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Well-being and Economic Conditions in Ireland

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Well-being and Economic Conditions in Ireland

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Abstract: By European standards Ireland ranks high on many non-economic indicators of well-being. This paper explores how macroeconomic conditions have affected a range of these indicators. Time series data are used to explore the association between unemployment, inflation, and the level and growth rate of real income on the one hand and measures of subjective well-being and markers of mental health on the other. Over the longer term, 1975-2011, there was no upward trend in self-reported life satisfaction despite the secular improvement in living standards. While higher unemployment reduced life satisfaction over the first half of this period, its effect was weaker in later years. The rate of inflation has not had a significant effect on life satisfaction. There is no evidence that admission rates to psychiatric hospitals are affected by changes in economic conditions. However, higher unemployment is linked to higher suicide rates among younger males, although its effect appears to have weakened during the current recession. Finally, the recent rise in unemployment has had a much smaller impact on the birth rate than that due to the recession of the early 1980s. Overall, the impact of the current recession on the well-being indicators studied here has been surprisingly small.

Key words: Well-being indicators, Mental health, Suicide, Birth rate, Unemployment, Inflation.

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Let us not then speak ill of our generation, it is not any unhappier than its predecessors.
Samuel Beckett, *Waiting for Godot*.

I INTRODUCTION

Macroeconomists traditionally view cyclical increases in unemployment and inflation as twin evils that reduce welfare, while until recently they implicitly assumed that the growth in real income was an adequate indicator of long-run trend in living standards. However, there is now a growing interest in supplementing these conventional measures of economic welfare with broader indicators of the progress of society, signalled by the publication in 2009 of the *Report of the Commission on the Measurement of Economic Performance and Social Progress* (Stiglitz *et al.*, 2009). The interest of official statisticians in these developments may be gauged from the launch in 2010 of the EU website *Beyond GDP*¹ whose goal is to encourage policy makers to take give more weight to quality of life indicators such as physical and mental health, the environment, income distribution, social cohesion and indicators of subjective well-being (SWB) such as self-reported happiness and life satisfaction.

Broader indicators of well-being in Ireland and their links with macroeconomic conditions have not been extensively researched. The aim of this paper is to try to fill this gap as far as is possible with the available data. The next section reviews some relevant recent international research. The following section examines the influence of the business cycle on variations in self-reported life satisfaction over the period 1975-2010. Section four discusses the behaviour of markers of mental health such as admissions to psychiatric hospitals and the suicide rate, while section five explores the behaviour of the birth rate over the current and earlier recessions. The sixth section concludes.

II WELL-BEING AND ECONOMIC CONDITIONS

The well-known Easterlin Paradox refers to the finding that beyond a certain threshold the average level of SWB is not significantly higher in richer than in poorer countries and does not increase within countries as their incomes rise over time (Easterlin, 1974). This paradox is usually rationalised in terms of the declining marginal utility of income, the importance of relative rather than absolute income and the tendency for expectations to rise with increasing affluence. It is consistent with the idea of a 'hedonic treadmill', according to which the pursuit of happiness through the acquisition of material wealth places people in the situation of having to work ever harder just to stay in place (Brickman and Campbell, 1971). While some recent research has questioned the validity of the original hypothesis (Stevenson and Wolfers, 2008), the weight of the evidence continues to favour it (Easterlin and Abelescu, 2009; Helliwell and Barrington-Leigh, 2010).

¹ <http://www.beyond-gdp.eu/>

Recent research emphasizes the distinction between the factors that influence long-term life satisfaction and those that determine shorter-term, day-to-day happiness, with income and education playing a more important role in the former than in the latter. In poor countries income is also an important influence on self-reported day-to-day happiness, but health and behavioural patterns become more important in richer societies (Kahneman and Deaton, 2010).

Many longitudinal individual-level studies have shown that job loss has a negative psychological impact on individuals (see, for example, Murphy and Athanasou, 1999). There are fewer studies of how cyclical variations in unemployment affect national levels of SWB. When considering this topic, several considerations should be taken into account. Unemployment directly affects a relatively small proportion of the population. Even in Ireland, where the unemployment rate is now among the highest of the OECD countries, 'only' 14 per cent of the labour force are classified as unemployed. But rising unemployment rates are usually accompanied by significant falls in labour force participation rates and increases in the number of 'discouraged workers'. In Ireland the broadest measure of unemployment, which treats those interested in working but not actively seeking work as unemployed, now stands at 24 per cent, almost twice the headline unemployment rate. Furthermore, unemployment generates insecurity throughout the population, as is shown by the finding that the fall in unemployment over the period 1994-2000 contributed to a reduction in the level of mental stress in the Irish population as a whole (Madden, 2009).

The effect of unemployment on households depends on factors such as the support and income available during unemployment and the value of alternative uses of time. In Ireland in 2011 the modal 'replacement ratio' (the ratio between net income when out of work and net income when in work) was between 40 and 50 per cent, but much higher ratios occur in certain circumstances (Callan *et al.*, 2011, Table 3). A recent German survey found that while the unemployed were more dissatisfied with their lives than the employed, there was little difference in average daily utility between the two groups because the unemployed experienced less work-related stress and were able to use their time in more enjoyable ways (Knable *et al.*, 2010). However, recent research shows that adaptation to some adverse events, including being laid off from work, occurs only slowly and is often incomplete (Diener *et al.*, 2006; Lucas, 2007).

Di Tella *et al.* (2001) tested the standard macroeconomic assumption of a social welfare function defined in terms of inflation and unemployment. Using pooled Eurobarometer data for twelve countries over the seventeen-year period 1975-1991 they found that, other things equal, average self-reported happiness scores were higher when unemployment and inflation were low. Rising unemployment had a larger negative impact than higher inflation. However, a recent study of the effects of the current Great Recession on the US population concluded that the effects on life satisfaction of even large shocks to

income and unemployment were small and relatively short-lived. By the end of 2010, although unemployment remained very high, self-reported life satisfaction had largely recovered from the initial impact of the recession that began three years earlier (Deaton, 2011).

To the extent that macroeconomic conditions affect SWB they would also be expected to affect markers of mental health such as suicide rates and the prevalence of psychiatric disorders. There is evidence that suicide varies counter-cyclically, rising during recessions and falling during booms (Bray and Gunnell, 2006; Ruhm, 2000; Stuckler *et al.*, 2009). There have been reports that the current economic crisis is having a very significant adverse effect on various indicators of mental health in Greece (Economou *et al.*, 2011).

The following sections look at the available evidence for Ireland against the background of these international findings.

III LIFE SATISFACTION AND ECONOMIC CONDITIONS IN IRELAND

Even during a recession that has hit the country harder than most, Ireland continues to rank high in the international quality of life league tables. In 2011 the country was ranked seventh in the world in terms of the UNDP's Human Development Index.² In 2010 the Gallup World Poll placed Ireland tenth out of forty advanced countries in terms of 'Life Satisfaction' and twelfth in terms of day-to-day happiness as measured by 'Positive Affect Balance' (OECD, 2011, Chapter 12).³ In the May 2011 Eurobarometer survey of life satisfaction Ireland ranked seventh out of the 27 EU countries with an average score of 2.17 compared with scores of the 1.31 for Greece, 1.35 for Portugal, 1.78 for Italy, and 1.86 for Spain.⁴ The 2010 EU Survey on Income and Living Conditions (SILC) showed that 79 per cent of the Irish population aged 18 and over reported themselves to have been happy all or most of the time over the four weeks prior to the interview (Central Statistics Office, 2011b). High levels of self-perceived physical health, which is an important component of overall quality of life, were also reported in the

² This Index is based on a combination of a country's living standards, educational attainment, and life expectancy: see <http://hdr.undp.org/en/statistics/>.

³ The measure of Life Satisfaction used is the Cantril ladder, which asks people to rate their current life relative to the best and worst possible lives for them on a scale from 0 to 10; Affect Balance is computed as the share of respondents who report having experienced more positive than negative emotions on the previous day. These measures are only available for Ireland since 2005/6.

⁴ The Eurobarometer survey asks 1000 respondents aged 18 and over 'On the whole are you very satisfied, fairly satisfied, not very satisfied, or not at all satisfied with the life you lead?' These responses are scored 3, 2, 1, and 0, respectively. It has been conducted annually in Ireland since 1975, normally twice a year (in spring and autumn), but in some years it has been held only once, in others three times. The Irish series exhibit significant seasonality, with the responses to surveys conducted in April, May or June averaging 0.036 points higher than those collected in October, November and December.

Irish SILC surveys, with 87 per cent of the population aged 18 and over reporting that their health was either 'very good' or 'good' in both 2007 and 2010 (Central Statistics Office, 2011b, Table 2).

The answers to the Eurobarometer question on life satisfaction provide the only available long time series on Irish SWB. Ireland's average yearly scores over the period 1975-2010 are displayed in Figure 1. Real *per capita* income rose more than three-fold over these years and many other indicators relevant to life satisfaction, such as educational attainment and life expectancy, also improved markedly, yet it is clear that there has been no long-run upward trend in the country's life satisfaction score. Moreover, while Irish macroeconomic conditions have been very volatile over the years, the life satisfaction score has been relatively stable, with a coefficient of variation of 4 per cent, compared with 48 per cent for the unemployment rate. The score fell during the deep recession of the 1980s, reaching a low point in 1987, but rebounded as the economy began to recover in the 1990s, reaching a peak in 1997 that was only narrowly surpassed in 2004. The decline that started in 2005 appears to have levelled off in 2010-11. Ireland's annual average score was consistently above the EU average up to the early 1980s and between 1990 and the present. Only during the years 1987 to 1989 did it fall to the EU average.

There has been relatively little research on the reasons why different countries rank consistently high or low in life satisfaction league tables. The fairly stable high level of self-reported life satisfaction recorded in Ireland may reflect an enduring quality of the Irish attitude to life or a cultural bias in responding to the type of questions which are asked in surveys of SWB.⁵ A survey of possible explanations of why the Danes have had the highest Eurobarometer scores since 1975 looked at factors ranging from genetics to climate concluded that low Danish expectations regarding future improvements in living standards and the lasting impact of the Danish defeat of Germany in the final of the 1992 football European Championship were important factors (Christensen *et al.*, 2006).

To explore the factors that influence the year-to-year variation in Irish life satisfaction, I have estimated a simple regression model with the life satisfaction score as dependent variable and the unemployment rate, the inflation rate, and the level and growth rate of real *per capita* Gross National Income (GNI) as explanatory variables.⁶

⁵ There is some support for this view from the results presented by Di Tella, *et al.* They included country-specific fixed effects in their equations and report a large, positive coefficient on the Irish dummy (second only to Luxembourg's), which suggests that when the influence of unemployment and inflation is allowed for, the average life satisfaction score in Ireland is higher than in other countries.

⁶ Where there was evidence of serial correlation in the residuals from the Ordinary Least Squares models exact ML estimates assuming AR(1) residuals are presented. To address the issue of whether the presence of unit roots in the time series would render the results spurious, the KPSS test (Kwiatkowski *et al.*, 1992) was used to test for stationarity against the alternative hypothesis of non-stationarity. It

It would also be desirable to include a measure of income inequality in the regressions, as it has been shown to have an adverse effect on SWB (see Alesina *et al.*, 2004; Layte, 2011). With a Gini coefficient of 0.30 in recent years Ireland was slightly below the OECD average level of income inequality. This coefficient declined significantly in Ireland between the 1980s and the 2000s whereas the OECD average rose.⁷ Annual values of this variable are not available to allow further testing its role, if any, in the variation in life satisfaction scores shown in Figure 1.

The regressions were run for the full 36-year period for which life satisfaction data are available and then separately for the first and second halves of this period. Table 1 presents summary statistics for the variables used in the regressions. The regression results are contained in Table 2.⁸

The income variable is statistically significant in only one of the results in Table 2, relating to the years 1975-1993, when there was a significant positive association between the level of GNI and the life satisfaction score. Irish real *per capita* income was relatively low in these years and fell sharply during the 1980s. On the other hand, during the 1990s and early in the present century, as income rose to the top of the international league tables, its influence on life satisfaction diminished, as predicted by the Easterlin hypothesis.

The coefficients of both the unemployment and inflation rates have the expected negative signs in all the results, suggesting that on average people feel more satisfied with their lives when unemployment and inflation are low. The coefficient of the unemployment variable is large and highly significant in the results for the first half of the period, 1975-1993, smaller and less significant for the whole period, and not significant in any of the equations for the second half of the period, 1994-2010. The coefficients on the inflation rate are not statistically significant in any of the equations.

The results for the first half of our sample, excluding the income variable, may be compared with those in Di Tella *et al.*, which relate to the period 1975-1991. They report coefficients of -2.8 and -1.2 on unemployment and inflation, respectively, which are strikingly close to the values of -2.78 and -0.89 in equation 6 in Table 2. These coefficients imply that higher unemployment, in particular, had a serious negative effect on self-reported happiness in Ireland over the years 1975-1993. A doubling of the unemployment rate from 4 to 8 per cent (that is from 0.04 to 0.08) would lower the average happiness score by 0.11, which is equivalent to shifting 11 percent of the population from one level of life

was found that the hypothesis of trend stationarity could not be rejected at the 5 per cent probability level for all the variables used in the regressions.

⁷The data are available at

http://www.oecd.org/document/39/0,3746,en_2649_201185_46462759_1_1_1_1,00.html.

⁸ Where an AR(1) error is specified, the R²s reflect the significance of the parameters of this process as well of the main model.

satisfaction to a lower one. However, the results show a sharp fall in both the size and statistical significance of this effect in the second sub-period, 1994-2010. The coefficient estimated for the earlier years imply that the rise in unemployment from 4.4 per cent in 2006 to 13.6 per cent in 2010 would have lowered average life satisfaction of 0.25 points, offset by a rise of 0.03 due to the fall in the rate of inflation. The actual fall in the score was only 0.06 points and this is reflected in low coefficients on unemployment and inflation estimated for the period 1994-2010.

The results in Table 2 suggest that the substantial increase in unemployment associated with the disinflation of the 1980s was costly in terms of human well-being. Since inflation and unemployment are both measured as fractions, their coefficients can be compared. The estimated effect of the unemployment rate on the happiness index is consistently much higher than that of the inflation rate. This warns against the use of a 'misery index' that assumes that the inflation and unemployment rates can be added together with equal weights to measure the overall level of economic distress. Rather than a one-to-one trade-off between inflation and unemployment, the results for the 1980s suggest that the fall in satisfaction caused by a one percentage point increase in the unemployment rate considerably outweighed that caused by a one percentage point rise in the inflation rate. However, the impact on self-assessed life satisfaction of the rise in unemployment during the current recession appears to have been small.

No international estimates are available to compare with the Irish results for the period 1994-2010. However, a look at the relationship between the increase in unemployment and the responses to the Eurobarometer life satisfaction question in the 27 EU member states over the current recession shows that the weak link between these two variables has not been confined to Ireland. Figure 2 displays a scatter plot with the 2008-2010 change in the standardized unemployment rate on the horizontal axis and the change in average life satisfaction score on the vertical axis. The correlation between the two variables, although negative as expected, is weak. This is confirmed by the following regression:

$$\Delta LS = 0.0097 - 0.0093 \Delta UR \quad R^2 = 0.05$$

(0.3) (1.6)

(where LS, UR = life satisfaction and the unemployment rate, and t-ratios are beneath of the coefficients)

With the exceptions of Spain and Lithuania, countries that suffered very large rises in unemployment since the onset of the recession late in 2008 have not recorded significant falls in self-reported life satisfaction. Ireland, Latvia, and Estonia are salient examples. On the other hand, the only two countries to record falling unemployment – Luxembourg and Germany – ranked only seventh and eleventh respectively in terms of improvement in life satisfaction. The two countries that recorded the largest falls in life satisfaction - Greece and Romania – did not experience exceptional increases in

unemployment, although we know in the case of Greece that the economy is undergoing a very severe economic crisis.

In Ireland the recovery from the recession of the 1980s was reflected in a return to higher average levels of life satisfaction in the first half of the 1990s but the combination of soaring growth rates, low inflation, and full employment of the 'Celtic Tiger' period did not lead to markedly higher average life satisfaction, while during the current deep recession life satisfaction has fallen only slightly below the average recorded over the previous twenty years.

We may speculate about why average Irish SWB has become less sensitive to unemployment in recent years. An obvious possibility is that the rise in living standards, which has been reflected in the level of income support payments to the unemployed as well as in earned income, reduced the absolute hardship associated with unemployment. Furthermore, despite the rise in unemployment, the labour force participation rate of married women has remained high and their *employment* rate was higher in mid-2011 than in the late 1990s - 51 per cent compared with 41 per cent. The increased proportion of two-income-earner households would mitigate the effect of rising unemployment on the absolute level of household poverty. There was a surge in the number of immigrants in the country over the last ten years and they figure disproportionately among the unemployed. In mid-2011 the unemployment rate among nationals of the EU Accession States (EU15 to EU27) was 19 per cent compared with a rate of 14 per cent among Irish nationals. Many of these come from countries where average wage levels are below the level Irish social welfare payments. Further research is needed to identify other factors that might explain the changing impact of unemployment on SWB.

IV MENTAL HEALTH AND ECONOMIC CONDITIONS IN IRELAND

In keeping with the evidence of a high level of overall SWB in Ireland, the limited available data suggest that the level of self-assessed mental health is also high by international standards. A 'mental health index' was compiled from answers to questions in the Second European Quality of Life Survey (EQLS) in 2007 that asked respondents how often in the previous two weeks they enjoyed key elements of mental well-being. Out of 31 countries for which data were collected, only Norway and the Netherlands scored higher than Ireland (European Foundation for the Improvement of Living and Working Conditions, 2009, Figure 26).⁹

A number of possible candidates may be considered as 'objective' markers of mental health. One is the prescribing rates for psychoactive drugs. However, controversy surrounds the role of these substances and the significance of their use. Prescribing rates are heavily influenced by the behaviour of pharmaceutical companies and physicians, which limits their value as indicators of mental health

⁹ This index was not compiled in the first EQLS and no time series for a comparable index is available.

(Angel, 2011). Notwithstanding this caveat it is of interest to note that a recent study reported that the number of prescriptions issued for the fourteen most commonly-prescribed psychoactive drugs through the General Medical Services Scheme increased by six per cent in 2008 relative to 2007, with somewhat higher rates among the principal anti-depressant medicines (Mental Health Commission, 2011, Table 1). This just matched the rate of increase in the numbers eligible under the Scheme, indicating that there has not been a surge in the incidence of the problems at which these drugs are directed.

Another indicator that might be used to gauge the level of mental health in the community is the admission rates to psychiatric hospitals and units, for which a long time series is available in Ireland (Daly and Walsh, 2010). This facilitates an investigation of the association between macroeconomic conditions and an indicator of the incidence of mental illness. The admissions data distinguish between total admissions and first admissions, the difference being readmissions. Although there are lags between the onset of a condition and its diagnosis and treatment, we may use the first admissions rate as an indicator of incidence. Figure 3 shows the first admission rates per 100,000 population from 1965 to 2010. The dominant feature of the series is the virtually uninterrupted downward trend in the rate since the mid-1970s. The rate peaked at 312 per 100,000 in 1973 and had fallen to 132 by 2006. The fall in first admission rates is reflected in the 80 per cent decline in the number of patients recorded in the annual census of mental hospitals between 1963 and 2010 (Daly and Walsh, 2011).

Examination of the first admission rates by the major diagnostic categories¹⁰ shows that the steepest proportional declines occurred for the diagnoses 'alcoholic disorders' (81 per cent) and 'schizophrenia' (80 per cent) and the smallest for the group 'manias, depressive disorders, and neuroses' (38 per cent).

Obviously caution must be exercised in using hospital-based data as an indicator of the incidence of mental illness, but it seems reasonable to assume that despite changes in clinical practices over time severe episodes of mental illness are still likely to involve hospitalization. Daly and Walsh attribute the decline in the mental hospital population to the death of older long-stay patients and their non-replacement by new long-stay patients, which they believe is a reflection of the growth of community psychiatric services as an alternative to institutional care, although it could also reflect a declining trend in the incidence of mental disorders.

Regression analysis shows that after allowing for the influence of trend there is only weak evidence of an association between the first admissions rates and the unemployment rate. When admission

¹⁰The series by diagnostic groups were compiled by Dermot Walsh from Health Research Board files.

rates by diagnosis were analysed, the strongest result obtained was for the first admission rate for alcoholic disorders (FARAL) over the period 1968-2010: (absolute value of *t*-ratio in parentheses):

$$\text{FARAL} = 28.8 \quad - \quad 1.17 \text{ TREND} \quad + \quad 3.41 \text{ AL} \quad + \quad 0.81 \text{ UN} \quad R^2 = 0.94 \quad \text{DW} = 1.77$$

$$(1.1) \qquad (12.2)^{***} \qquad (2.0)^* \qquad (1.3)$$

This shows that after allowing for the negative trend, first admissions for this diagnosis tended to increase with the level of per capita alcohol consumption (AL) and with the unemployment rate (UN), although the latter effect was not significant at the 10 per cent level. This diagnostic group accounted for 11 per cent of all first admissions in 2010. The mania-depression-neuroses diagnoses, which accounted for 51 per cent of all admissions, might be expected to be sensitive to cyclical economic conditions, but no significant results other than a negative trend were obtained for this group.

While hospital admission rates may not be good indicators of variations in the community's mental health, we are left with the negative finding that their behaviour does not support the widely-made assertion that changes in the level of economic adversity are a major factor in the incidence of mental illness in Ireland.¹¹

The suicide rate may also be taken as a marker of the population's mental health/illness. Although affected by classification issues, international comparisons show that the Irish rate is similar to that recorded in many northern European countries such as Sweden, Norway, Denmark, France, and Germany, but higher than that reported in the United Kingdom and most southern European countries.¹² Simple cross-section correlations show at best a weak relationship between national suicide rates and income *per capita* or average life satisfaction scores (Bray and Gunnell, 2006; OECD, 2010, p. 239). The simple correlation between the Irish Eurobarometer score and the suicide rate over the period 1975-2010 is positive, which is counterintuitive, but the result is not statistically significant.

The time series evidence shows a positive relationship between unemployment and suicide rates over the business cycle in the United States and in the EU (Ruhm, 2000; Stuckler *et al.*, 2009),

¹¹ A recent report on the National Drug Treatment Reporting System (NDTRS) shows that the number of new cases treated for alcohol problems rose from 109.9 per 100,000 population in 2005 to 133.2 in 2010 (Carew *et al.*, 2011). However, these figures are affected by the increase in the number of alcohol treatment services reporting to the NDTRS, from 123 in 2005 to 228 in 2010. It is believed that the nine per cent increase in cases treated between 2007 and 2010 is more likely to reflect a genuine increase in numbers treated. However, the first admissions rate to psychiatric hospitals for alcohol conditions declined from 23.3 per 100,000 in 2005 to 15.0 in 2010. Substitution between the different treatment facilities is undoubtedly occurring.

¹²The OECD data are based on deaths reported as caused by 'intentional self-harm', excluding those caused by harm of 'undetermined intent', and are based on the total population. The value of this measure for Ireland 2008-2010 was 9.5 per 100,000, slightly below the OECD average.

while recently there have been several assertions that the current recession has caused a surge in the suicide rate in crisis-stricken countries, notably Greece.¹³

To shed light on this issue in an Irish context, it is useful to look at the long-term behaviour of the Irish suicide (including 'deaths of undetermined intent', UDs) rate, which is shown in Figure 4. The rate rose from a very low level in the 1960s to a peak at the turn of the century – when the unemployment rate fell to historically low levels - and then declined for some years. While it increased again at onset of the current recession it fell back in 2010 even though the unemployment rate continued to climb.

Walsh and Walsh (2011) showed that the unemployment rate has had a significant influence on the suicide rate among younger males. However, they found that the level of alcohol consumption was a more important factor and that the negative correlation between alcohol consumption and unemployment reduced the overall impact of the recession on the suicide rate in recent years. This study used data for the years 1968 to 2009, with the main focus on the period 1988 to 2009. The publication of the detailed mortality data for 2010 (Central Statistics Office, 2011a) allows the period studied to be extended. The addition of a single extra year to a 20-year time series would not normally be of much moment, but the behaviour of the suicide rate in 2010 is of great interest. While the Irish recession continued unabated with incomes falling and unemployment rising, the suicide rate fell from 20.3 in 2009 to 18.3 in 2010, back to the level recorded towards the end of the 1990s when the unemployment rate was below five percent. The fall in the male suicide rate was proportionately greater, from 32.7 to 28.2, and the fall in the rate among the highest-risk population group – males aged 25-34 – greater still, from 38.7 to 23.5. Although this rate rose in 2009, it never regained the peak recorded in 1998 (42.5) and is now back to the level of the late 1990s (see Figure 5).

A forty per cent fall in the suicide rate in a key demographic group at a time of high and rising unemployment is so striking that it raises suspicions about the accuracy of the data. But in 2010 the number of suicides recorded in several other demographic groups (notably males aged 35-44 and females aged 15-24 and 25-34) also fell and the number of accidental deaths declined by 16 per cent and of homicides by 22 per cent. Most forms of serious crime, including drug-related offences, have declined substantially since 2008 (Central Statistics Office, 2011b). This evidence contrasts sharply with most predictions of how the recession would affect Irish society and indeed with many commentaries on the present situation.

¹³ Economou *et al.*, 2011, report an increase from 1.1 to 1.5 per cent between 2009 and 2011 in the number of respondents to telephone surveys who declared that they had attempted suicide. In November 2011 the Greek Minister for Health told Parliament that while Greece still has one of the lowest reported suicide rates in the world, there had been an increase of 'around 40 per cent' in the number of suicides (http://www.ekathimerini.com/4dcgi/w_articles_wsite1_1_30/06/2011_396649).

Walsh and Walsh found that the effect of variation in economic conditions over time on the suicide rate was much weaker than would be expected from the large differentials in the risk of suicide between the unemployed and others documented in individual-level studies. They report that the unemployment rate was a statistically significant influence on the suicide rate only among males in the 25-34 and 35-44 age groups. When the regressions for these groups were re-estimated including the observation for 2010 the influence of unemployment was weaker than found earlier. A significant association between the suicide rate for males aged 25-34 (M25-34) and the unemployment rate (UN) could only be found after experimentation that involved including both a trend term (TREND) and the rate of growth of real *per capita* gross national income (GNIGR):

$$M25-34 = -73.6 - 1.04 \text{ TREND} + 9.24 \text{ AL} + 0.86 \text{ UN} + 1.06 \text{ GNIGR} \quad R^2 = 0.59 \quad DW = 2.24$$

$$(2.7)^* \quad (3.7)^{**} \quad (4.4)^{***} \quad (1.98) \quad (3.3)^{**}$$

The results for the alcohol variable (AL) remain robust with significant positive coefficients in all five male age groups from 15 to 54 years.

In summary, there is no firm evidence that the current high level of unemployment has resulted in an upsurge in the incidence of serious psychiatric problems in the country, while the unemployment rate appears to affect suicide rates only in one or two male age groups and its influence has diminished during the current recession. The widespread impression that the recent surge in unemployment has caused a comparable surge in mental health problems, suicide and other forms of violence is not confirmed by the evidence.

V THE BIRTH RATE, LIFE SATISFACTION AND THE BUSINESS CYCLE

The relationship between the presence of children in the household and life satisfaction has not been established with any degree of certainty. A recent paper reported a large, positive effect, especially among married couples (Angeles, 2010a) but following the discovery of an error in the coding of the data this finding was revised to say that the effect of children on the life satisfaction of married individuals is small, often negative, and never statistically significant (Angeles, 2010b). Earlier studies, although not specifically addressing this issue, reported a tendency for the presence of children in families to reduce the life satisfaction of parents (Alesina *et al.*, 2004).

It worth considering the possibility that causation runs in the other direction, as people who are satisfied with their lives are likely to form stable relationships and have children. This hypothesis is supported by Figure 6, which shows a highly significant positive correlation ($r = 0.63$) between life

satisfaction and the period Total Fertility Rate (TFR) across the EU member states in 2008.¹⁴ At one of the spectrum is a group of countries with relatively high fertility rates and high life satisfaction scores. This group includes Denmark, Finland, France, Ireland, the Netherlands, Sweden and the UK. At the other end are countries with very low fertility rates and low life satisfaction scores. This group includes Bulgaria, Greece, Hungary, Italy, Latvia, Portugal and Romania.

Although the Irish birth rate fell steeply following the legalisation and wide-spread adoption of contraception in the 1980s, it has remained relatively high. The TFR rose steadily over the past ten years and has been over 2.0 since 2007, the highest in the EU and one of the few that is close the level needed to ensure the long-run replacement of the population. The increase in the birth rate during the last decade occurred despite the decline in the number of births to young mothers, overwhelmingly outside marriage, which peaked in 2001. In 2010 10.9 per cent of all births were to mothers aged under 25, compared to 16.2 per cent in 2001, which points to an increasing proportion of 'planned' births in the total (Ó Gráda, 2008). In a society like contemporary Ireland, with easy access to contraception and relatively low barriers to abortion, it is plausible to regard a recession as an exogenous shock that would reduce life satisfaction and confidence in the future and lead to a fall in the birth rate through its effect on the timing of births and possibly also on family size in the long-term.

To illustrate the short-term relationship between births and unemployment in Ireland during two recessions I have charted the unemployment rate (lagged four quarters) and the birth rate before and during the recession of the early 1980s and the current recession. The OECD's standardized unemployment rate (SUR) seasonally adjusted was used for the recent period and Live Register numbers divided by the estimated quarterly labour force for the earlier period. A four-quarter moving average of the birth rate was used in both periods.¹⁵ (For ease of comparison the unemployment series were inverted, so that if rising unemployment leads to a fall in the birth rate the two series would move down together in the graphs.) The graphs in Figure 7a and 7b suggest that the effect of the recession of the early 1980s on the birth rate was much greater than that of the current recession. During the earlier recession the birth rate declined from 21.9 to 19.1 between 1980 and 1983 and continued to fall until

¹⁴ The period TFR is a measure of the average number of children that would be born to a synthetic cohort of women over their child-bearing life span, reflecting the age-specific fertility rates at a point in time. The cohort TFR measures the actual number of children born to a cohort as it progresses through the child-bearing age groups, and is available only after child-bearing has been completed. The period measure is more sensitive to the timing of births over the span of child-bearing years.

¹⁵ The crude birth was used because it is available quarterly and over short time periods it is not necessary to control for the changing age-structure of the population.

the end of 1988, whereas between 2008 and 2010 the birth rate only fell from 17.1 to 16.6 and has recovered since mid-2010.

To test the relationship between unemployment and the birth rate formally, and specifically to see whether there was a break in the relationship between these variables in the 1990s, I have used a regression model of the quarterly data from 1975 through the first quarter of 2011. The results are shown in Table 3. All the equations included seasonally dummies, which were highly significant. A non-linear trend was also included. It may be seen that over the full sample period the coefficient on the unemployed rate (lagged four quarters) was negative but not statistically significant. The non-linear trend was highly significant, reflecting the steep decline in the birth rate in the 1980s and its stabilization in the 1990s. Over the second half of the period, from 1994 to 2010 the coefficient of the unemployment rate was lower and less significant than for the whole period, but for the first half of the period, from 1975 to 1993, the negative coefficient on unemployment was highly significant. This confirms the impression of the declining influence of unemployment on the birth conveyed by the graphs in Figure 7 and is also consistent with the break in the relationship between life satisfaction and unemployment reported in Section III above.

It is plausible to believe that effects of the earlier recession on life satisfaction and confidence triggered a sea change in Irish fertility and family formation patterns. No doubt this was facilitated by the coincidence of changes in the family planning environment and also reflected the relatively high fertility at the start of the period. The current recession, on the other hand, simply checked the upward trend in the birth rate that had raised it from a low of 13.6 in 1995 to a peak of 17.1 in 2008. The fact that the birth rate stabilized in 2010 at what by EU standards is a high level suggests that the current recession has not seriously undermined the Irish population's confidence in the prospects facing their children.

VI CONCLUSION

The available indicators show that Ireland's scores on non-economic indicators of well-being are relatively high by European standards. This paper uses the unemployment rate, the inflation rate and the level and growth rate of real income to explore the impact of the business cycle on several of these indicators, including the country's average score on the Eurobarometer measure of life satisfaction, admissions rates to psychiatric hospitals, the suicide rate and short-term fluctuations in the birth rate. The results show that while in Ireland self-reported life satisfaction exhibits no long-run trend, and is weakly related to the level of real income, it has tended to vary inversely with the unemployment rate. However, this effect is not very robust statistically and has been insignificant since the 1990s. There is little evidence that high and/or rising unemployment rates tend to increase the admission rates to psychiatric hospitals and units. More significant links were found between the unemployment and

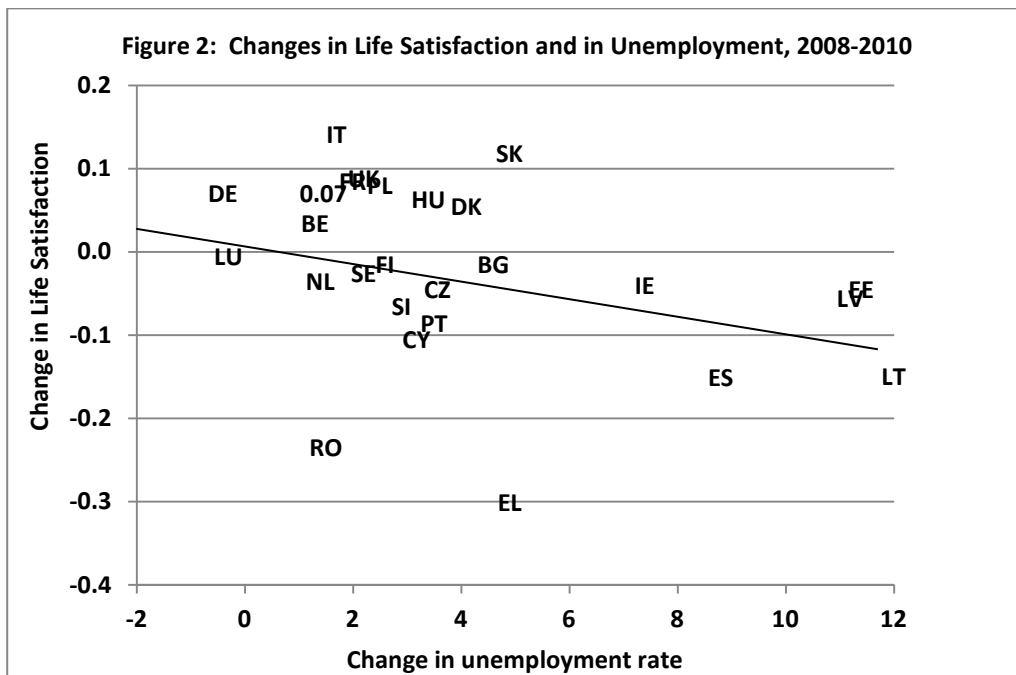
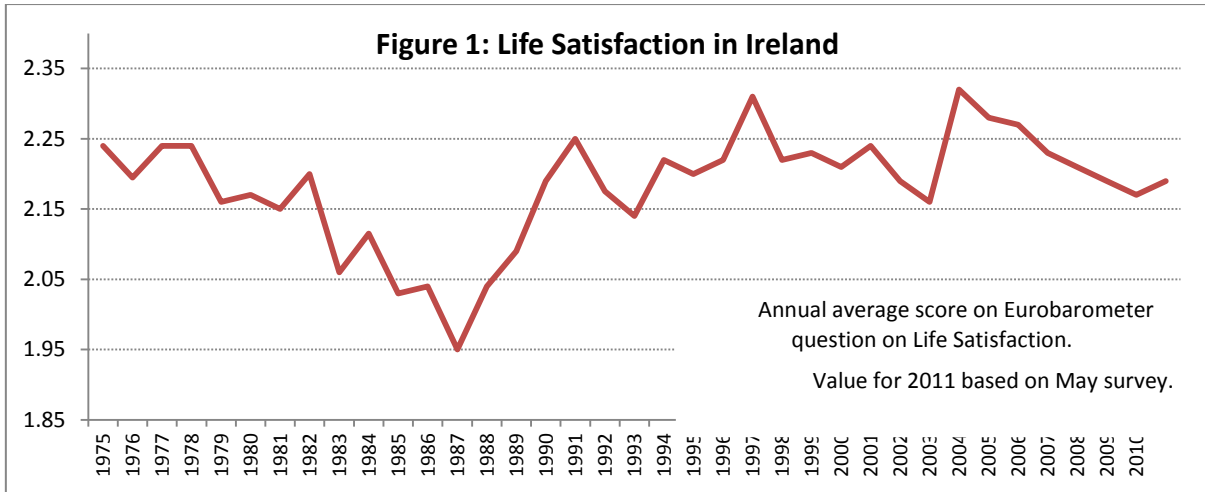
suicide rates, but these were confined to younger males. The sharp fall in the suicide rate in 2010, when the unemployment reached a 20-year peak, is surprising. The effect of average alcohol consumption on the national rate of suicide mortality is much more statistically robust. Finally, there is a marked contrast between the steep and prolonged decline in the birth rate triggered by the recession of the early 1980s and the weaker and short-lived effect of the current recession on fertility.

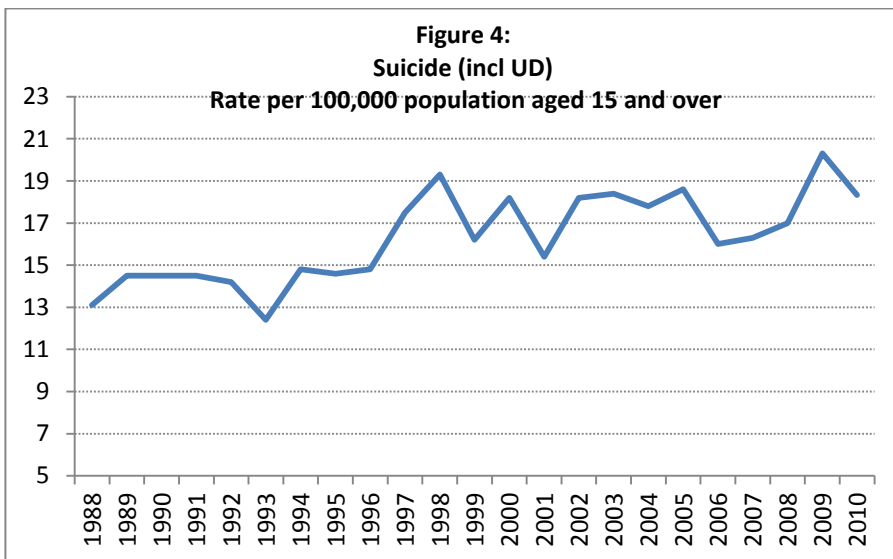
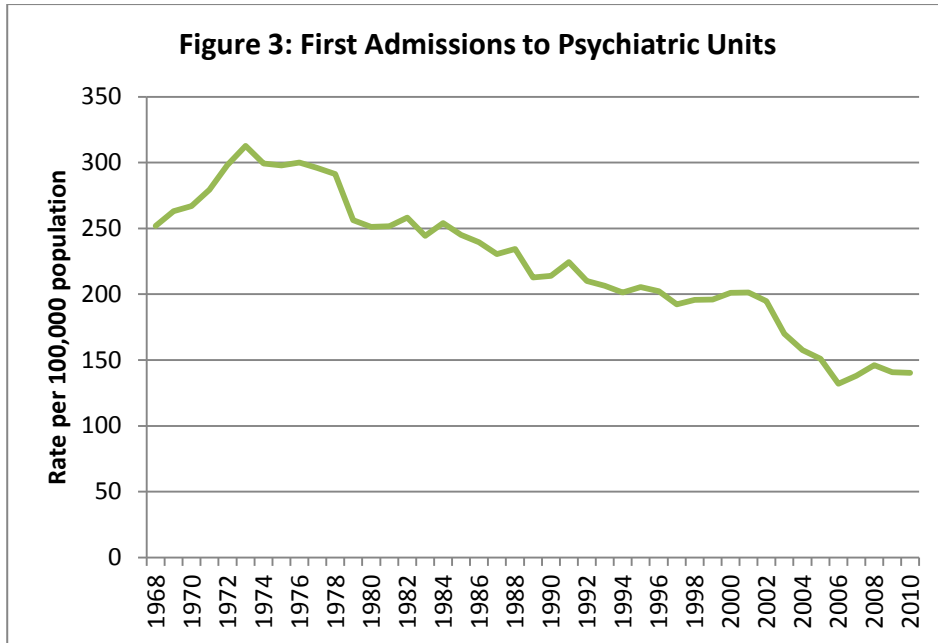
Overall, the evidence presented here points to the conclusion that the impact of the current recession on measures of life satisfaction and indices of mental health and confidence has not been very marked. The population appears to be resilient in the face of major economic hardship.

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**Figure 5:
Suicide (incl UD) among males aged 25-34
Rate per 100,000 population**

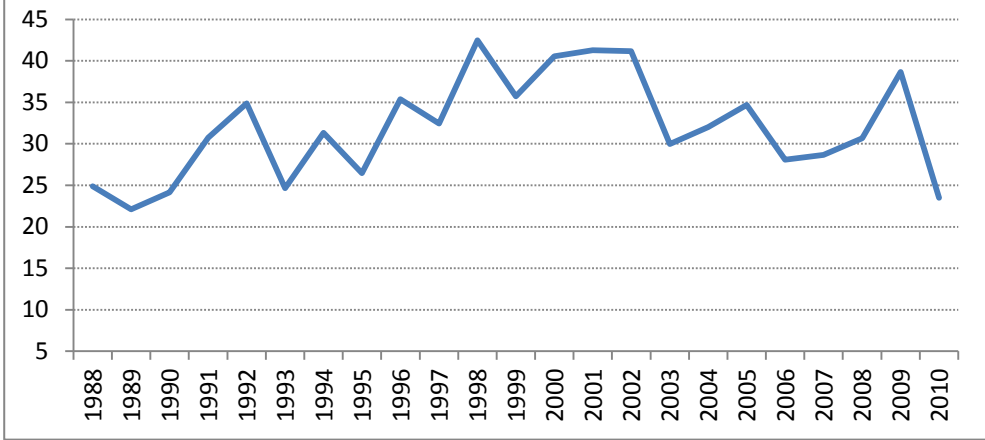


Figure 6: Life Satisfaction and Total Fertility Rate, 2008

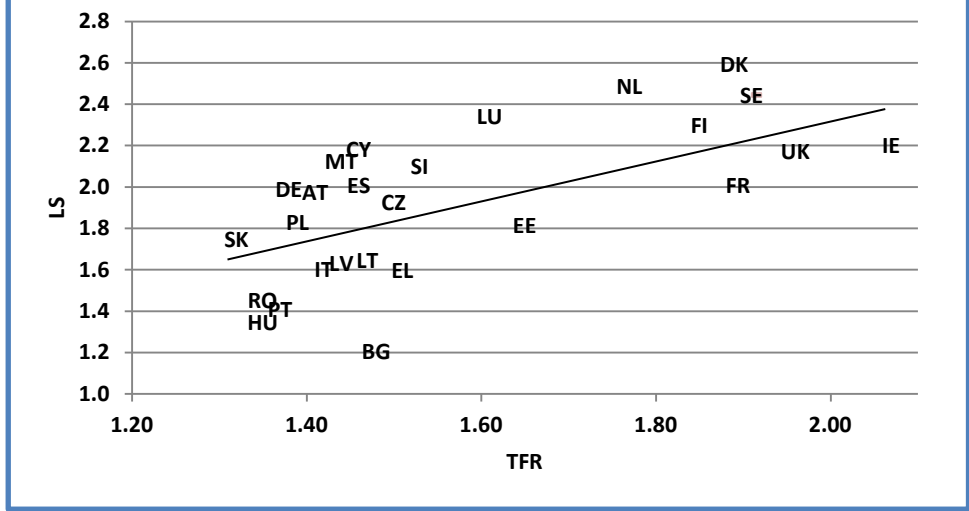


Figure 7a: Births and Unemployment, 1978-1984

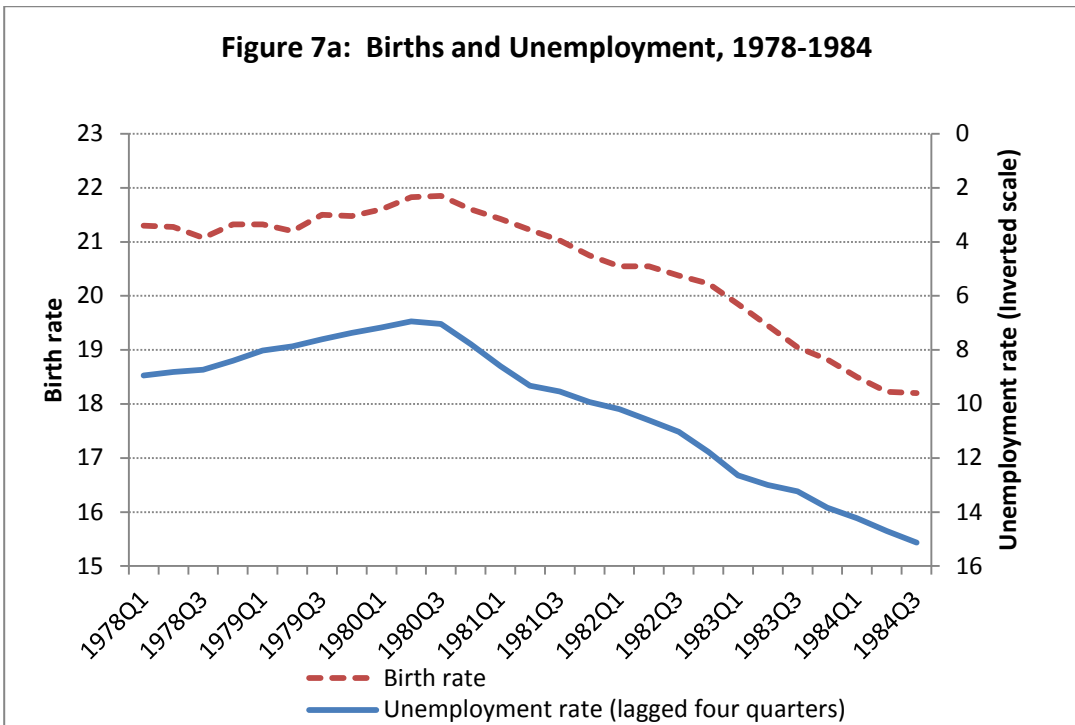


Figure 7b: Births and Unemployment, 2005-2010

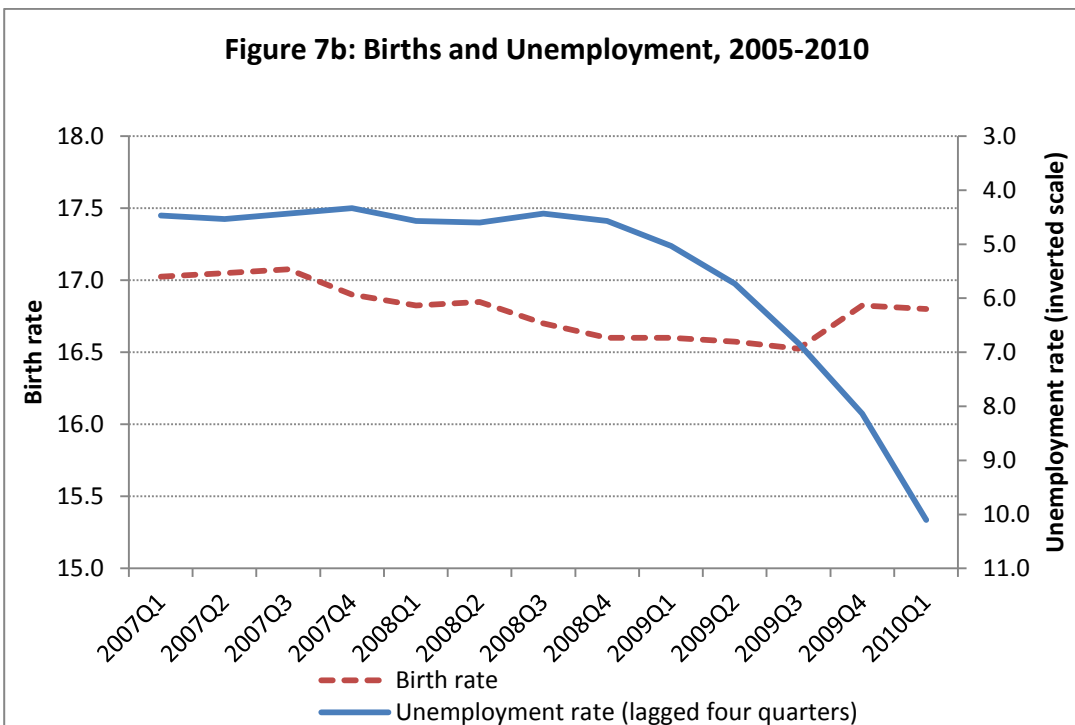


Table 1: *Summary statistics of variables used in regression*

	EUROBAR	UN	INF	GNI	Δ GNI
1975-2010					
Mean	2.182	0.101	0.061	22.915	0.026
Standard deviation	0.081	0.045	0.062	8.813	0.038
1975-1993					
Mean	2.141	0.123	0.094	15.681	0.018
Standard deviation	2.140	0.128	0.690	16.027	0.022
1994-2010					
Mean	2.228	0.076	0.025	31.000	0.036
Standard deviation	0.045	0.039	0.024	5.944	0.046

Table 2: *Life Satisfaction Regression Results*
 Dependent variable = Average score on Eurobarometer life satisfaction question
 Absolute values of *t*-ratios in parentheses

Equation no.	Intercept	UN	INF	GNI	Δ GNI	\bar{R}^2	Durbin-Watson Statistic
Sample period: 1975-2010 Exact ML estimates assuming AR(1) residuals							
1	2.27 (13.7)***	-0.99 (1.6)	-0.15 (0.4)	0.0009 (0.2)		0.49	2.11
2	2.30 (46.4)***	-1.07 (2.9)**	-0.19 (0.8)		0.0032 (0.9)	0.51	2.10
3	2.31 (48.4)***	-1.12 (3.0)**	-0.22 (0.9)			0.51	2.11
Sample period 1975-1993 Ordinary least squares							
4	2.07 (7.5)***	-2.45 (2.8)*	-0.31 (0.5)	0.026 (2.2)*		0.52	1.71
5	2.56 (11.8)***	-2.76 (2.4)*	-0.88 (1.2)		0.0001 (0.0)	0.36	1.45
6	2.56 (15.2)***	-2.78 (2.9)*	-0.89 (1.6)			0.40	1.45
Sample period 1994-2010 Ordinary least squares							
7	2.34 (16.8)***	-0.64 (1.1)	-0.38 (0.5)	0.0019 (0.6)		0.0	1.74
8	2.27 (57.9)***	-0.61 (1.6)	-0.85 (1.3)		0.0054 (2.1)	0.14	1.90
9	2.26 (52.9)***	-0.37 (0.9)	-0.16 (0.3)			0.0	1.70

p* < .05 *p* < .01 ****p* < .001

UN = Unemployment rate
 INF = Inflation rate
 Δ GNI = rate of change in GNI
 GNI = real per capita Gross National Income, Euro thousands

Table 3: *Birth Rate Regression Results*
 Dependent variable = Quarterly birth rate per 1,000 population
 Absolute values of *t*-ratios in parentheses

Exact ML estimates assuming AR(1) errors

Equation no.	Intercept	UN	Trend	Trend squared
Sample period: 1975Q1-2011Q1				
1	22.81 (26.5)	-0.04 (0.9)	-0.1843 (8.4)***	-0.0010 (6.6)**
Sample period: 1975Q1-1993Q4				
2	22.46 (32.3)	-0.25 (2.9)**	0.0130 (0.3)	-0.0013 (3.3)***
Sample period: 1994Q1-2011Q1				
3	12.87 (1.2)	-0.025 (0.3)	-0.027 (0.1)	0.0004 (0.4)
*p < .05 **p < .01 ***p < .001				
UN = Unemployment rate				
Seasonal dummies also included				

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