenty years ago, with some countries posting a fall. Economic growth seems almost worthless.
If this is true, policies designed to produce real income growth will not succeed in buying extra *happiness*.

In accordance with traditional microeconomic theory, it is hypothesised that individual *happiness* will be positively related to *income*.

Unemployment
While *income* may not be a good predictor of an individual's reported happiness, many researchers[4] have identified unemployment as a significant source of disutility. It is also a negative factor in overall economic performance, representing both unutilised production capacity, and a drain on the exchequer through welfare payments and lost tax revenue.

To assess the effect of *employment* on *happiness*, I recoded the Eurobarometer's *occupation* variable to give a new binary variable, *employment status*. Its numeric

[4] for example, Clark (1994) and Oswald (1994)

values of 0 and 1 represent "not unemployed" and "unemployed" respectively. Although an "employed" / "unemployed" dichotomy might seem more obvious, there is a third category including the retired, students, housewives, and military personnel. Together with the employed, these form the "not unemployed" category. Using the original more detailed occupation variable, or a three category structure would have unnecessarily complicated analysis, and removed a possibly useful dichotomous relationship, in which unemployment is hypothesised to be a significant source of distress.

If unemployment has a greater effect on *happiness* than *income* does, governments might more valuably allocate resources to reduce unemployment, rather than encouraging higher income per head of population.

Results

The correlation between *happiness* and the first independent variable, *income*, is -0.16. This yields an adjusted R-square of -.00145. As "not too happy" was assigned a value of 3, "fairly happy" 2, and "very happy" 1, this indicates that there is a very slight positive relationship between *income* and *happiness*. However, the analysis of variance F-test shows this to be insignificant. The t statistic of -.389 is not significant at either $p<.05$ or $p<.10$, allowing acceptance of the null hypothesis that an individual's *income* has no significant effect on his self-reported *happiness*.

Dependent Variable: Is R Happy?
Independent variable: Income

Multiple R	0.01608	Adjusted R Square	0.00145
R Square	0.00026	Standard Error	0.66544

Analysis of Variance
F = 0.15150 Signif F = 0.6972

Variable	B	SE B	T	Sig T
Income	-.009319	.023942	-.389	.6972
(Constant)	1.947036	.066476	29.289	.0000

The second independent variable, *employment status*, has a positive correlation of .223 with *happiness*. The adjusted R-square value is .04799, the F-test showing that this relationship is significant at $p <.0000$. Its t-statistic is 5.531, which is also significant at $p <.0000$. Thus, the null hypothesis that *employment status* has no significant effect on *happiness* cannot be accepted.

Dependent Variable: Is R Happy?
Independent variable: Unemployed?

Multiple R	0.22273	Adjusted R Square	0.04799
R Square	0.04961	Standard Error	0.64881

Analysis of Variance
F = 30.58846 Signif F = .0000

Variable	B	SE B	T	Sig T
Unemployed?	0.545680	.098664	5.531	.0000
(Constant)	1.879852	.027895	67.391	.0000

When *income* and *employment status* are entered simultaneously in the regression, the adjusted R-square statistic is .04747. This means that the two variables jointly explain a lower proportion of the total variance in the dependent variable, *happiness*, than the variable *employment status* does on its own. Due to the insignificance of *income* as a predictor of *happiness*, the F-statistic, which describes the proportion of total variance explained by the independent variables, is halved in size, from 30.59 to 15.63. However, as a result of the significance of *employment status*, the significance of the joint regression F-statistic remains very high ($p < .0000$).

Dependent Variable: Is R Happy?
Independent variable: Income and Unemployed?

Multiple R	0.22521	Adjusted R Square	0.04747
R Square	0.05072	Standard Error	0.64899

Analysis of Variance
F = 15.62759 Signif F = .0000

Variable	B	SE B	T	Sig T
Income	.019777	.023926	.827	.4088
Unemployed?	.563909	.101125	5.576	.0000
(Constant	1.828381	.068234	26.796	.0000

Although the independent variables enjoy a correlation of -.218, which is significant at $p < .000$, their minimal interactive effect is not surprising given *income's* extremely low power as an explanatory variable. The inclusion of

income in the regression does not reduce the statistical significance of *employment status* (its t statistic actually increases marginally from 5.531 to 5.576).

Correlation Matrix showing correlation, 1-tailed Sig.:	Happiness	Income
Income	-.016	
	.349	
Unemployed?	.223	-.218
	.000	.000

A simple ANOVA analysis confirmed that there was no significant interaction between the two independent variables. It also identified *employment status* as being the only individually significant factor ($p<.000$).

Discussion

The regression results show that an individual's *employment status*, that is whether he is unemployed or not, has a far greater impact on his *happiness* than the absolute level of his *income*. The simple conclusion is that a government seeking to maximise its electorate's happiness should focus on unemployment as a source of societal distress, rather than encouraging real wage growth. In a country like Ireland, with high current and historical levels of unemployment, the positive fiscal effects of reduced unemployment provide further incentive for this policy.

Source of Variation	Sum of Squares	d.f.	Mean Square	F	Sig. of F
Main Effects	14.271	4	3.568	8.45	.000
Income	1.610	3	.537	1.27	.283
Unemployed?	10.429	1	10.429	24.72	.000
2-Way Interactions	1.318	3	.439	1.04	.374
Income - Unemployed?	1.318	3	.439	1.04	.374
Explained	14.896	7	2.128	5.04	.000
Residual	244.660	580	.422		
Total	259.556	587	.442		

However, although the relationships identified in this paper are statistically unambiguous, they may not be either constant through time, or easily generalised to other countries.

Relative Deprivation theory predicts that rather than being primarily concerned with absolute quantities, happiness is more directly related to the discrepancy between the respondent's own position and that of a reference group.

When unemployment is high, the unemployed focus on obtaining jobs, and the employed are satisfied just by having a job. Employment is the "primary" need of both groups, and income is an insignificant factor. However, if unemployment falls, or their feelings of job security increase, Maslow's theory of the "hierarchy of needs" predicts that although *employment status* will remain significant for the reduced number of unemployed, the employed take the utility derived from having a job for granted, and focus on their income relative to that of their employed peer group. Thus, income replaces employment as their dominant need, and their reference group shifts from the overall population, to their employed colleagues.

In this way, the economic climate, unemployment rate and feelings of job security, determine the reference group to which individuals compare themselves, make attributions, and consequently frame demands. *Income* is likely to become a more significant factor in determining *happiness* in countries with low and stable unemployment, where the employed enjoy high job security.

Conclusion

Analysis of the 1986 Irish data has produced two clear results. While *income* is not a significant factor in individual *happiness*, *employment* itself, irrespective of the associated income, is a significant source of utility.

It is possible that *income* becomes a significant factor in predicting *happiness* only when the individual's primary need, that of secure employment, has been satisfied.

This paper's policy implications are clear. To promote overall happiness, governments should focus on reducing unemployment, rather than encouraging real wage growth that would further reward the employed.

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