Alcohol consumption: an econometric investigation

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Steve Kilkenny contributes to the numerous studies on the factors which combine to influence alcohol consumption by constructing his own econometric model. In doing so, Kilkenny offers insights which point the way to further investigation by governments and various health organisations seeking to reduce alcohol consumption among the addicted. This article also illustrates the adaptability of economic theory and techniques which can be used to explain almost any phenomenon in society.

Introduction

"Alcohol may be man's worst enemy, but the bible says love your enemy."

Frank Sinatra

Alcohol and the consumption thereof is a topic that generates a lot of discussion. Production and sales of alcoholic beverages is a global industry, with companies such as Anheuser-Busch and Diageo recording revenues of $16.685 billion and $12.270 billion in 2007 respectively. According to the World Health Organisation (WHO) estimates in 2004, there are about two billion people worldwide who consume alcoholic beverages. It generates employment all over the world and at all levels of production, from the production of crops such as barley and hops, to the production of alcohol by breweries and distilleries and finally to the sale of alcohol by retailers. It also generates considerable revenues for government.

Many figures in public life voice an opinion on the effects of alcohol, amongst them healthcare professionals and public policymakers. Both the good and the bad aspects of alcohol consumption have been well documented. While its positive side effects are relatively minor and confer no real externalities, the economic costs of alcohol abuse are quite staggering. A study published in December 2000 by the National Institute on Drug Abuse (NIDA) and the National

Institute on Alcohol Abuse and Alcoholism (NIAAA)[1] in the USA estimated the economic cost of alcohol abuse in 1998 to be over $184 billion. This creates a need to:

(a) find ways to reduce this unwanted burden on the rest of society.
(b) come up with ways to finance these social costs.

In order to start discussing and offering solutions to these problems, it is helpful to investigate and understand what drives alcohol consumption and to what extent.

Literature review

There have been many studies undertaken examining alcohol consumption. Apart from the studies that focus on its health effects, many examine the variables affecting consumption. Authors such as Niskanen (1962) and Manning, Blumberg, and Moulton (1995) explore in detail the price and income elasticities of demand with policy implications in mind (more specifically the tax and excise duty levels most appropriate to tackling (a) and (b) above). The general consensus is that demand for alcohol consumption is relatively inelastic, which is to be expected given that alcohol is often categorised as an addictive good (Grossman, Chaloupka & Sirtalan, 1998). The magnitude of these elasticities, however, is the subject of much discussion in economic literature.

Niskanen (1962) derives an in-depth model for alcohol consumption, tackling both the supply and demand side in order to come up with a system of equations that attempts to explain expected consumption. The author uses these to posit a more appropriate tax structure than that which previously existed, one that implied the following objectives:

(a) "Tax rates should be set at such a level that the prices faced by consumers reflect the true marginal costs (private plus social cost) of their consumption of each beverage".
(b) "Total tax revenue should be equal to the estimated total social cost of alcoholic consumption."

(Niskanen, 1962: 69)

Manning , Blumberg and Moulton (1995) also investigate alcohol consumption and price elasticities but they divide drinkers into three groups: light, moderate and heavy, with heavy drinkers assumed to impose the majority of the social costs on the

[1] Both are part of the National Institutes of Health (NIH).

rest of society, with light and moderate drinkers creating little or no externalities. They find that heavy drinkers' demand for alcohol is relatively price inelastic. However, light and moderate drinkers are somewhat more responsive to price changes. With this in mind, they suggest that to calculate the efficient excise tax on alcohol

> "We must trade off the economic and social gains of making alcohol abusers face prices that more accurately reflect the full social costs of their actions with the adverse effects of the increase in taxes on non-abusive drinkers."

(Manning, Blumberg & Moulton, 1995: 124)

Although the dataset collected for this investigation is more aggregated than that of Manning, Blumberg and Moulton (1995), it is instructive to bear in mind the differing responses of the three groups to price changes when considering the observed results.

Furthermore, there is evidence to suggest that demographic factors may provide some explanatory power for the dependent variable in question. Notwithstanding the legal restrictions on the sale and consumption of alcohol with respect to minors, use of certain gender and age variables could be informative. In 2007, a Special Eurobarometer (2007) report was published by the European Commission containing survey data pertaining to alcohol consumption patterns and other viewpoints on alcohol in general across the European Union (EU). They asked respondents whether they drank alcohol at least once in the past year and 84 per cent of men replied "yes", compared to 68 per cent of women. In the age categories 25-39 and 40-54, 81 per cent said "yes". Including these variables may add some explanatory power to the hypothesised model. That said since the sampling method employed was a survey, one must be cautious in inferring too heavily from these findings.

Empirical approach

The results of this investigation were obtained by running the following Ordinary Least Squares regression:

$$\mathbf{Y_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + u_i}$$

Where:

Y = Alcohol consumption, litres per capita, based on the population of age 15 and above (ALC).

$\mathbf{X_1}$= Consumer price index, with 2000 as the base year (CPI2000).
$\mathbf{X_2}$ = GDP per capita, based on Purchasing Power Parity (PPP) and measured in current US dollars (GDPPPPCD).
$\mathbf{X_3}$ = Percentage of population aged between 15 and 64 (POP1564).
$\mathbf{X_4}$ = Percentage of males in population (POPMALE).
$\mathbf{u_i}$ = Error term

It was deemed suitable, upon investigation, to convert the model into a double logarithmic functional form in order to identify the income and price elasticities in the sample. This also helped rectify the problem of X_1 and X_2 being of greater magnitude than Y, which would have resulted in unhelpfully small beta values. By the same reasoning, it was also deemed appropriate to scale down the percentages X_3 and X_4 by a factor of 100. With these modifications complete, it is thought that a clearer analysis can take place.

It is anticipated that CPI2000 will have an inverse relationship with ALC, and that GDPPPPCD will have a positive relationship with ALC. However, the exact magnitude of these relationships will, to an extent, depend on the proportions of light, heavy and moderate drinkers in each sample population, in light of the findings of Manning, Blumberg and Moulton (1995).

It is also expected that the demographic factors included in the model will add some explanatory power. According to the Eurobarometer (2007) report, such a model should expect to find a positive relationship between ALC and both POPMALE and POP1564.

Data set issues

The time series 1984-2003 was chosen largely due to data availability. The WHO published the "Global Status Report on Alcohol 2004", a major international study on alcohol consumption patterns, which proved to be a rich source of data. Information on alcohol consumption since then has been less abundant. It is not anticipated that any sample specific factors will be encountered that may compromise the generality of the findings.

Initially, the cross-section of the panel data was going to include all 30 member states of the Organisation for Economic Co-operation and Development (OECD). Unfortunately, due to the unavailability of data, the omission of the Czech Republic, Slovakia and South Korea was necessary. It was deemed appropriate to exclude Turkey from the study, owing to the fact that the majority of its population are Muslim and religious factors may distort the presented model[2].

[2] In Islam, alcohol is generally forbidden.

The 26 counties used are all classified by World Bank, as of July 2008, as 'high income' countries, with the exception of Mexico and Poland, who were classified as 'upper middle income'. These are all developed countries and may help in our analysis, as the WHO states in a fact sheet:

> "Unrecorded production of alcoholic beverages contributes significantly to overall alcohol availability, especially in developing countries and countries in the former Soviet Union. In some countries production in the informal sector is as high as 80% of total production"
>
> (WHO, 2003)

Due to the narrow focus of the sample obtained, the variation between groups may be minimised and so the results may be stated with more confidence.

A scatter plot of ALC against POP1564 indicates the existence of a positive relationship between ALC and POP1564. Similarly, a scatter plot of ALC against GDPPPPCD suggests a positive relationship between these variables. This is consistent with the evidence presented earlier.

	Alcohol Consumption	Consumer Price Index	GDP per capita	Proportion Male	Proportion Aged 15-64
Australia	10.2900	84.2547	19677.60	0.50069	0.66741
Austria	11.8450	87.9532	22396.60	0.48561	0.67615
Belgium	11.4600	88.4401	21330.90	0.49163	0.66431
Canada	8.0300	87.3805	22174.20	0.49828	0.68137
Denmark	12.1500	86.3379	22039.90	0.49697	0.66980
Finland	8.7200	87.0825	19298.20	0.48891	0.67200
France	15.3900	89.5845	20218.00	0.49052	0.65419
Germany	11.9550	88.3738	20884.50	0.48679	0.68568
Greece	10.2050	65.0244	17019.90	0.49695	0.67259
Hungary	13.2050	49.6742	9664.40	0.48169	0.67313
Iceland	5.2050	76.5634	23467.80	0.50458	0.64482
Ireland	11.7500	85.6347	18259.30	0.50106	0.63560
Italy	10.2600	80.6110	20016.20	0.48926	0.68062
Japan	8.5250	94.8113	20681.00	0.49367	0.68803

Luxembourg	14.8700	88.1936	37256.00	0.49277	0.68320
Mexico	4.8450	46.7198	7071.20	0.49578	0.58556
Netherlands	10.0550	87.9756	21304.20	0.49720	0.68358
New Zealand	9.6650	85.9027	16685.40	0.49556	0.65454
Norway	5.2200	84.5644	23795.30	0.49859	0.64686
Poland	8.6350	46.0093	7421.90	0.48825	0.66365
Portugal	14.165	75.7117	12566.20	0.48544	0.66610
Spain	12.765	79.8013	15811.40	0.49357	0.67171
Sweden	6.2800	86.5109	21199.80	0.49892	0.64258
Switzerland	12.0850	89.3458	25876.10	0.49307	0.68276
United Kingdom	9.8450	81.5590	19091.70	0.49012	0.65223
United States	8.8550	83.8940	26635.00	0.49388	0.66097

Table 1: Mean summary statistics: 1984-2003.
Source: United Nations Database and WHO.

Empirical Results

$$\widehat{APC} = -0.916 - 0.0189CPI2000 + 0.276GDPPPPCD - 1.061POPMALE + 1.227POP1564$$
$$(0.2894) \quad (1.103) \quad (0.00763) \quad (0.0533) \quad (1.106)$$

$$N = 520 \qquad F_{48,\,471} = 191.33 \qquad \text{Adjusted } R^2 = 0.94625$$

The direction of the relationships implied by the coefficients for all variables, with the exception of the intercept term and POPMALE, are as expected. The results would indicate that people, in general, are more income elastic than price elastic, with respect to alcohol (although neither is of a large magnitude). Indeed, alcohol appears to be very price inelastic, with a one per cent increase in price corresponding to a *ceteris paribus* 0.0189 per cent drop in alcohol consumption.

The intercept term is negative and given that one cannot consume a negative amount of alcohol, this finding is a little unusual, although, it is only significantly different from zero at very high significance levels. This suggests that there is no 'subsistence' level of alcohol consumption.

This analysis also suggests that the amount of males in the population has a negative impact on the dependent variable ALC, which is at odds with the findings of the Eurobarometer study mentioned earlier. However, the beta value for this variable is only statistically different from zero at a significance level of 35 per cent, so gender would appear to provide little explanatory power. It was decided that a second regression should be run, this time omitting the variable POPMALE. This generated the following regression:

$$\widehat{APC} = \underset{(0.625)}{-\ 0.0432} - \underset{(0.0075)}{0.0175}CPI2000 + \underset{(0.0527)}{0.268}GDPPPPCD + \underset{(0.258)}{1.353}POP1564$$

$$N = 520 \qquad F_{47,\ 472} = 195.416 \qquad \text{Adjusted } R^2 = 0.94625$$

The adjusted R-squared value for the omitted variable regression is the same as the original model. Furthermore, the new F-statistic is higher than in the original figure but not by much. This suggests that the variable POPMALE provides little or no explanatory power to alcohol consumption behaviour.

The results also tell us that our sample suffers from both serial correlation and heteroscedasticity. There are many possible explanations for why this is so and there exists ways of rectifying these problems. Gujarati (2002) puts forward the following as a possible cause of heteroscedasticity:

> "As incomes grow, people have more discretionary income and hence more scope for choice about the disposition of their income. Hence, σ_j^2 is likely to increase with income"
>
> (Gujurati, 2002: 389)

It is well known that incomes tend to rise over time, in nominal terms at least, and so this may account for the presence of heteroscedasticity. In light of this difficulty, the method of Weighted Least Squares (WLS) was employed in order to the efficiency of the estimates. The following regression was obtained:

$$\widehat{APC} = \underset{(1.014)}{-\ 0.9159} - \underset{(0.00733)}{0.0189}CPI2000 + \underset{(0.0583)}{0.276}GDPPPPCD - \underset{(0.9427)}{1.061}LPOPMALE + \underset{(0.307)}{1.227}POP1564$$

$$N = 520 \qquad F_{47,\ 472} = 195.416 \qquad \text{Adjusted } R^2 = 0.94625$$

Note the OLS estimation is based on White's heteroscedasticity adjusted standard errors.

The problem of serial correlation is more serious in this model. Again, there may be a number of reasons for this. Gujarati (2002) put forward the possibility that excluded variables can have an impact on serial correlation. In the above model, macroeconomic and demographic variables were used, but it is possible that country specific cultural and social factors may have driven alcohol consumption to a certain extent. Collecting data for these factors is a challenge as some factors are hard to quantify for inclusion in a linear regression.

Possible extensions

As discussed above, it may be instructive to add some cultural variables to the model. Adding such factors will enable researchers to better differentiate between countries' population dynamics, rather than homogenise all countries into the 'representative agent' so beloved of economists. In doing so, it may allow public policy to be better informed by an analysis like the one presented here.

Given more detailed data, it may be useful to group drinkers according to levels of alcohol consumption, as in Manning, Blumberg, and Moulton (1995). Knowing a country's profile of drinkers may enable a more efficient tax framework to be constructed and may reduce the unwanted distortionary and welfare-loss effects of alcohol taxation.

Conclusion

This investigation initially set out to try and explain what drives alcohol consumption using a number of macroeconomic and demographic variables from the perspective of public policy. By and large the data revealed what was expected, although there were a few surprising results. Evidence was found suggesting that gender does not help to explain alcohol consumption. If this is a significant finding, it would contradict the Eurobarometer (2007) report amongst others. That said, whether the evidence is definitive or not is difficult to ascertain.

Demand for alcohol appears to be more income elastic than price elastic, although neither appears to be particularly strong. The notion of alcohol being an addictive good is well established (Grossman, Chaloupka & Sirtalan, 1998). People tend to develop habitual alcohol consumption and price or income changes tend not to alter their consumption patterns substantially. This would suggest a discrepancy between governments' rhetoric on the subject of alcohol and its practice of levying taxes. Indeed, taxing alcohol is a relatively easy way for a government to extract revenue from the taxpayer, with little or no distortions to the economy.

Of course, with a richer data set, researchers will be able to undertake a more comprehensive study of other factors driving alcohol consumption. This model demonstrates what fundamentally drives alcohol consumption, at least on an

aggregate level. However, if individual governments wish to design alcohol policy effectively, it may be instructive for them to conduct individual studies, exploring deviations from the analysis presented here.

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Factors that influence the exchange rate: Purchasing Power Parity - does it hold?

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Kate Holohan analyses the shortcomings of the economic theory surrounding purchasing power parity. As she discovers through careful consideration of the Irish case, there can be considerable differences in price rates between countries, even when adjusted for inflation and expressed in a common currency. This has implications for the Irish government's policies aimed at deterring cross-border shopping, as it shows that the cuts in VAT rates which have been made in the most recent budget have been insufficiently aggressive to put an end to the practice.

Introduction

There are numerous factors which influence the exchange rate such as relative inflation rates, relative interest rates, relative economic growth rates and political and economic risk (Shapiro & Sarin, 2009). The factor this article will focus on is Purchasing Power Parity (PPP) because it is the foundation of most models of exchange rate determination (Abuaf & Jorion, 1990). Absolute PPP states that price levels should be equal worldwide when expressed in a common currency. This is an application of the law of one price, which states that if prices were not equal worldwide arbitrage opportunities would exist. If absolute PPP holds then the more general form of PPP, relative PPP (where the spot exchange rate starts in equilibrium, and any change in the relative inflation between the two countries will be offset, over the long run, by an equal but opposite change in the exchange rate), will also hold (Feenstra & Taylor, 2008).

Although PPP existed in literature for many years, the father of the phrase 'Purchasing Power Parity' and one of the strongest proponents of the intuition was Gustav Cassel (1918). Cassel's proposition was that long-run changes in the price level have much greater consequences for the nominal exchange rate than any change in the real conditions of international trade (Galliot, 1971).

The focus of this essay is relative PPP and its goal is to determine whether or not it holds in practice. First this article will pose the problem of PPP's failure to hold in the short run before looking at the tests and empirical evidence which are associated with the issue.

The short run

Frenkel (1981) provides the basis for criticism of PPP in the short run. In reality, there is a fundamental difference between nominal exchange rates and the price level in the short run. The exchange rate is expected to reflect future expectations immediately resulting in high volatility. The price level, on the other hand, is much less sensitive. The author argues that in periods dominated by 'news' that will impact professional expectations about future events, deviations of the real exchange rate from the mean will be common. Another factor to be considered is that the effects of real shocks require a change in the relative price level. Price changes do not occur in the short run and thus, deviations from PPP persist and accumulate (Adler & Lehmann, 1983). There are a number of reasons why price levels do not change in the short run including transaction costs, non-traded goods (i.e. services), imperfect competition and legal obstacles (i.e. brand names, copyrights and legal protection). However, the most widely cited cause for this phenomenon is price 'stickiness' (Feenstra & Taylor, 2008). If PPP does not hold in the short run and the real exchange rate deviates from unity, significant arbitrage opportunities will exist (Feenstra & Taylor, 2008).

Application

To observe PPP in action it is interesting to look at the deviations from PPP that exist between the Republic of Ireland and Northern Ireland. There is evidence of cross-border savings on a representative basket of alcohol and food products (which is not the consumer price index), as these are the most commonly purchased items amongst cross border shoppers according to the Central Statistics Office (CSO)[1]. This analysis assumes that the law of one price holds for all goods. The tables below (*Figure 1.* and *Figure 2.)* compare these items as priced by Tesco[2] in sterling as well as an example of the calculation of PPP (*Figure 3*):

[1] http://www.finfacts.ie/irishfinancenews/article_1018614.shtml

[2] Price data from *www.tesco.com* for Northern Ireland and *www.tesco.ie* for the Republic of Ireland

Product	Rep. Price converted to £	North Price £
Smirnoff red label 1 litre	£27.02	£14.99
Gordon's Gin 1 litre	£26.08	£14.99
Baileys 1 litre	£23.52	£14.00
Malibu 1 litre	£25.08	£13.98
Finlandia vodka 1 litre	£29.59	£20.44
Carlsberg 10x440ml cans	£9.00	£7.00

Figure 1: Alcohol prices: North versus South

Product	Rep. Price converted to £	North Price £
Goodfellas ham and pineapple pizza	£3.15	£2.38
Tesco finest Banoffe tart	£3.42	£2.99
Tesco Sheppard's pie	£2.25	£1.70
Tesco chicken pie	£2.60	£1.90
Tesco lamb with gravy	£4.24	£4.00

Figure. 2 Grocery prices: North versus South
**Conversion rate as of 5/12/09:€1 = £ 0.901169*

Price of vodka in the republic	Price of vodka in the north	Implied exchange rate by PPP	Actual exchange rate 6/12/09 £1 = €	Over valuation of the euro against the pound
Eur 29.99	£14.99	0.5	1.10353	60.4%

Figure. 3: Calculation of PPP for 1 litre of red label Smirnoff Vodka

The impact of the failure for PPP to hold on the Irish economy is huge. PPP implies that the purchasing power of one unit of currency in foreign currency terms is equal to the purchasing power of the foreign currency. This is clearly not the case for the euro versus the pound. An arbitrage opportunity is available as long as the savings made on a basket of goods exceeds transportation costs. The CSO estimates that €435 million was lost from the Republic of Ireland due to shopping trips to Northern Ireland in the year up to July 2009 and that 16 per cent of all households in the Republic made at least one shopping trip across the border[3]. Retailers in the Republic of Ireland argue that they can not compete with the 15 per cent VAT rate in the UK versus a 21 per cent rate in the Republic of Ireland, highlighting

[3] http://www.finfacts.ie/irishfinancenews/article_1018614.shtml

transaction costs in the short run (Fottrell, 2009). David Forde of the Irish Business Association (IBA) argues that "just like other alcohol categories, most of the selling price… consists of excise duty and VAT. Taxation makes up over 43% of a price of a 50cl can (of beer) in the Republic"[4]. Alcohol is a big attraction and it was clear that the Minister for Finance, Mr Brian Lenihan, was taking this into account when he attempted to close the gap with the publication of the Budget 2009 and a reduction in excise duty of 12 cent per pint of beer, 14 cent per half glass of spirits and 60 cent per bottle of wine[5].

Early empirical papers on long-run PPP and tests on the random walk hypothesis

> "With the benefit of nearly 20 years of evidence it is obvious that short run PPP does not hold, the relevance of long run PPP is still a very open question"
>
> (Papell, 1997: 313)

Galliot (1971) a strong proponent of Cassel's (1918) theory, believed that the real exchange rate moves towards unity as average PPP deviations are zero in the long run. During the early 1970s support for PPP grew stronger as Frenkel (1976) attempted to revive the monetary view of exchange rate determination by supporting the ability of PPP to hold in the short run. By the late 1970s floating exchange rates were in full force and the real exchange rate became more volatile. The PPP literature 'collapsed' when Frenkel (1981) proposed that PPP worked better in the 1920s than the 1970s.

After the apparent 'collapse' of PPP, the model became ensnared by the naïve random walk hypothesis (Rapach & Wohar, 2002). During the early 1980s, papers began to emerge which doubted the stationarity of the real exchange rate and proposed that real exchange rate followed a random walk process. The random walk model rejects the two fundamental results found in literature on long-run PPP: first, that the real exchange rate swings above and below unity and second, that deviations from PPP average to zero over long periods of time (Adler & Lehmann, 1983). If the real exchange rate follows the random walk model then it is "a stochastic process in which successive increments are unpredictable" (Adler & Lehmann 1983: 1,472).

[4] http://www.finfacts.ie/irishfinancenews/article_1018614.shtml
[5] http://www.belfasttelegraph.co.uk/news/politics/irish-budget-moves-unlikely-to-halt-shopper-exodus-14591811.html#ixzzG2njezNIF

Econometricians[6] examined deviations from PPP by testing if the real exchange rate has a unit root. If a unit root exists then the real exchange rate is non-stationary and must follow a random walk process. PPP needs the real exchange rate to remain stationary so that changes in exchange rates solely reflect changes in inflation (Feenstra & Taylor, 2008).

A similar school of thought fails to find cointegration between nominal exchange rates and relative price levels[7]. The cointegration framework was first established by Engle and Granger (1987) as a 1980s modern development of econometrics. If cointegration does not hold there is no relationship between the price level and the nominal exchange rate and both factors will follow a random walk. The papers test the null hypothesis of no cointegration amongst the exchange rate and relative prices. Both Patel (1990) and Taylor (1988) are unable to find support for cointegration and show there is little evidence to support any models of exchange rate determination that relies on PPP. Developments in the 1980s reduced confidence in the fundamental theory behind PPP (Taylor & Sarno, 1998). Even with the use of more advanced techniques, the null hypothesis of no cointegration could not be rejected.

Criticisms of random walk testing procedures

Many subsequent studies have strongly criticised the random walk literature. Abuaf and Jorion (1990), Lothian and Taylor (1996), Kim (1990) and Mishkin (1984) all contend that the failure of previous tests to reject the random walk model reflect the poor power of the methodology employed. Unit root testing has more recently been developed to employ augmented Dickey-Fuller techniques, which provide a more powerful and advanced means of testing (Taylor & Sarno, 2002). Testing the real exchange rate in the recent floating period may not render enough data to find evidence of a long-run equilibrium. Substantial short-run deviations from PPP can take three to five years to be reduced by half (Abauf & Jorion, 1990). The work carried out by Adler and Lehmann (1983), Roll (1979), and Rogalski and Vinso (1977) tested floating exchange rate data which spanned between four and ten years at the time of testing. Taylor and Sarno (2002) show that if the real exchange rate is slowly reverting to the mean, the probability of not being able to reject the null hypothesis of a unit root, given short span of data, is in excess of 92 per cent.

[6] Roll (1979), Adler and Lehmann (1983) and Rogalski and Vinso (1977)

[7] Enders (1988), Patel (1990), Taylor (1988), Corbae and Ouliaris (1987) have all tested this theory.

Testing long spans of data

Tests of long spans of data show that because of the slow reversion of the real exchange rate, the data tested in the early 1980s will not show the reversion tendencies of the real exchange rate. Lothian and Taylor (1996) tested data spanning two centuries (1791-1990) and they concluded that the real exchange rate reverts to the mean slowly, with the forecasting superiority of PPP improving over time. Papers testing long spans of data use Dickey-Fuller statistics combined with Monte-Carlo simulations; these testing procedures would not have been available to the proponents of the random walk model (Taylor & Sarno, 2002). Abuaf and Jorion (1990) maintain that the conclusions of their tests are stronger then those of the random walk model due to the use of Dickey-Fuller statistics in a multivariate setting and of Monte-Carlo experiments over a 74 year period. The short time spans tested combined with the low power of the unit root tests goes some way towards explaining the failure of PPP in the early 1980s (Abuaf & Jorion, 1990).

Panel testing

Applying long spans of data heavily weights the pre-floatation data during the Bretton-Woods era (Lothian & Taylor, 1996). Frankel and Rose (1996) argue that the use of cross-sectional data through panel testing provides a more powerful result than long spans of data, as 100 years of data will encounter many changes in exchange rate regime.

Panel tests could therefore prove useful if we are solely interested in post-floatation data. Levin, Lin and Chu (2002) show how panel testing can improve the power of a unit root test by increasing the number of observations when long spans of data are not available. Oh (1996), Papell (1997) and Frankel and Rose (1996) all use panel testing procedures to test data from the floating rate period of 1973 to 1990. Favourable results for PPP are achieved. Although Papell (1997) provides overall support for PPP, the author finds stronger evidence against the unit root null hypothesis when larger rather than smaller panels, monthly rather than quarterly data are used and when the deutschmark is used as a base currency rather then the American dollar. This paper may point to some potential for variance in the results obtained.

The results obtained using panel testing must be interpreted carefully since the null hypothesis is testing for the joint non-stationarity of all of the real exchange rates (Taylor & Sarno, 1998). If just one of the real exchange rates is stationary, the random walk hypothesis will be rejected for all series (Taylor & Sarno, 1998). Taylor and Sarno (1998) illustrate this point through the use of Monte-Carlo simulations and conclude that panel test results can be ambiguous as rejection of the

null hypothesis will not show which series are stationary. Taylor and Sarno (1998) alleviate this problem by improving the test, so that the null hypothesis will only be rejected if all series are stationary. These researchers ultimately find evidence of mean reversion of the real exchange rate during the floating rate period. The use of more powerful tests cannot be underestimated when testing the random walk model.

The non-linear model

More recently another school of thought has developed, which reports that the real exchange rate adjusts to long-run equilibrium in a nonlinear pattern (Killian & Taylor, 2003). Killian and Taylor (2003) use the ESTAR model to link the nominal exchange rate nonlinearly to movements in relative price. This allows the real exchange rate to adjust nonlinearly and goes some way towards explaining the slow reversion of the real exchange rate to equilibrium. As Killian and Taylor (2003) found only very small shocks will result in slow speed adjustment, while large shocks will see the real rate adjust much faster. Indeed, close to equilibrium the real exchange rate is accurately approximated by a naïve random walk. The problem with the ESTAR model, as Killian and Taylor (2003) argue, is that nonlinear mean reversion cannot be detected unless there are large departures from equilibrium. These authors obtain similar evidence to the papers using long spans of data and conclude that the forecasting ability of PPP will increase at longer time horizons when there is a greater likelihood of large deviations from equilibrium.

Conclusion

It is clear from the applied example that PPP does not hold in the short run. In the long run, as people continue to shop across the border, these results may change as the arbitrage opportunities alleviate due to shoppers exploiting the over-valuation of the euro against the pound; restoring prices to parity. The Budget 2009 goes someway towards aiding the price gap but not nearly far enough.

This article has given an overview of some of the empirical evidence and testing techniques associated with the issue of PPP. It is clear from the above analysis that there is much disagreement as to the reliability of the random walk model. It is irrefutable that panel studies and long spans of data employ more powerful testing procedures then those used in the 1980s and therefore, obtain more reliable results. It seems the results proclaiming the rejection of the random walk model are the 'Holy Grail' that finance was searching for. "Professional confidence in PPP having been low for a number of years, may itself be mean reverting" (Taylor and Sarno, 1998:308). PPP cannot deny the glory of being a building block

of many models of exchange rate determination but PPP should be viewed as a long-run equilibrium model and not a model of exchange rate determination within itself. Despite these positive results, it would be wise to recall the words of the infamous monetarist John Maynard Keynes (1923):

> *"The long run is a misleading guide to current affairs. In the long run we are all dead. Economists set themselves too easy, too useless a task if in tempestuous seasons they can only tell us that when the storm is past the ocean is flat again."*

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An economic and legal discussion of minimum resale price maintenance

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By exerting pressure on or colluding with distributors, producers are often able to set a price below which their products cannot be sold. Jean Acheson examines the competing perspectives on minimum resale price maintenance and discovers that the issue is not as black-and-white as strict adherents competition policy would often have us believe.

Introduction

"Competition brings out the best in products and the worst in people"

David Sarnoff

Minimum resale price maintenance (RPM) is just one of many forms of vertical restraint analysed in competition policy. Opinion on vertical restraints is not unanimous: some believe they only harm competition when market power is sufficiently large; others condemn them outright as anti-competitive; still others such as those at the Chicago School of Economics justify them on efficiency grounds. This divide in economic theorists' opinions is mirrored in legal opinion too; RPM is treated as a 'hardcore restraint' in the EU and thus *per se* illegal in practice, whereas the USA recently adopted the 'rule of reason' in relation to its judgements.

RPM is defined as "the practice whereby an upstream firm (e.g. a manufacturer) specifies a minimum price to which a downstream firm (e.g. a

retailer) is required to adhere in its sale efforts" (Kwoka & White, 1999: 364).[1] The treatment of RPM in both economic theory and legal practice will be examined. The empirical examples of *Leegin* (2007) and the Net Book Agreement (1994) will be used to highlight its handling in different legal jurisdictions. Finally, a conclusion will be drawn regarding RPM's overall welfare effects and its treatment in competition policy.

Getting from A to B

Drawing on the analytical framework prepared by Matthewson and Winter (1984) and utilised in Hay (1991), the following scenario is presented. There is a market for a particular manufactured good, where Sector A (manufacturing) makes the good and Sector B (retailing) distributes the good. Certain assumptions about the market are made: there is a one-to-one relationship between outputs in Sector A and Sector B; Sector A is a monopoly and Sector B has n identical firms; entry into B is determined by A (i.e. it can refuse to supply other retailer firms); and the only costs are fixed (F). Quantity demanded (q) is a function of the retail price (p_B), consumer services (S) and the number of firms (n). The profit functions for each sector are given below:

$$\pi_A = nq(p_B, S, n)(p_A - c_A) - F_A$$

$$\pi_B = p_B q(p_B, S, n) - q(c_B + p_A) - F_B$$

The manufacturer's profits π_A depend on the price charged by retailers, p_B. Clearly, an incentive exists to initiate RPM, that is, by controlling p_B, Sector A would have greater power over its profit margin. Such behaviour distorts the market and can be viewed as anti-competitive. If it were the case that the firms in Sector B could all cooperate together, they too may wish to impose RPM (by coercing the manufacturer into setting up such an agreement). The motives of the two respective parties would be the same: greater control over their profit margins. Irrespective of which sector initiates it, the result for consumers is the same: the elimination of intrabrand price competition.

[1] However, RPM does not necessarily originate at the upstream level; it can also be motivated by a dealers' cartel that forces the manufacturer to implement it, although this is empirically less likely.

The free-rider problem

Nonetheless, there are many arguments that legitimise the use of RPM. For instance, it is possible to justify RPM on efficiency grounds (Ornstein & Hanssens, 1987). The classic argument (and the one that signalled a change in attidudes to RPM in the 1960s) was that given by Telser (1960), an economist at the University of Chicago. In this influentual paper, the author argues that certain goods require point-of-sale service, that is, retailer service should be seen as a valuable input into the sale of a good. It is often not easy to charge a separate fee for this service. For example, a consumer looking for information in a computer shop would not necessarily be willing to pay for it. This may tempt some retailers to operate as discount or online stores. These retailers are able to sell the product at a lower price than the retailer providing sales information (whose costs are higher due to staff training etc.). However, by this 'free-riding', they reduce the supply of the public good of sales information (Hewitt, 1997).

This phenomenon, the 'free-rider' problem, can be addressed by RPM. RPM eliminates price competition and provides the incentive to offer the services that the good requires. If a manufacturer implemented RPM for this reason, and a high level of retail service was indeed necessary to sell the product, then consumer welfare could conceivably be enhanced (Kwoka & White, 1999). Of course, consumers are heterogenous, and if, for example, an experienced user of the good is forced to pay a higher price that incorporates sales information they do not require, they will be worse off (Carlton & Perloff, 1999). There are other limitations to the 'free-rider' argument. Firstly, it can induce wasteful expenditure on advertising (Ornstein & Hanssens, 1987). In the past, RPM has often been used in the distribution of goods that do not require much sales information, for example, shoes and raincoats (Brennan, 2000). This suggests that the Telser (1960) argument is easily manipulated for anti-competitive ends; a manufacturer or retailer can claim that point-of-sale service is essential, but this may be a completely inaccurate portrayal of the good.

RPM can also play a role in quality certification of a good (Marvel & McCafferty, 1984). Such arguments are based upon the idea that some dealers can act as agents that certify the quality or respectability of a product, as well as the degree to which it is fashionable. By screening for low quality or unstylish goods, they build up a reputation that signals to the consumer, that the goods they sell are desirable. It is possible for a consumer to ascertain what constitutes a 'fashionable' good in one shop but buy it in a discount shop elsewhere. RPM blocks 'free-riding' on this intangible service (the dealer's reputation). By setting a minimum price and refusing to sell to low quality retailers, the manufacturer can induce high quality

shops to sell the product. Once consumers associate quality with the higher price, this can offset the effect on demand of a higher retail price (Hay, 1991).

In industrial organisation, the manufacturer-retailer relationship is characterised as a principal-agent problem (Carlton & Perloff, 1999), as the manufacturer does not have full control over the retailer's actions. A manufacturer may desire a retailer to provide certain services (like sales information or quality assurance as discussed above) but a direct contract for these is difficult to enforce, just as detecting a breach of contract would be costly (Brennan, 2000). Using RPM, the manufacturer can demand a particular level of service from the retailer; the threat of termination of RPM (and the healthy retailer profit margin it brings) would act as an incentive to provide the other information services the manufacturer deems necessary to sell their product (Klein & Murphy, 1988).

Unless by the lawful judgement of their peers

The Sherman Act of 1890 is the legal means through which competition is investigated in the USA. It is a very general piece of legislation and, as such, open to wide and evolving interpretation (Kovacic & Shapiro, 2000). Throughout the 20th century, RPM was illegal in the USA. This rule was based on *Dr.Miles Medical Co. v. John D.Park & Sons. Co.* (220 U.S. 373 [1911]) where the Supreme Court deemed RPM illegal *per se.* This is an important definition for competition policy; by being illegal *per se* it is not necessary to prove the firm's actions have anti-competitive effects or to examine real market forces (Perry & Besanko, 1991). However, decisions on other restraints such as maximum RPM have recently evolved according to the 'rule of reason', that is, everything is judged on a case-by-case basis. In June 2007, this decision-making process was also applied to minimum RPM, overturning the almost century-long precedent set by *Dr.Miles*. In *Leegin Creative Leather Products, Inc. V. PSKS, Inc.*, 2007 WL 1835892 (June 28, 2007), Justice Kennedy delivered the following verdict:

> "Respected economic analysts, furthermore, conclude that vertical price restraints can have pro-competitive effects. We now hold that Dr. Miles should be overruled and that vertical price restraints are to be judged by the rule of reason."
>
> (Supreme Court of the United States, 2007: 1).

There is still confusion as to the consequence of the *Leegin* decision, as it may be incompatible with state law in some cases, and it was only passed by a tight margin (five-to-four in favour). One possible use of *Leegin* could be in the music

downloading industry, for example, if the most popular songs on an album were sold at a higher price through the RPM mechanism (Meigher & Evans, 2007). Consumers may gain more from having exactly what they want at a slightly higher price per unit, than from being forced to accept superfluous extras at an even greater overall price.

In contrast, the European Commission treats RPM as a 'hard-core' restraint that does not qualify for a block exemption from Article 81. Whilst it is not technically prohibited, in practice it is strongly discouraged, so as to create the sense of *per se* prohibition (Jones, 2009). Currently, the Commission is reviewing its policy toward vertical restraints – the current Block Exemption Regulation, which excludes minimum RPM, is due to run out in May 2010. It is possible that the *Leegin* decision will influence future European attitudes toward minimum RPM (Jones, 2009).

The USA and Europe do not just differ in their treatment of RPM. A more general view of competition law in both jurisdictions highlights an important difference: whilst USA antitrust law is concerned solely with maximising consumer welfare, European competition policy also aims to enhance the single market project. When this additional goal is considered, it seems unlikely that the position on RPM will change further.

What is stranger than fiction?

Each state also has national competition laws. In Ireland, price-fixing is deemed illegal under Section 4(1) of the Competition Amendment Act 2006[2]. In 1994, action was taken by the Competition Authority (CA) to abolish the Net Book Agreement[3]. This agreement between UK publishers and Irish retailers had been in place since 1957 (Hewitt, 1997). It involved over 400 UK publishers stipulating a minimum net price on books sold in Ireland (Hewitt, 1997). The CA found that the agreement displayed some features of a horizontal cartel (Massey, 1994). The Publishers' Association's (PA) defence rested on the following points: RPM protected specialist shops who would not be able to survive in a market that allowed discount shops (who could 'free-ride' on their specialist knowledge); and whilst the retail price of the most popular books may increase, this enabled less popular books to be distributed, that is, the products were cross subsidised.

The CA responded by stating that the Competition Act was there to protect competition and not competitors (such as small bookshops) and that the "cross-

[2]http://www.tca.ie/EnforcingCompetionLaw/CompetitionLaw/IrishCompetitionLaw/IrishCompetitionLaw.aspx

[3] Under Section 4 of the (older) Competition Act, 1991.

subsidisation" was a misallocation of resources, as consumers do not bear the true cost of the individual product. The PA also postulated that if book discounting were allowed, the risks to publishing would increase and fewer books would be published. However, the CA's counter argument has proven to be true: the rapid change in publishing technology has enabled greater publishing than before (Hewitt, 1997). Consumers have certainly benefited from the removal of RPM (consider anecdotal evidence like three-for-two offers, for example), and at an industry wide level, there has been no significant decline in the number of booksellers (Hewitt, 1997). This strongly suggests that RPM was anti-competitive and was hindering improvement in overall welfare.

Conclusion: the welfare of the people is the ultimate law

When looking at RPM, the most important thing to consider is its welfare effects. The first reaction to any form of price-fixing is that it must be bad for the market and the consumer. However, it is possible for the arguments in favour of RPM to lead to increases in overall welfare. That said, this is only persuasive when the good in question requires point-of-sale services or quality certification, or when there is a danger of 'free-riding' or when non-price competition is important to the consumer. The counter argument to RPM (and one which is just as, if not more, persuasive) is that it acts a proxy for a manufacturers' or dealers' cartel. This line of reasoning should be employed particularly when the good in question is homogenous and not that complex, as in the case of books discussed above.

Considering the uncertainties associated with both pro- and anti-RPM arguments, it can be concluded that its current legal treatment in the EU and the USA is the correct one. That is to say, *per se* illegality is not recommended in this area of competition law. The Commission, however, should take the upcoming opportunity to update the Block Exemption Regulations to signal that RPM is not *per se* illegal for a good reason: despite its dangers, it is possible for it to enhance welfare and its 'in practice' illegality should be reviewed. Such a signal need not imply that RPM will no longer be viewed critically for its potential welfare-decreasing effects. In the end, competition for market power and profits through RPM does not always bring out the best in products but nor does it unfailingly bring out the worst in competitors.

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An econometric exercise in "stoutonomics"

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Jason O'Connor sets out to prove that econometrics can find an answer to almost any question when he analyses the puzzling issue of why a pint is significantly more expensive in Dublin than outside the capital. O'Connor posits that the price of a pint will decline as one moves farther away from the city centre. This article attempts to construct a model which would predict the price of a pint of Guinness based on the public house's distance from the Spire.

Introduction

Guinness in Ireland is brewed at St. James' Gate Brewery in County Dublin. One would expect that the price of a pint in Dublin would be lower, or at least the same as, that prevailing in rest of the country. Yet this is not the case. This investigation found prices to be as high as €5 per pint in Dublin and as low as €3 a pint outside of Dublin. This analysis will attempt to explain this price discrepancy of €2. In particular, does this variation follow a pattern whereby the further one travels from Dublin the cheaper a pint of Guinness becomes?

This paper will consider the dependence of the price of Guinness on four variables: distance from Dublin (in miles), the population of a district, the disposable income per person in each area surveyed and the level of infrastructural development as indicated by the town's proximity to a national road.

Literature review

In the same way as *The Economist's* 'Big Mac Index' denotes how much international currencies are overvalued and undervalued, the aim will be to expose how the price level, normally measured by the Consumer Price Index (CPI), is less reliable for those who frequent public houses. A typical complaint often heard among the nation's stout drinkers is as follows: "If Guinness is brewed in Dublin,

then why is it more expensive there?" This article hopes to provide a quantitative justification for this quandary.

Moreover, Guinness is not that far removed from the realm of statistics. It was a statistician working for Guinness, William Sealy Gosset (1876-1937), who formulated 'Students' T-distribution (Raju, 2005), but he was unable to publish under his own name due to a contractual obligation owing to the company.

The Central Statistics Office (CSO) conducts a bi-annual Average Price Analysis (APA) for prices in and outside Dublin, derived from data gathered for the CPI. In November 2008, the CSO concluded that a pint of draught stout, consumed on licensed premises during May 2008, was 9.9 percent higher in the nation's capital when compared with the rest of the country. Of the 30 observations, which covered all of Dublin not just the city-centre, the CSO found the average price of a pint of stout to be €4.351. The averages of the five lowest and highest quotes were €4.020 and €4.766 respectively. This amounted to an 18.6 per cent differential between the lowest and highest price quotes. Outside of Dublin, the average price was €3.960, with the averages of the five lowest and highest quotes being €3.629 and €4.389 respectively. This amounted to a differential of 20.9 percent. The national average was found to be €4.094. In boarder terms, of the 79 items included in the CSO survey, prices were found to be higher in Dublin on 51 occasions or 64.6 per cent of the time. Prices were found to be lower in Dublin for 26 items, while only two of the items priced were the same.

Empirical approach

In order to quantify the hypothesised relationship between the variables specified above, the following regression was estimated:

$$\mathbf{Y_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + u_i}$$

Where:

$\mathbf{Y_i}$ = PRC: The price of a pint of Guinness (in euro).
$\mathbf{X_1}$ = DIST: The distance from Dublin (in miles).[1]
$\mathbf{X_2}$ = POP: The population of the town in each observation.
$\mathbf{X_3}$ = DINC: The average level of disposable income per person in each county of observation.
$\mathbf{X_4}$ = INF: A dummy variable set equal to one if the town was within one mile of a national road to indicate the level of local infrastructure.

[1] The "Spire" was taken as the point of reference.

$\mathbf{u_i}$ = an error term of statistical residuals.

A negative relationship between PRC and DIST was anticipated. Conversely, a positive relationship should be observed between PRC and the other variables: POP, DINC, and INF.

There are, however, other factors which affect the price of a pint of stout. Publicans in Dublin are subject to higher rents and higher local rates. That said it is reasonable to assume that these inflated costs are offset by the extra business they attract, owing to their city-centre location. Furthermore, the Guinness Brewery offers publicans one free keg for every ten ordered, therefore small publicans may not be in a position to sell such a quantity due to insufficient demand. As a result, Dublin-based publicans are better placed to exploit such economies of scale and avail of this bonus. A crucial factor in pricing decisions is the prevalence of union membership among Dublin bar staff. These unions set the wage level well above the prevailing minimum rate. Public houses outside of Dublin are typically family run and are not unionised. Therefore, such high labour costs can be avoided[2].

Description of the dataset

Sources

The investigation employed cross-sectional data analysis. Price data was gathered by a telephone survey of public houses. The Ordinance Survey Ireland (OSI) trails map software, which conveniently divided the island of Ireland into over 90 equal blocks, was used to obtain an unbiased sample selection[3]. The town closest to the centre of each of these blocks was chosen and a public house, from the chosen town, randomly selected from the telephone directory. This provided a convenient and unbiased method for obtaining random observations. For the Dublin prices, 15 public houses were chosen at random from the Dublin 1 postal area and another 15 were randomly selected from the Dublin 2 postal area. This resulted in a sample of 30 observations for the city-centre.

[2] The intuition behind this is based on anecdotal evidence from discussions held with publicans regarding the determinants of pricing decisions. Publicans report unionised bartending staff wage rates of approximately €15 per hour.

[3] Owing to a different currency and price level, blocks in Northern Ireland were not included in the survey.

The OSI software's measurement tool was employed to estimate the distance ('as the crow flies') of each town from Dublin. This tool was employed for measurement of the infrastructure variable[4].

For the data on town population, the CSO's Census 2006, which classified population by area, was consulted. Data on disposable income for each county was obtained from the CSO's County Incomes and Regional Gross Domestic Product (GDP) statistics.

Summary statistics

The national average price of a pint of Guinness was found to be €4.0435. For Dublin, the average price was found to be €4.4999, while the extra-Dublin (outside of Dublin) average price was €3.8521. A spread of €0.6478, or 16.8 per cent, is considerable and merits further explanation.

A scatter plot dipicting the relationship between the variables PRC and DIST showed the existence of a negative relationship between Dublin and extra-Dublin prices. Excluding the Dublin prices, however, there appears to be no relationship among the other observations regarding distance from Dublin.

Empirical Results

First regression

Using the Microfit statistical software package, PRC was regressed on DIST, POP, DINC and INF, yielding the following Ordinary Least Squares Estimations. It produced the following model:

$$\widehat{PRC} = 2.667 - 1.54DIST + 7.65POP + 5.97DINC + 0.064INF$$
$$\qquad\quad (0.463) \quad (5.67) \quad (2.27) \quad (2.30) \quad (0.054)$$

The regression exhibited a high R^2, impling that 67.7 per cent of the variation in PRC is explained by the model. Diagnostic tests did not detect heteroscedasticity at the one per cent significance level or serial correlation, indicating that the correct functional form has been specified.

Surprisingly, however, the variable DIST was not found to be statistically significant ($p > 0.05$). The dummy variable INF would likewise be rejected at the five per cent level ($p > 0.05$). POP and DINC were found to be statistically significant at the one per cent and five per cent levels respectively.

[4] This was used as a proxy to indicate the development of the town or village selected, since only very remote towns are more than one mile from a national road.

Second regression
In an attempt to improve the explanatory power of the model, the INF variable was excluded and logs were taken of the independent variables in order to account for nonlinearities.

The above actions caused the explanatory power of my model to fall; R^2 fell to 16.68 per cent and again, the variable DIST failed at the five per cent level of significance.

Third regression
Excluding DIST, the new regression model of PRC on LPOP and LDINC was estimated. It produced the following model:

$$\widehat{PRC} = \underset{}{-12.5456} + \underset{(0.0122)}{0.0554}LPOP + \underset{(0.361)}{1.621}LDINC$$
$$\qquad\qquad\quad (3.491)$$

The value of R^2 rose to 66.68 per cent and both LPOP and LDINC proved significant at the one per cent level. The software diagnostic tests did not detect heteroscedasticity at the five per cent level. Furthermore, no serial correlation was detected and the results indicated the model was specified in the correct functional form.

Possible extensions

Clearly the model is lacking in variables. As noted above, had it been possible to obtain data for labour costs and rent for premises the model could have been extended. Furthermore, there were exogenous factors at play, such as the price freeze imposed on all members of the Licensed Vintners Association (LVA) in December 2008[5]. It may also be instructive to take preferences and substitutes into account. For example, consumers may prefer lager such as Tennants in Ulster or the local brand of stout, such Murphy's, in Munster. Furthermore, since alcohol is relatively demand inelastic, it is a prime target for taxation. That said, this would not have affected the regression since it applies to prices nationwide.

Fundamentally, the price of Guinness seems to be demand determined since both population and disposable income were found to be significant. It is disappointing that the originally hypothesised relationship between the price of a pint of Guinness and the distance of a public house from Dublin was not observed. However, a very narrow sample was taken from the population. Furthermore, given

[5] http://www.irishtimes.com/newspaper/breaking/2008/1201/breaking38.html

the strong anecdotal evidence suggesting such a relationship, it is conceivable that, due to such small sample size, the above analysis failed to reveal this population parameter.

Conclusion

Initially, this study hoped to specify an equation whereby one could predict the price of a pint of Guinnes based on distance from Dublin. The actual equation obtained is:

$$\widehat{PRC} = \underset{(3.491)}{-12.5456} + \underset{(0.0122)}{0.0554}\text{LPOP} + \underset{(0.361)}{1.621}\text{LDINC}$$

This equation is inaccurate because, owing to the extremely negative intercept, it predicts a negative price. Rather it appears that the decline in the price of Guinness is discrete and falls to the extra-Dublin average of €3.85 once one leaves the city.

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The Atkins' diet: an economic perspective

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This essay attempts to expose the economic rationale behind the Atkins' diet, one of many fad diets which claim to have discovered the secret to rapid and lasting weight-loss. Jason Somerville compares the effect which the Atkins' diet and traditional diets have on the utility of the participant, each restricting carbohydrates and calories respectively. He discovers that although both diets generate the same results in terms of weight-loss, there is a significant difference in terms of utility levels. Furthermore, the fact that Somerville reveals the Atkins' diet to be much less novel than it purports to be has significant implications for the booming diet industry.

Introduction

What is the secret to weight loss? One answer has been put forward by Dr Robert Atkins. First popularised by his 1972 book entitled 'Dr. Atkins' Diet Revolution,' it has since sold over 45 million copies worldwide (Astrup et al., 2004). The central premise of the diet is that by restricting the intake of carbohydrates, the body's metabolism switches from burning glucose as a primary energy source to burning fats instead (Atkins, 1972). In turn this leads to fast and effective weight loss. There is a limited degree of scientific explanation behind this assertion. The process of metabolic change described by Dr Atkins (1972) is known as ketosis. It begins when insulin levels are low, and so by restricting the intake of carbohydrates, the body produces less glucose, thereby ensuring insulin levels remain muted. Unlike conventional diets, the Atkins' Diet does not set limits on the amount of calories one consumes. While Dr Atkins did later clarify that his diet is not a licence to gorge[1], no restrictions are set on calorie intake. It is the process of ketosis and not calorie restriction that facilitates weight loss.

Dr. Atkins' diet contradicts the assertions of economic theory. If you ask an economist how to reduce a person's weight, the answer will be straight forward: constrain a person's endowment of calories forcing them to consume at a new Pareto

[1] http://news.bbc.co.uk/2/hi/health/3408931.stm

efficient level. In essence, this is the view backed by 'traditional' diets. However, by not constraining calorie intake, the Atkins diet should not be effective at reducing weight. There is one problem with this prediction; it contradicts a vast body of empirical evidence. There have been a considerable number of experimental findings indicating that weight loss is equivalent for those on the Atkins' diet when compared with more 'traditional' diets (Truby et al., 2006; Dansinger et al., 2005; Stern et al., 2004; Foster et al., 2004; Sondike et al, 2003).

At face value economic models appear to offer little in the way of explanatory power for this phenomenon. That is until you consider the findings of Astrup et al. (2004). Having undertaken an extensive review of the literature on this topic, they conclude that:

> "A systematic review of low-carbohydrate diets found that the weight loss achieved is associated with the duration of the diet and restriction of energy intake, but not with restriction of carbohydrates."
>
> (Astrup et al., 2004: 897)

It was found that, despite not setting any constraints on calorie intake, the reason participants lost weight was because they were consuming less. Another study involving over 800 overweight adults randomly assigned participants to different diets based on varying protein, fat and carbohydrate ratios (Sacks et al., 2009). Each diet was designed in such a way that there was a deficit of 750_{Kcal} compared with each participant's Recommended Daily Allowance (RDA). The researchers found that participants lost an average of four kilograms of weight regardless of which diet they were on.

So why is it that people consume less on the Atkins' diet even though there is no calorie constraint? The reasons for such behaviour become obvious once the decision-making process is viewed through the lens of economic theory.

Axioms of economic theory revisited

While the assumptions of economic theory have come under a lot of criticism in recent times (Doerrenberg, 2009), special difficulties arise when attempting to apply an economic model to weight loss.

The first relates to the basic assumption that goods, in this case food, are indeed 'goods' and not 'bads'. Apart from the obvious shortcoming, that too much food can make you sick, meaning that an additional unit would in fact be a 'bad', issues arise over consumers' perception of food. If a person wants to lose weight, they might view food as a 'bad'. Indeed, this is the basis of many eating disorders.

To overcome this, it will be assumed that despite the desire to lose weight, food is treated as a 'good', which seems plausible.

The second issue relates more generally to the assumption of rationality. This is particularly problematic as any consumer who embarks on the Atkins' diet is making an irrational decision. The rational thing to do is to eat a healthy, balanced diet so as to maximise one's overall well-being. If the rational thing to do is to lose weight, such as in the case of obesity, the most rational and sustainable way of doing so is to constrain overall calorie intake while continuing to eat a balanced diet. 25 percent of the body's glucose supply is dedicated to neurological functioning (Kolb & Whisah, 2006) and by limiting the supply of carbohydrates, glucose cannot be produced. This could have negative implications for normal brain activity.

However, while health concerns have been raised, no consensus has yet to emerge on the welfare implications of the Atkins' diet (Dansinger et al., 2005). This is largely due to the lack of investigations into its long-term effects. If the side effects are still relatively unknown, then this creates risk. As compensation for such risk, a weight loss premium should be required to incentivise people to start the Atkins' diet. However, as outlined above, this is not the case. Therefore, it must be concluded that such individuals are risk seekers.

Despite these limitations, it will be assumed that consumers want to maximise their utility from the consumption of food. Furthermore, while it is the intuitive hunch of this author that further research will reveal significant health concerns associated with the Atkins' diet; due to a lack of empirical evidence it will be assumed that the diet does not produce any adverse side effects.

An economic model of decision behaviour under the Atkins' diet

Having briefly reviewed the literature on this topic and establishing some additional axioms, a model of decision-making behaviour under the Atkins' diet can be considered. Let us first restrict the model to the consumption of food, letting the consumption of carbohydrates (in grams) be denoted by X_2, and that of all other foods (that is, fats and proteins) be represented by X_1 (also denoted in grams). The budget constraint will be given by:

$$P_1X_1 + P_2X_2 = \text{RDA}$$

P_1 will represent the 'cost' (in calories) of consuming an additional gram of carbohydrate. Likewise, P_2 will denote the 'cost' (in calories) of consuming an additional gram of fat/protein. It is worth noting that each gram of carbohydrate represents 4_{Kcal} of energy. Each gram of fat and protein 'cost' 9_{Kcal} and 4_{Kcal} respectively. These are constant and therefore, individual budget constraints are

easily quantifiable given the each person's RDA and ratio of protein-to-fat consumption.

Utility will represent the pleasure, happiness or satisfaction derived from the consumption of food and will take on the usual economic characteristics, such as, diminishing marginal utility, increasing cumulative utility etc. Let us first consider a 'traditional' diet based solely on calorie constraint.

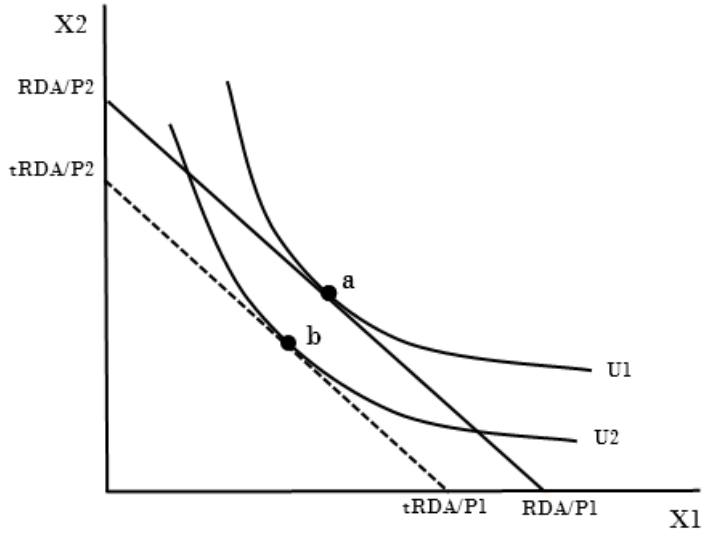

Figure 1: Optimal choice behaviour on a 'traditional' diet

Maximising utility subject to the above budget (or calorie) constraint will occur at point *a*, in *Figure 1*. resulting in consumption carbohydrate of X_1^a and fats/proteins of X_2^a. At point *a*, the marginal rate of substitution (MRS) between fats/proteins and carbohydrate will equal the slope of the budget constraint, that is:

$$MRS_{X_1X_2} = P_2/P_1$$

This will result in a Pareto efficient outcome. Now let us examine how the equilibrium changes once a calorie constraint is imposed. Imposing a constraint of t, where $0 < t < 1$, will yield the new budget constraint:

$$P_1X_1 + P_2X_2 = \text{(t)RDA}$$

Individual t ('traditional' diet) will now consume at point *b*, resulting in consumption of carbohydrates X_1^b, and fats/proteins X_2^b. Overall utility will fall as U_b is below U_a. This describes the behaviour of consumers on 'traditional' diets (assuming they adhere to the constraints imposed by the diet).

How will the behaviour of those on the Atkins' diet differ? As this diet only constrains the amount of carbohydrates a person consumes, the new budget constraint will be given by:

$$X_1 = CCa^*/P1$$

**Where CCa= endowment of calories from carbohydrate under the Atkins' diet*

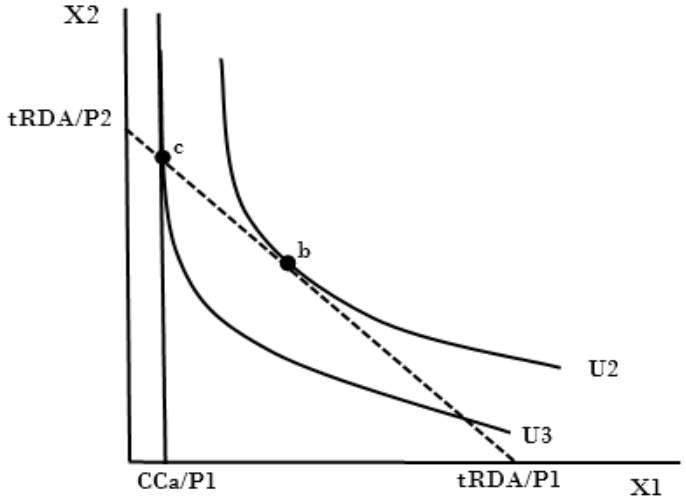

Figure 2: Optimal choice behaviour on the Atkins' diet

In this scenario, Individual *a* (Atkins' diet) will now consume at point *c*. This is the highest possible utility that can be gained from the given budget constraint. Overall utility will be lower on the Atkins' diet when compared with the 'traditional' diet. This occurs for two reasons. The first is obvious - people like choice. By depriving someone of choice they become worse off. The law of diminishing marginal utility provides the intuition behind this assertion. As a person consumes more of a good, the utility derived per additional unit of that good begins to decrease. Therefore, consuming more fats/proteins does not adequately compensate individuals for the utility foregone as a result of limiting carbohydrate intake.

However, why do those not on the Atkins' diet consume an infinite amount of fat and protein so as to increase utility? Any point above *c* is also tangent to the Atkins' diet budget constraint and so equally feasible. However, individuals do not consume above point *c* because, apart from the obvious health implications, those on the Atkins' diet must also consider an additional trade off. As there is no calorie constraint in place, such individuals must choose between consuming more X_2 (fats/proteins) and weight loss (i.e. non-consumption), which will be denoted by X_3.

People derive happiness from weight loss and so individuals on the Atkins' diet must consider this trade off. With 'traditional' diets this decision is made for the consumer. Individuals on the Atkins' diet are already consuming the majority of their calories from X_2, therefore the utility derived from consuming an additional unit is already low. In addition, it is found that protein may serve as an appetite suppressant[2]. In essence, by encouraging dieters to consume more protein, the Atkins' diet helps to facilitate a reduction in overall calorie intake, despite not setting any limits on how much to consume. Indeed, research has demonstrated that an increase in protein consumption results in a sustained decrease in calorie intake and thus, in significant weight loss (Weigle et al., 2005). As such, MU_{X_3}will decline at an even faster rate.

Therefore, when faced with the trade off between X_2 and X_3:

$$MU_{X_2} < MU_{X_3}$$

Note that the marginal utilities do not need to be weighted by price as the cost of both X_2 and X_3 are measured in terms of calories. Individuals on the Atkins' diet will reduce consumption of X_2 until $MU_{X_2} = MU_{X_3}$. Therefore, consumers will not increase consumption of X_2 beyond X_2^c as this would disrupt the equilibrium and decrease utility.

The plausibility of the assertion that those on the Atkins' diet consume the same amount of calories as those on 'traditional' diets, despite not imposing a calorie constraint, must be considered. It explains the empirical observation that there is no significant weight loss difference between individuals on the 'traditional' diets and those on the Atkins' diet. As Barbara Rolls, who holds the Guthrie Chair in Nutrition at Penn State University, argues:

> "They're cutting calories, even if they don't realize it. No one has shown, in any studies that anything magical is going on with Atkins other than calorie restriction. The diet is very prescriptive, very restrictive, and limits half of the foods we normally eat. In the end it's not fat, it's not protein, it's not

[2] http://news.bbc.co.uk/2/hi/health/3416637.stm

carbs - it's calories. You can lose weight on anything that helps you to eat less, but that doesn't mean it's good for you."[3]

In other words, just because weight loss under the Atkins' diet is a counter-intuitive result, it does not mean that there are elaborate mechanisms at play such as those suggested by Dr Atkins. When viewed through the lens of economic theory, such a result becomes less obscure and simply the product of consumer maximising behaviour given a suboptimal constraint. As such, from an economic perspective, one would predict that weight loss from the Atkins' diet is equivalent to weight loss on 'traditional' diets.

Conclusion

The above model attempts to explain the observation that individuals on the Atkins' diet lose the same amount of weight as those on 'traditional' diets. An ancillary aim of this article has been to dispel some of the myths that surround what is still a very controversial diet (Fumento, 2003). Despite its assertions, the reason individuals lose weight on the Atkins' diet is because they do exactly what those on 'traditional' diets do: they restrict calorie intake. However, there are some important implications for such an explanation of dieting behaviour.

While equal calories are consumed, it is done in an inefficient manner under the Atkins' diet. Weight loss may be equivalent, but utility diminishes by a greater amount. Therefore, by shifting from the Atkins' diet to more 'traditional' ones, it is possible to increase utility without consuming additional calories.

However, the shortcomings of this model must be considered. Firstly, it is a *post hoc* theory that reinterprets existing empirical findings. More research is required to validate the assertion of this model. Secondly, very little is known about the long-term effects of the Atkins' diet (Dansinger et al., 2005). It is possible that this model is only valid in the short run and other factors, such as health, influence the analysis in the long term. Longitudinal investigations are needed in order to shed light on some of the possible long-term implications of the Atkins' diet.

[3]http://www.webmd.com/diet/atkins-diet-what-it-is?page=3

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Externalities and parentalism: a discussion of the merits and demerits of societal and state intervention

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Mark Sykes takes a look at apples, cigarettes and the nanny state in his entertaining overview of externalities and how to deal with them. In this normative analysis, Sykes analyses the age old tension between individuals and the state. Ultimately, he concludes that unless the negative externality imposed by one group on another is very large, attempts by the state to reduce it are likely to do more harm than good.

Introduction

Externalities are present at every level of human interaction: individuals, companies, charities and nations alike, can confer either or both positive and negative externalities on each other through their actions (Varian, 1992). The solution to these externality problems can either lie in coordination between the effecting and affected parties, so called 'private' solutions, or they can be resolved through coercion from a higher power that is: 'public' solutions. Note that the absence of a 'global government' means there are no pure examples of public solutions to international externality issues. The European Union (EU), and in particular the proposed European Monetary Fund is perhaps the closest in seeking to mitigate externalities of fiscal imprudence in a common currency area[1].

This article will deal primarily with questions surrounding externalities at the individual level, before going on to discuss the conditions for private and public solutions. Importantly, the third option for dealing with an externality will be

[1]At the time of writing details of this plan are just emerging, see for instance: "Eurozone eyes IMF-style fund", The *Financial Times* and "Brussels ready to back monetary fund", The *Financial Times*

considered: inaction. That is, the case when the costs on individual liberty of acting against an externality outweigh its offence on others. That said these arguments, with limited adjustment can be up-scaled to other levels. Issues regarding individual liberty are roughly equitable to sovereignty issues on behalf of a country. Let us not forget, that the problem of one person's behaviour negatively affecting ten people's well-being is entirely symmetric to that of a country of five million people's actions adversely affecting the well-being of the entire world. For completeness, it is worth defining precisely the term externality as:

> "A cost or benefit not expressed in the market and therefore not internalized in buyers' or sellers' market decisions"
>
> (Hillman, 2009: 309).

Finally this article examines the concept of paternalism or parentialism. This concept is more difficult to pin down without making a normative judgement but two differing viewpoints are:

> "The paternalist believes in coercion, in the forcible raising of taxes and the collective management of resources by a supposedly enlightened elite"
>
> (Prowse, 1998:392)

> "A policy is 'paternalistic' if it tries to influence choices in a way that will make the choosers better off, as judged by themselves."
>
> (Thaler & Sunstein, 2008: 5)[2]

As with externalities, parentalism will be dealt with primarily from an individual perspective, with reference to governmental or community group parentalism. However, as before, the issue is scalable. That said in this case there is no shortage of international examples of parentalism across the ages, ranging from colonialism, to arguably the United States' and United Nations' foreign policy[3].

[2]Note, Thaler and Sunstein (1980) are trying to argue for 'Libertarian Paternalism' rather than the traditional hard paternalism discussed by Prowse (1998). It shall be argued later that this is somewhat oxymoronic.

[3] See as an example: Sen John Mc Cain (R-Ariz,) statements on CBS news. "The U.S. has a moral obligation to support Iranians."

In summary, throughout this article the concept of an externality and the scenarios in which it should and should not be dealt with either by society or the state will be explored. This article seeks to demonstrate the many dangers of intervention using both contemporary and historical examples. Furthermore, it will be argued that such is the magnitude of the dangers to individual liberty that in the vast majority of cases externalities should be endured, rather than a correction for them attempted. Similarly, it will discuss the arguments for and against parentalism, demonstrate the inconsistencies endemic within, and argue that opinions around parentalism are always the result of a value judgement. This will be the case whether one believes the individual is 'good' or 'bad', whether individuals have faith in human beings' ability to act rationally and with compassion or whether one feels behaviour should be coerced or 'nudged[4]' by a benevolent intellectual elite.

Basics: what is an externality?

As discussed above, the term externality describes the situation where an action by an individual or the interaction between multiple parties imposes either costs or benefits on third parties. Clearly this term is extremely broad and it is possible to argue that nearly every activity confers an externality on someone, however minute. When persistent smoking in the presence of a child significantly increases the probability of that child contracting lung cancer in the future, the externality is undoubtedly large (Hirayama, 2000)[5]. When a person eats an apple on the train and offends the sentiments of a nearby passenger it is surely smaller. When individuals respire they contribute to global greenhouse gas emissions and thereby confer a negative externality on the current and future population of the world, an externality, but an infinitesimally small one[6]. Thus, the key issue with regard to externalities is not the detection of their presence but their quantification in comparable terms so that one may deduce the correct response in each individual instance. Few would argue on principle against some way of deterring smoking in the presence of a child, whereas it would be tantamount to lunacy to argue for regulation of the breathing

[4]Referring again, of course, to the overall concepts of Thaler & Sunstein (2008).

[5]For details on the harm to others of smoking see: A study of non-smoking wives of smokers, (Hirayama,2000), a cross sectional study of second hand smoke in Bars in the UK, (Edwards et al, 2006)

[6]For aggregated evidence see (Stern, 2008), specifically "Greenhouse gas (GHG) emissions are externalities and represent the biggest market failure the world has seen. We all produce emissions, people around the world are already suffering from past emissions, and current emissions will have potentially catastrophic impacts in the future." (Stern, 2008:1)

habits of the population of the world. (This example is not so ludicrous when the substantial contribution the excrement of cattle makes to global greenhouse gas emissions is considered)[7].

As such, a tool is required for comparing the benefits and costs of these interactions upon individuals of different values and desires. This tool is the concept of utility.

More advanced: what is utility? Are human beings rational? And what sort of society do people desire?

For the purposes of this article we shall need to create our own broad and malleable definition of utility. As such, we shall roughly equate it be what we would call happiness or satisfaction. Assuming individuals suffer no mental disorders or dependencies, any activity which they freely engage in should increase utility, either in terms of satisfaction gained directly from the activity or from the compensation received from engaging in something from which disutility (work) is incurred. It is not too far a leap to suggest that this idea forms the backbone to both modern economics and liberalism[8].

Under the above assumption, when consumers buy something, they should be better off than they were prior to the purchase. Buyer regret is, of course, possible when the actual utility offered by the purchase does not match-up to initial estimates (Cohen & Goldberg, 1970). Here the argument inevitably veers towards the concept of bounded rationality, behavioural economics and arguments regarding state intervention to correct for these 'mistakes'[9].

[7]For a further discussion, see "Livestocks Long Shadow, environmental issues and options," a 2006 report by the Food and Agriculture Organisation of the United

[8]For an illustration of these combined ideals see Friedman and Friedman, 1990: 2.

[9] For a primer on the concepts consider Ariely (2008) or Thaler and Sunstein (2008).

Unfortunately for people's decisions regarding externalities, everyone has varying ideas about what constitutes happiness, morality and appropriate activity. As such, the concept of utility requires a more thorough examination. Is utility or happiness simply the satisfaction of animal needs, a quest for endorphins and other hormones which inflate a sense of feeling at a moment in time? Or is utility a broader concept, including the benefits of intellectual pursuit, meaningful social relationships and the technological, ethical and social advancement of race? This question becomes important when considering what the right course of action is when it comes to the consumption of drugs and other such actions which satisfy biological desires but do little to advance society. Mill (1867: 14) for instance opted for the broad concept of utility[10]:

> "…it is better to be a human dissatisfied than a pig satisfied; better to be Socrates dissatisfied than a fool satisfied"

There is no simple answer but it is easy to see how the broader concept of moral utility could be used to justify all sorts of parentalism on the grounds that the use of drugs and other stimulants does not enhance true happiness, true utility.

Consider a society in the future where technological advancements allow human beings to live in an induced euphoria, with robots tending to nutrition and procreation needs. Consider in fact that the drug in question leads the mind to believe our greatest fantasies are being fulfilled. Whether individuals consider this state a utopia or a hell will determine the concept of utility.

What of societal intervention?

For the purposes of this analysis, let us assume that the true concept of utility is somewhere in between the two alternatives outlined above. People do not simply crave animal pleasures but they are not discounted entirely. So what of the externalities imposed on society? Does society have an obligation to deter individuals from their actions when sentiment is offended? Falling short of state regulation, when someone eats an apple noisily on a crowded train, is it not the moral obligation of another passenger to explain their difficulties with the behaviour and attempt to deter it? Should it be the obligation of all parents and educators to instil in the young awareness of and sensitivity to the implications of their actions on

[10]The concept of a broad definition of utility permeated much of Mill's work, specifically (Mill, 1867) and (Mill, 2005).

others? Intuitively, the answers to all these questions is yes; all individuals should, through their conduct, seek to maximise utility for society as a whole, be it through exercising restraint when certain behaviour may offend others, or by speaking up when offended. Surely, these solutions are at least preferable to state intervention, which threatens to constrain liberty further and seeks to compel behaviour rather than politely deter.

Unfortunately, when one considers the actions which imposed negative externalities on others in the past this answer becomes less appealing. Proponents of gender, racial, religious and sexual equality arguably all incurred significant mental anguish upon those they offended. These issues are not historic: blasphemers in Ireland today can be fined up to €25,000 for offending the sentiments of religious groups (Defamation Act, 2009)[11]. Any idealist who goes against the prevailing social norms of the time is likely to offend the sentiment of the conservative society of the day. As such, one should be weary of imposing the will of the majority upon those individuals whose expressions or actions offend, when history has shown past beliefs of the majority to be 'immoral' by the compass used today. Consider for a moment how future generations may look back in dismay at the current outlawing of blasphemy, gay marriage or even bestiality. There is no way of knowing what will be termed correct by the moral compasses of the future, so it is the obligation of society to listen to all points of view despite the considerable psychic costs they impose on others. Of course, there are many areas where externalities are physical in nature, such as the case of noise or air pollution but outside of these, mental anguish must by and large be endured.

So what of state intervention?

Clearly there are many externalities which cannot be appropriately dealt with via societal interaction alone. In many cases, due to the numbers of people affected, and so-called 'free rider' problems, the state is required to intervene[12]. However, it must also be noted that in many cases state and societal measures are substitutable. For instance, support for the needy and destitute is often regarded as an important state function because of the issues inherent with 'free rider' problems. However, without

[11]Specifically: Section 36 (1) "A person who publishes or utters blasphemous matter shall be guilty of an offence and shall be liable upon conviction on indictment to a fine not exceeding €25,000."

[12]That is a public good can be seen as one which is 'all externalities', non-excludable and non-rivalrous. For detailed discussion see (Hillman, 2009: 138-242)

state intervention community philanthropy can often fill this void and, arguably, do so more effectively. The USA, depending on personal inclination, can either be seen as a good or bad example of this[13]. That said it is easy to see how a community-funded safety net could perform better than a state provided 'one size fits all' approach. Residents are likely to be more inclined toward action as the benefits are more tangible. The programs could be adopted to suit the needs of the individual communities and a greater sense of community and social cohesion could result. Similarly, private solutions, in being closer to the issue, could encounter less issues of asymmetric information than a state solution. Put crudely, if people provide charity to someone in their locality they will find it easier to tell if they are exerting effort to improve their situation or falling victim to moral hazard than a government bureaucracy.

Note also that state intervention in the arena of externalities does not imply provision. The concept of internalising an externality in a voluntary exchange refers to adjusting the costs and benefits of the transaction to more accurately reflect its effect on society (Varian, 1992). As such, pigovian taxes and subsidies could efficiently provide the correct incentives in the areas of health and education to facilitate private provision. As an aside, none of the market failures present in health and education imply state provision, equity can be dealt with by subsidies to the poor and asymmetric information can be remedied by the provision of information.

Given that many state interventions deal with externalities in a way which also reflects prevailing social norms, the same pitfall which was present in societal solutions is also present here. Popular support alone for state intervention in rectifying a proposed externality does not make it just. The state is also more likely to carry out actions under the guise of dealing with a negative externality for what are, in reality more subversive means. This is due to the incentive structure in a democratic political system where interest groups can set the agenda and impose its will upon the masses.

Consider for instance many of the recent 'pro green' policies enacted by the Irish Government under the premise of combating the externalities of global warming. Banning 'inefficient' light bulbs (Hoskins, 2007) rather than levying a pigovian tax on them, as is the case with plastic bags, undoubtedly reduces the overall utility of society, in that it denies people the freedom to choose. That said proponents of the ban could argue for the need to change behaviour and social

[13] Bremner (1988) provides a narrative explanation of the history of American philanthropy and its great tendency to increase over time.

norms. However, in that case the policy is parentalistic and thus has nothing to do with externalities.

In many cases state intervention will be necessary to correct for externalities. However, this is not the whole story. The state may be warranted in taxing tobacco as such consumption can impose significant negative physical externalities on third parties; however, a greater social willingness to speak up when personal happiness is impaired, as well as better education of smokers to consider the effects of their actions could be a better solution. Indeed, these may only occur in the absence of additional taxation on tobacco. Any other argument for the taxation of tobacco is paternalistic or based on revenue grounds.

Parentalism

Parentalism as a concept borrows from the interactions of a family whereby the head of the family may make decisions on behalf of others for their own good, even if it is against individual wishes. In a state context, a contrast can be drawn between hard paternalism, whereby freedom is entirely diminished because of banning and coercion, and soft paternalism which seeks to help individuals make the decisions they would ideally make, if only they had sufficient will power and foresight.

Thus far, the ideas expressed are similar to those of John Stuart Mill (2005). It is only appropriate at this juncture to express his thoughts on this matter exactly:

> "But neither one person, nor any number of persons, is warranted in saying to another human creature of ripe years that he shall not do with his life or his own benefit what he chooses to do with it. He is the most interested in his own well being: the interest which any other person, except in cases of strong personal attachment, can have in it is trifling compared with that which he himself has..."
>
> "... considerations to aid his judgement, exhortations to strengthen his will may be offered to him, even obtruded on him by others, but he himself is the final judge. All errors which he is likely to commit against advice and warning are far outweighed by the evil of allowing others to constrain him to what they deem his good."
>
> (Mill, 2005: 93)

Parentalism, by its very definition presupposes the fallibility of mankind but it argues that a collection of these fallible men acting on behalf of the masses will come up with better results than the individuals themselves. However, the interest an individual has in advancing his or her own cause and that of loved ones, coupled with the inherent asymmetries of information make this argument entirely untenable. In fact, evidence as to the fallibility of man only goes to rationalise decentralised decision making. History is riddled with the results of fallible beings creating and harnessing the power of large centralised states for the greater good only to impose devastating outcomes on minorities and others who did not conform to the prevailing social norms of the time. As a small sample consider: Nazi Germany, the pre-Reformation Papacy or Cromwellian Britain. As such, the default starting position to action proposed on the grounds of parentalism must always be scepticism. First, it must be proved that a significant problem exists, whereby an individual persistently, and without learning, makes bad decisions on behalf of themselves and his or her family. Then it must be shown that the provision of information and advice rather than coercion could not adequately resolve the problem. Lastly, it must be proven that the harm of inaction would outweigh the costs on individual freedom and liberty of action. Only then can one consider intervention.

Conclusion

This article has sought to demonstrate the importance of individual liberty: the freedom to make decisions about one's own actions. While many externalities can be grave, the solutions can be of more detriment than the issues themselves. State intervention in particular can have perverse unintended consequences[14].

One must be fearful of conventional wisdom for it is generally proven wrong in the end. Many detrimental effects of externalities could be prevented by enhanced social interaction. Only by becoming more aware and sensitive to the impact of individual actions on others can externalities be reduced. The state is necessary to deal with some externalities because many contain public good characteristics, however society should still be wary of policies which seek to constrain liberty on these grounds. Furthermore, individuals should be receptive to

[14] For a local and topical example consider the outcome of Irish state intervention in the housing market, which aimed to encourage urban renewal and the provision of social and affordable housing, but which also encouraged property speculation (Berry, 2001).

opportunism by special interest groups to further what is paternalism under the guise of externalities.

Hard paternalism in and of itself is a false doctrine; to support it requires an elitist view which disregards the incredible decision making and coordination skills of the population as a whole. Soft paternalism must be approached with care: providing information to assist in better decision making is welcomed, particularly when the free market fails to do this. However, the barrier between nudging and coercing is a blurry one and the presence of asymmetric information means it is likely to remain so.

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How rational expectations affect the Efficient Market Hypothesis

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In this essay Conor O'Toole analyses the implications of the insights of the relatively new field of behavioural finance for the Efficient Market Hypothesis. The EHM relaxes the assumption of the uniformly rational economic actor and instead allows for varying degrees of rationality which can ultimately combine to result in a rational market outcome. O'Toole seeks to illustrate that although the simplifying assumptions of economics often comes under attack from those who say that the discipline's anti-behavioural stance invalidates its findings, in reality there is room to accommodate irrationalities without turning conventional thinking upside-down.

Introduction

> *"Man is neither infinite in faculties, nor in apprehension like a god. Nor is human fallibility shed at the doorstep of the stock exchange."*
>
> (Hirschleifer, 2007: 51)

One of the most topical subjects in financial economics is the discussion of the Efficient Market Hypothesis (EMH) which dates back as far as 1900[1], but was developed and popularised by Fama (1970) in an influential paper. Essentially, the EMH states that speculative prices (such as those of assets on stock markets) are inherently unpredictable, and follow what can only be described as a random walk (Samuelson, 1965). Despite initial empirical support, later studies concluded that "no minor tinkering with efficient-markets models seems likely to provide an intelligible reason why rational agents would exchange securities as much as real-world market participants do" (Leroy, 1989: 1,615). This article will attempt to explain the apparent disparity between this empirical validity and the theoretical ideal of EMH in terms of the basic paradigm behind the hypothesis – the assumption

[1] The first recorded mention of the subject was in Louis Bachelier's (1990a) thesis, which remained relatively undiscovered until Fama's work.

of market rationality. This assumption seems perfectly reasonable; however, any discussion of this model would not be complete without an analysis of those behavioural-based studies which advocate the reality of investor irrationality.

Rational expectations

The rational expectations approach to the EMH is based on the "assumption of perfect foresight" (Sheffrin, 1983: 13). It supposes that investors all act in concert so that market prices will adjust automatically to correct mispricing. If market participants do not act rationally, they will be weaned out of the market as "wealth must flow from foolish to wise investors" (Daniel, Hirshleifer & Teoh, 2002: 141). "The central idea of efficient capital market theory is that securities prices are determined by the interaction of self-interested rational agents" who all act in their own best interest to negate any arbitrage opportunities that may arise in the market (Leroy, 1989: 1613).

The EMH also assumes that all investors have access to perfect information which Fama (1970) further broke down into three different levels; The Weak Axiom assumes that current market prices reflect all past price information, meaning that there is no scope to make profits by examining historical data. The Semi-Strong Axiom states that prices reflect all publicly available information, meaning that traders cannot hope to profit in the market by using information that is available to the general public. The reasoning behind this is simple: if anyone can gain access to this information then somebody somewhere has already acted on this information by buying or selling accordingly. The Strong Axiom is the most extreme case where prices reflect all public and privately held information. This supposes that individuals cannot attempt to make a profit in the market even when armed with insider information (Fama, 1970).

Fama (1970) further identified some assumptions upon which the EMH is dependent. For example, it is assumed that "there are no transaction costs... all information is costlessly available to all market participants and all [participants] agree on the implications of current information" (Fama, 1970: 387). Such simplifying assumptions are convenient as they allowed researchers to examine stock prices based on fundamentals. By excluding the costs of operating in a market, prices will perfectly reflect a culmination of investor expectation. Sheffrin (1983: 7) explains that these "expectations will diverge from actual values only because of some unpredictable uncertainty in the system". In this scenario, arbitrage will ensue to instantly bring prices back to their fundamental levels.

The ability of investors to act perfectly rationally is made theoretically possible by the liquidity of the market. The idea is that "the basic paradigm of asset pricing is in vigorous and productive flux" (Hirschleifer, 2007: 7). Every time a

trade is placed in the market, there has to be another person willing to take the opposite position, therefore, somebody will always lose whilst another gains.

Indeed, Barber and Odean (2001) found that traders who switched to online brokerages traded more aggressively yet subsequently performed more poorly. The authors conclude that greater liquidity encouraged bad trades. Therefore, even though perfect rationality should encourage investors to act in the same way, it can only exist if there are market participants who act irrationally - otherwise the markets would stagnate.

Empirical evidence suggests that fundamentals based on "past, present, and future periods collectively explain less than 50 per cent of the annual variability in stock returns" (Lee, 2001: 241). This directly contradicts Samuelson's (1965) assumption that price reflects the fundamental value of a firm. Even though the EMH "has proved instructive, it has also engendered an unfortunate tendency to attribute unlimited processing ability to decision makers" (Lee, 2001). Interestingly, Lee (2001: 98) suggests that "market efficiency is a journey, not a destination". EMH is an important tool that can be used to make price predictions given a perfect world and enables profitable arbitrage trading by smart investors if prices reflect public information poorly (Daniel, Hirshleifer & Teoh, 2002). However, rational expectations do not allow for such widespread anomalies and so there must be an alternative explanation. A more credible hypothesis is that investors act speculatively; therefore, rather than rational expectations being responsible for market movements, it is "individual psychology [that] affects prices" (Hirshleifer, 2007: 6)

Psychology and the market

The idea of investor irrationality or imperfect rationality, as it is sometimes called, acknowledges that investors are not perfect and that rationality with its requirement for unrealistic mental abilities (Hirschleifer, 2007), is not the best indicator of how markets behave. Many studies have been conducted to try and explain investor rationality in an attempt to predict their expectations. Hirschleifer (2007: 8) points out what he believes are the future of finance theory:

> "In the last few years, financial economists have grown more receptive to imperfect rational explanations. Over time I believe that the purely rational paradigm will be subsumed by a broader psychological paradigm that includes full rationality as a significant special case"

The author points to the duality of trading and the fallibility of individuals as indicators of why we cannot all possibly be perfectly rational.

There has been a significant amount of research attempting to explain the reasons why investors do not always think or act rationally. Such explanations are based on either an absence of relevant and complete information or on individual shortcomings. As Hirschleifer, Daniel and Teoh (2001) explain, investment decisions are often subject to various biases such as overconfidence and emotions. Investor irrationality and the apparent inefficiency of markets can generally be attributed to these imperfections. This also sheds light on the observation that investors often make unfounded and sometimes impractical decisions.

Heuristics and biases

As Hirschleifer (2007: 9) notes "there are biases that almost no-one is immune to" - even when it involves financial decisions that may be critical to an individual's livelihood. For example, the allocation of capital within a pension fund can be critical to an individual's decision to retire. "In [these] case[s] there can be widespread idiosyncratic mispricing which only becomes apparent *ex post*" (Hirschleifer, 2007: 9). While investors often believe they are making rational decisions, more often than not, this is not the case. As Leroy (1989: 1,611) points out that "the majority of trades appear to reflect belief on the part of each investor that he can outwit other investors, which is inconsistent with common knowledge of rationality". Thus, one could infer from these observations that very few market participants make long-run profits in excess of the market index. Most investors are, in fact, not smarter than the rest and it is this unfounded overconfidence that fuels market inefficiency.

These observed biases are explained by certain mental heuristics which stem from working memory constraints. As all investors are subject to cognitive constraints, often the scope of information processing must be minimised. In behavioural psychology, 'narrow framing' is an example of such a mental shortcut "wherein the description of a situation affects judgments and choices" (Daniel, Hirshleifer & Teoh, 2002: 143). This causes investors to act without taking into account whether they possess all the available information about the market. 'Mental accounting' is an observable form of 'narrow framing', whereby investors process losses and gains separately. People seem to value gains more highly than losses which would explain the empirical observation that, investors have "an excessive propensity to hold on to securities that have declined in value and to sell winners" (Hirschleifer, 2007: 16). The rationality behind such behaviour is that investors want to lock in short-term profits while delaying losses into the long term.

There are a number of other biases to which investors are susceptible. For example, people tend to choose familiar and therefore local, investments (Huberman, 2001). This also touches on the 'halo effect' which is the tendency to

evaluate the characteristics of an individual more positively due to a more salient, but positive feature, of one's personality (Nisbett & Wilson, 1977a). When receiving information from a supposed reliable or familiar source, investors are subject to familiarity biases and availability effects which cause a "heavy focus on information that stands out…at the expense of information that blends in with the background" (Daniel, Hirshleifer & Teoh, 2002: 143). An illustration of this is the tendency for investors to focus on nominal monetary returns and therefore, succumbing to the 'money illusion'.

Further studies have revealed that investors do not always have the required knowledge of risk and how it relates to the market. Often decisions on risky bets are made without taking the big picture into account. A misunderstanding of how randomness works can also cause the phenomenon 'gambler's fallacy' (Mlodinow, 2008). This is the belief that the odds of an event with a fixed probability change depending on recent occurrences of the event. This can explain people's aversion to picking lottery numbers which appeared in the previous draw, even though logically they have the same probability of occurring again.

The news also plays an important part in investment decisions. Conversely, the EMH states that the news should not have an effect on price levels as any new public information is automatically absorbed by the market. However, this is not the case; "irrelevant, redundant or old news affects security prices when presented saliently" (Hirschleifer, 2007: 18). In other words, the manner in which information is presented to a person can be influential in decision making. "The media likes to report on what is new, and to paint what is new as important" (Daniel, Hirshleifer & Teoh, 2002: 169), however, these reports are only relevant to prices insofar as individuals deem them to be. Fundamentally, they have no value.

Often, in the market place, the speed at which decisions are made is overwhelming and it does not allow time for investors to rationally weigh the pros and cons of a decision. Hirschleifer (2007: 14) goes on to explain how "limited attention, memory, and processing capacities force a focus on subsets of available information". Agents integrate most information at face value and tend to overreact to information that is easily processed.

Emotions are also critical to the decision-making process. The time of the year, weather and a person's general mood all influence the way people invest on a day-to-day basis. The 'January effect' is a famous observation that share prices increase in January for no apparent reason (Keim, 1983). Individual emotions have no influence on companies' fundamentals, but the fact remains that such emotions affect investment decisions.

In summary, investors react to external and internal factors that cause irrational behaviour. "Noise Trading" was first coined by Black (1985) to explain why people do not act rationally when presented with information that may

ultimately prove to be value-irrelevant. The author used the term to **"**sanitiz[e] irrationality and render it palatable to many analysts who in other settings would not be receptive to such a specification" (Leroy, 1989: 1,612) Noise trading encapsulates the idea that investors will respond to the hype created by other market participants without due consideration of the implications of EMH. Furthermore, investors consistently come to believe that the market can be beaten by actively trading based on the information set available to them. By acknowledging that investors respond to specific stimuli, there may be ways of predicting their actions; "in making security selections smart-money investors need to consider the behaviour of noise traders, as well as fundamental valuation, in determining their own strategy. Smart-money investors need to consider 'fashions' and 'fads' in addition to 'fundamentals'" (Lee, 2001: 246).

Conclusion

To conclude, although the EMH is a valuable theoretical approach, it is empirically evident that the actions of investors cannot be predicted due to each individual having specific preferences and levels of risk aversion. However, on the other side of the equation, the behavioural approach is also not devoid of criticism: "it is too easy to go theory fishing for factor structures and market imperfections to match data *ex post* [Italics added]" (Hirschleifer, 2007: 87). It is true that the markets are not always perfect; however, the ability of certain investors and institutions to make supernormal profits is dependent on the irrationalities of the multitude. As Lee (2001: 238) states:

> "Ecologists coming upon the African Safari encountered large prides of lions. From the abundance of these predators, they inferred an abundance of gazelles, zebras, and other forms of lion prey. In the same spirit, the massive arbitrage apparatus we observe today attests powerfully to the continuing presence of substantial market imperfections. We cannot at once believe in the existence of lions, and reject the existence of the creatures that are essential to their survival."

However, Shleifer (2000: 3) suggests, "the EMH does not live or die by investor rationality". Rather, it is reliant on imperfect rationality to encourage sufficiently high trading volumes so investors' net positions will cancel each other out randomly. When they do not, informed traders will arbitrage away temporary disequilibria, thus at the very least, the "EMH counsel[s] healthy scepticism in investment decisions" (Fortune, 1991: 18). It can thus be concluded that rationality

is not the only foundation for the EMH. As such, market movements will essentially rely on an amalgamation of rational theory and often, irrational practice.

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Economic theory and its capacity to comprehensively explain the presence of non-profit organisations in society

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Although the non-profit sector may seem like an area which defies analysis by the field of economics, as Jennifer Finn seeks to demonstrate there are in reality a wide range of insights which economic theory can offer to explain why a multi-billion dollar 'third sector' has sprung-up and flourished in today's global economy. Indeed, as Finn argues, it is the economic importance of these entities which justifies their study by this discipline.

Introduction: the nature of the third sector and its modes of finance

> *"Nonprofit institutions are legal or social entities created for the purpose of producing goods and services whose status does not permit them to be a source of income, profit, or other financial gain for the units that establish, control or finance them. In practice their productive activities are bound to generate either surpluses or deficits but any surpluses they happen to make cannot be appropriated by other institutional units - United Nations, 1993: paragraph 4.54."*
>
> (Anheier, 2005: 46)

The non-profit sector, sometimes referred to as the third sector (Anheier, 2005:4), consists of non-profit, voluntary and private organisations. It is composed of a rich variety of entities ranging from museums such as the Getty Museum in Los Angeles, to human rights organisations like Amnesty International, to medical bodies such as Médecins Sans Frontières and even universities like Yale and Stanford. The non-profit sector is a major economic force which accounts for "7.1 per cent of total employment in the US[A]" with education representing its most significant aspect (Anheier, 2005: 65). The third sector is dominant from an economic perspective in the fields such as health, education and social services (Anheier, 2005: 68).

Non-profit organizations are financed by public sector payments such as grants, private donations from corporations and 'program fees' such as investment income (Anheier, 2005: 69). Many of these bodies are staffed by volunteer labour, for example, Oxfam charity shops, and even when their staff are remunerated, the wages are typically lower than those in the public and for-profit sectors. Indeed these entities are "barred from distributing its net earnings, if any, to individuals who exercise control over it, such as members, officers, directors or trustees" (Hansmann, 1980: 838). Therefore, stakeholders in a non-profit organisation such as volunteers, employees and directors on the board do not receive any dividends. Furthermore, volunteers receive no monetary benefit, but are instead motivated by non-economic concerns. Non-profit organisations rely on their volunteers as well as donations, without which they could not operate.

Although, these characteristics of the third sector (non-economic motivations such as altruism, reliance on non-wage labour and donations) appear to exclude it from analysis by economic theory, it must be noted these entities now form a multi-billion dollar industry, which wields considerable influence in the global economy (Salamon, 1996). Though at first, second and third glance, the use of economic theory to explain their existence seems beyond its scope, their importance in the economy justifies such an analysis. This article aims to analyse the various economic theories, which go a long way to comprehensively explaining their presence.

Public goods theory: filling the gap left by the market

A public good is characterised by non-excludability and non-rivalry; as such it is unlikely to be provided by the market. Quasi-public goods are more excludable and rivalrous but are still likely to be provided in insufficient quantities (Weimer & Vining, 1989). Weisbrod (1978) developed the public goods theory of the non-profit sector, which argues that the third sector's existence is predicated on a need to satisfy a heterogeneous demand for public goods, which goes unmet by the market. The author develops the concepts of demand heterogeneity and the median voter. Demand heterogeneity refers to the demand for public and quasi-public goods, as well as how this demand is dispersed across the population. While the median voter refers to the segment of the population where most demand exists. This theory works best in relation to near-public goods and non-profit organisations that are funded by donations, for example, the services of the Irish Cancer Society. Weisbrod (1978) makes the assumption that altruism exists and is an important factor in explaining charitable donations. However, it fails to recognise the prevalence of impure altruism in society. The theory of impure altruism is an example of a 'warm glow' theory (Anheier & Ben-Ner, 2003: 57). It posits that

donors may gain benefits from the act of giving such as social status, relief of guilt or a warm glow from making the donation itself. Thus impure altruists give for selfish reasons.

Despite this limitation, the strength of this theory is that it can be used to explain the importance and necessity of donor support in non-profit organisations. Public good theory perceives the rise of non-profit organisations as a response to the "governmental undersupply of public and quasi-public goods" (Anheier, 2005: 123). The Irish Blood Transfusion Service, for example, relies on blood donors. The government could not supply this so the non-profit sector steps in to meet demand. Weisbrod's (1978) public good theory has been praised for its "wide acceptance of and recognition within the economics literature" (Kingma, 2003: 53) as well as its ability to explain institutional choice in the context of public-fund shortages. The weakness of this theory is that it assumes an inherent conflict between the government and the third sector. Also, more research is required for policymakers to develop tax and subsidy policies.

Entrepreneurship and stakeholder theory: innovation and conflict in the third sector

By contrast, entrepreneurship theory argues that non-profit organisations are "the result of a specific form of entrepreneurial behaviour" (Badelt, 1997: 63). It offers behavioural explanations for the existence of non-profit organisations in society. The entrepreneurial element of non-profit organisations can be seen in the innovative character of these organisations. Growth of the third sector is attributable to the "presence of considerable entrepreneurial effort" (Badelt, 1997: 170). Entrepreneurship theory has a predictive power. An entrepreneur is required to build a new enterprise, whether it is a public, private or non-profit enterprise. Schumpeter (1936) thus conceptualises the entrepreneur as a 'change agent':

> "The Schumpeterian entrepreneur is also innovative by employing new means of production, especially new factor combinations"
>
> (Badelt, 1997: 169)

Establishing any organisations involves an element of risk. Entrepreneurs in the third sector bear the same risk as those in the public or private sectors. The strength of this theory is that it explains the pre-eminence of non-profit organisations in health and education. The venture of taking a risk and setting up a non-profit

organisation in society is known as 'social entrepreneurship'[1]. It emerges from this theory that social entrepreneurship is an organisational behaviour rather than an individual behaviour. Entrepreneurship theory brings out the air of professionalism in the third sector. However, the weakness of the theory is that it does not consider non-value-based non-profit organisations, such as those concerned with environmental security.

Stakeholder theory by contrast, emphasises conflict between stakeholders' diverging interests. All economic interactions involve at least two parties and a clear conflict of interest (Krashinsky, 2003: 127). In economic theory, the individual is rational and utility-maximising, whilst utilising the profit-metric. Stakeholders can also be bound by the commonality of unforced participation in a common cause. Stakeholder theory argues that stakeholders deliver the service without having a goal of profit. The heterogeneity hypothesis highlights the need for "social cohesion" amongst stakeholders (Anheier & Ben-Ner, 2003: 58). This theory takes a simplistic tripartite view of the interaction of stakeholders with the non-profit organisation and the recipient of the service. It also develops the concept of patron control, whereby consumers seek control of the organisation so as to avoid the exploitation of other stakeholders through the monopolistic power of an independent owner. However, this analysis is limited by its narrow focus on the experience of stakeholders.

Interdependence, trust and organisational theory: different facets of the third sector

Salamon's (1996) interdependence theory argues that "government support of the third sector is extensive" (Anheier, 2005: 130). This theorist criticises other economic theories for neglecting to describe the "symbiotic relationship between the non-profit sector and the government" (Anheier, 2005: 130). Interdependence theory, sometimes referred to as voluntary failure theory, argues that voluntary action arises out of people's sense of social obligations and their natural tendencies for collective action. Voluntary failure leads to the need for government action in the form of support for and collaboration with non-profit organisations. This complementary relationship between the third sector and the public sector has a functional basis in society (Anheier, 2005). Interdependence theory is effective in acknowledging the need for government support. It portrays the economic efficiency created in society through the interdependence of government and non-profit.

[1] The phrase was initially used in 1972 to describe the social reformer Robert Owen (Banks, 1972).

> "Government and the nonprofit sector complement each other and compensate each other's strengths and weaknesses"
>
> (Anheier, 2005: 131)

Voluntary failures allow non-profit organisations to develop "synergistic relations with the public sector over time" (Anheier, 2005: 133). The strength of interdependence theory is that it takes transaction costs into account, and considers the outcome of lower transaction costs on the provision of public and quasi-public goods to society from organisations in the third sector. It also explains the pattern of public-private partnerships within society. The weakness of interdependence theory is that it takes the development of synergies for granted. It is not clear when these symbiotic relationships will develop. It also treats value-based and non-value-based behaviour as equivalent.

Social origins theory (Salamon & Anheier, 1998) attempts to put interdependence theory in context by moving away from placing too much emphasis on microeconomic models and by considering the size and structure of the organisation. It offers an improvement on economic approaches to the third sector by addressing some of its limitations and considering state society relations.

Trust theory by contrast focuses on the way non-profit organisations are viewed as more trustworthy from the consumers' perspective. There is, in the consumers' view, little information asymmetry, which would increase the likelihood of profit accumulation. Consumers trust non-profit organisations to provide the service in a straightforward and honest manner, without the incentive of profits. This can increase the likelihood of profiteering. The strength of this theory is that it takes a supply-side perspective. It also focuses on the nature of the good or service. The weakness of this theory is that it is weakly enforced and neglects the concept of government regulation.

Finally, organisational theory considers isomorphism which is the process through which all organisations with the same institutional expectations and constraints tend to become homogenous over time. It also considers economies of scale and of scope. This is an interesting economic theory in that it looks at the organisational structure and the task environment of the non-profit organisation.

Economic analysis of the third sector: the strength of the economic perspective

> "The studies by economists have refined models of giving by exploring the modifications of or additions to the neoclassical

> assumptions needed in order to better capture the facts of individual charitable donations."
>
> (Halfpenny: 1999: 202)

Halfpenny (1999) carried out economic analysis of charitable giving. He explored why people give their own money in order to make others better off - the 'paradox of giving'. Through neoclassical economic analysis, the author acknowledges the exchange through which "donors advance their own well-being through their giving" (Halfpenny, 1999: 200).

> "Economic theory remains objective, looking at factors that influence decisions rather than imposing one's values on the quality of another's choice".
>
> (Hughes, 2006: 431)

The discipline of economics regards the firm as a profit-maximising entity. Economics draws on mathematical and statistical methodology. It offers regression analysis to academics. Regression analysis measures the size and significance of causal relationships. The results can be used as empirical evidence to support findings. Gains from economic analysis have been conceptual and analytical in the study of the motivations of charitable giving. Economic analysis has the capacity to take tax into consideration and how its incidence affects the generosity of donors. And although organisations in the third sector do not aim to maximise profit, they exist in the same economic conditions as for-profit organisations. They are no less vulnerable to these harsh economic conditions than their for-profit counterparts.

Conclusion

As we have seen, the discipline of economics has paved the way to understanding the third sector by offering evidence-based explanations for its existence in society. The field's strength lies in its capacity to create explanations for the existence of non-profit organisations in society by taking the profit metric into consideration in ways that the disciplines of sociology and political science fail to do. Interdependence theory probably offers the most valuable insight into the third sector by offering a plausible explanation for its existence. Evidence of the mutually beneficial relationship between the state and the third sector is observed through state funding for non-profit organisations. This relationship can compensate for voluntary failure. Whereas other economic theories fail to distinguish between microeconomics and macroeconomics, interdependence theory focuses on the micro

level of the firm itself whilst also taking into consideration, the macro level of the government.

While the combination of these theories forms a comprehensive explanation for the presence of non-profit organisations in society, there is a real lack of empirical studies into the third sector, which ultimately takes away from the rich theoretical tapestry. It must be stressed that the simplifying assumptions and contradictory conclusions which are contained in the above theories could be ameliorated by using a multi-disciplinary approach to the third sector.

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Opening the black box: examining the potential of neuroeconomics

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"I believe we are well on our way to the day where our theoretical concepts about decision making are shaped at least in part by findings from neuroscience"

Daniel Kahneman[1]

*"**Brain,** n. An apparatus with which we think we think."*

- Ambrose Bierce, the Devil's Dictionary.

Introduction

The rapid developments in the field of neuroscience have promised previously unparalleled insights into the workings of the human brain over a wide range of conditions and contexts. The field has attracted enormous interest from a variety of disciplines concerned with the mechanics underlying behaviour, including behavioural economics. The resulting research has pointed the way towards a new discipline, dubbed "neuroeconomics", which seeks to explore the potential relevance of neuroscientific findings to economic issues.

This article aims to provide an introduction, overview and critical appraisal of this new and evolving discipline. It will review the development of neuroeconomic ideas and the context from which they arose, as well as its methodology and research objectives. The case for neuroeconomics as a meaningful paradigm for economists will be examined and weighed against the arguments of sceptics, with the aim of determining what, if anything, economics can learn by opening the 'black box' of the human brain with the keys of neuroscience.

New answers to old questions: the development of neuroeconomics.

[1] Kahneman (2009: 525)

The field of neuroeconomics is, an extremely new one, being at most 15 years old (Damasio, 2009). It is the product of a synthesis of ideas which had been brewing for at least another decade; the first fruits of the developing dialogue between behavioural economics and the emerging field of neuroscience. Neuroeconomics' intellectual roots can be traced back much further: at least to the turn of the 20th century and even beyond[2]. They can be seen clearly in the attempts of the early students of political economy to relate such investigations to the 'psycho-physical' paradigm of the day, the same paradigm which informed the earliest investigations in psychology (Gazzaniga & Heatherton, 2006). William Jevons (1879: 12-13), for example, sought to uncover the "mechanics of utility and self-interest" which would establish a physical basis for the intuitions and mathematical models of economic choices (Quartz, 2008). Francis Edgeworth (1881) dreamed of a device, the hedonimeter, which would make possible the precise quantification of utility and happiness, and thereby ground the abstract idea of economic utility in direct human experience. However, despite these ambitions, such an instrument did not materialise as the author lacked a sufficiently scientific method of making such measurements (Collander, 2007). As these limitations became apparent, the prospect of a physical economics receded. William Jevons grew more sceptical in his later writings (Collander, 2007) but the most decisive rejection of this idea came from Vilfredo Pareto (1897) who concluded that:

> "…the natural sciences have progressed only when they have taken secondary principles as their point of departure, instead of trying to discover the essence of things… political economy has a great interest on relying as little as possible on the domain of psychology"[3].

Such intuitions marked and motivated the beginnings of a profound shift in economics during the early 20th century, one which would effectively divorce the field from any influences of the mind or the brain. This was the concept of revealed preference, an approach elaborated by Paul Samuelson in the 1930s as the 'Weak Axiom of Revealed Preference' (Samuelson, 1938). This straightforward idea – that it is the choices an agent consistently makes, rather than the mechanisms underlying them, which matter for economists – bore out Pareto's (1897) views. It allowed economists to dispense with the thorny problem of the 'essence of things' with regard to human choosing, substituting instead general axioms of idealised, efficient behaviour, which could be modelled more easily, but still provide an effective

[2] See Rustichini (2005) for an interesting consideration of the Smith's Theory of Moral Sentiments and other classical works from a neuroeconomics perspective.
[3] As quoted by Glimcher et al. (2009:7)

framework for analysing choices and resource allocation (Glimcher et al., 2009). It provided one of the crucial foundations of neoclassical economic theory, and marks the point at which economists "determined to be outside the purview of economics" made any effort to measure utilities or choices directly (Collander, 2007: 216).

The question of a physiological basis for economic variables then lay dormant for many years. However, as economic theory continued to evolve, research began to appear which seemed to undermine some aspects of the standard neoclassical axioms of choice. Maurice Allais (1953) identified a paradox in which choice making appeared to be inconsistent with the independence axiom of standard expected utility theory. Ellsberg's Paradox (1961) produced a similar result (Glimcher et al., 2009). Such findings were expanded upon in the celebrated work of Amos Tversky and Daniel Kahneman (see Kahneman & Tversky, 1979) who demonstrated experimentally a range of situations in which people appeared to consistently violate economic rationality as it was then defined. These developments ultimately provoked the emergence of the field of behavioural economics, which seeks to use intuitions and findings from areas of psychology to enrich economic models and theories. Over the following decades, the evolution of this approach witnessed some psychological concepts, such as framing effects and bounded rationality; enter the mainstream of economic discourse (Rubenstein, 2008). This has provoked debate and considerable criticism from neo-classicists (Glimcher et al., 2009).

Just as behavioural economics was once again raising questions about the relevance of psychology to economic studies, a parallel discipline was emerging which promised a new paradigm for psychology itself. Huge advances in the technology of diagnostic imaging and other non-invasive methods in the discipline of neuroscience heralded the possibility of directly measuring the brain activity of healthy, conscious humans, potentially laying bare the precise neurological systems and variables mediating behaviour. This was a potentially revolutionary development and its tools were soon being applied to many areas of psychological study (Gazzaniga & Heatherton, 2006). However, its potential influence was broader than that. Discussions about the potential relevance of neuroscience extended far beyond psychology and inevitably touched upon economics (Lowenstein et al., 2008).

The first literature generally recognised as neuroeconomics (though predating the term itself) was Peter Shizgal and Kent Conover's *On the neural computation of Utility*, published in 1996. It bears this distinction because it was the first paper to attempt to explicitly set neurobiological processes in an economic framework: in this case, decision-making processes in the brains of rats. There followed a modest number of other papers of increasing complexity looking at decision making in the brain in the context of economic utility and its axioms

(Glimcher et al., 2009). These early[4] investigations were primarily neuroscientific experiments making use of some economic concepts, but behavioural economists were not far behind – Kahneman himself collaborated with Hans Breiter in a study which examined choice experiments of the prospect theory of utility through neural imaging (Breiter et al., 2001). In 2003, Paul Glimcher published *Decisions, Uncertainty and the Brain*, which summarised these developments and introduced neuroeconomics to a broader audience. Manifestos began to appear attempting to "explain what neuroscientists do and how their discoveries... might influence economic analysis" (Camerer et al., 2005).

In the ensuing dialogue between neuroscientists, behavioural and experimental economists, the concept and methods by which neuroscientific findings might be applied to economic problems (and economic methods to neuroscience ones)[5] began to crystallise, and neuroeconomics was born. From that point on, the number of papers dealing with the issue began to increase significantly, with over 100 appearing in 2006 alone. The Society for Neuroeconomics was inaugurated in 2005 and dedicated neuroeconomics centres have begun to appear (Glimcher et al. 2009). However, the question remained: what do these centres investigate? And what do neuroscientific concepts and methods actually mean for mainstream economics? Having established the context in which neuroeconomics evolved, the second half of this article now addresses this question.

The neuroeconomist's manifesto: rationale, methods and objectives.

> *"A better understanding of the brain is certain to lead man to a richer comprehension both of himself, of his fellow men, of society, and in fact of the whole world and of its problems."*
>
> John C. Eccles[6]

The above quote, from the accomplished early neuroscientist John Eccles, is a succinct summation of the promises of 'brain science' as something more than a subfield of anatomy or medicine. Its potential applications to psychology are readily apparent but these words form a clarion call to a much broader range of disciplines: philosophy, politics, the social sciences and – by no means least – economics. Neuroeconomics purports to answer that call. As has already been discussed, the

[4] Neuroeconomics is one of the only disciplines in which a paper published in the late 1990s can be described as 'early'.

[5] The interchange is by no means a one-way street (see Glimcher, 2003) but this article will focus on the application of neuroscientific methods to economics.

[6] Eccles (1973, foreword)

agenda and objectives of neuroeconomics are a developing debate but practically any statement of its tenets could ultimately be boiled down to a simple idea: the principle that knowing how the brain works in contexts relevant to economics (decision making, assessment of uncertainty, and so on) will provide observations and data relevant to economics as a science. This is a minimal definition, as different views exist as to what data is of relevance, how it should be collected, and to what purpose. However, an interest in the brain as the engine of the economic agent and a desire to investigate the workings of that engine, is the defining common theme.

In the union of neuroscience and economics, the contribution of the former is primarily methodological. Variables of interest range from broad observable measures such as blinking rate and reaction time[7], down to measures of the firing rate of a single neuron. Studies using functional Magnetic Resonance Imaging (fMRI) (which observe changes in blood flow in the brain to detect areas of activity) account for the great majority of experimentation in neuroeconomics thus far but experimental methods such as Transcranial Magnetic Stimulation (TMS), which can be used to temporarily excite or suppress neural activity in specific areas of the brain, have begun to attract interest (Camerer, 2008).

What the field of economics provides is both the framework and the direction for investigation, taking its cues primarily from groundwork laid by earlier developments in behavioural economics. Experiments in neuroeconomics focused initially on models of utility maximisation such as expected utility (Berns et al., 2001) and prospect theory (Breiter et al., 2001), but have since broadened to embrace areas as diverse as game theory (Houser & McCabe, 2009) economic decisions in a social context (Greene et al., 2001) and donations and philanthropy (Mayr et al., 2009).

Considering an experiment in detail, take, by way of example, the study by Paul Zak and colleagues who aimed to investigate "the physiologic mechanisms that support altruism and generosity" (Zak et al., 2007: 1128). This study captures a number of the ways in which the frameworks of neuroscience and economics can interact in an experimental setting. The experimenters chose a broad topic of interest to both economics and psychology (generosity) but interpreted it through an economic framework, the ultimatum game. This is a game theory paradigm in which two players must decide how to distribute a sum of money between them, one player making a one-shot offer which the other player can then accept or reject for both players. They describe the first player's objectives through an economic utility-maximisation model:

[7] Already used in some economic studies. See Rubenstein (2008).

$$\max_{bi,bj} b_i^{\beta} + \alpha b_j^{\beta}$$

Subject to: $b_i + b_j = M$

Where: b^{β} represents benefit to players i and j,
M represents money and,
α is a coefficient capturing empathy towards the other player

It is here that the neuroscience is introduced. The experimenters drew on an extensive psychological and neurobiological literature, positing a link between higher levels of reciprocity and trust and the neurotransmitter oxytocin. Before each game, experimenters administered a nasal spray to the players, half of which contained concentrated oxytocin and the other half a saline placebo. The result was a startling 80 per cent increase in the number of generous distributions proposed by players under the influence of oxytocin (Zak et al., 2007).

Mindless economics and new phrenology: the case against neuroeconomics.

> "Populating economic models with "flesh-and-blood human beings," was never the objective of economists."
>
> (Gul & Pesendorfer, 2005: 12)

"The brain boggles the mind." – James D. Watson[8]

The study described in the previous section is a classic example of neuroeconomic research and its findings: the identification of a neurobiological mechanism (a neurotransmitter in this case) which has an observable moderating effect on an economic outcome (the results of an ultimatum game). As such, it is inherently significant to anyone interested in how the brain works in the context of economic activity. However it is imperative to ask: what impact do results such as this have on the field of economics as a whole, outside of any crossover with neuroscience? What does the knowledge that oxytocin mediates generosity mean to a classically-trained economist? The answer, potentially, is nothing.

This, at least, is the view of the sceptics and critics of the application of neuroscience to economics. This counterblast to the prevailing enthusiasm for neuroeconomics at the beginning of the 21st century is expressed most strongly in a

[8] Ackerman, S. (1992, Foreword)

widely read and controversial paper by economists Frank Gul and Wolfgang Pesendorfer entitled “The Case for Mindless Economics” (Gul & Pesendorfer, 2005)[9]. The views being propagated by these authors are essentially a modern extension of Pareto's (1897). Neoclassical economists, the authors argue, already possess the tools necessary to fully explore the behaviour of agents in the context of economic activity; the internal workings of those agents are irrelevant. Other sceptics have methodological concerns – small sample sizes, an over reliance on findings in artificial laboratory settings and exaggerated confidence in the reliability of neuroscientific data. Harrison (2008: 534) warns that neuroeconomists may become the "new phrenologists" if they continue to simply point out areas of the brain active in economic situations without more thorough proof of causation.

The sceptic’s objection (Rubenstein, 2008) is fundamentally this: neuroeconomics has missed the point of conventional economic analysis. Its purpose is not only to describe, but to model and crucially, predict economic behaviour. Grounding the often highly streamlined models of behaviour used by economic analysts in physiological reality will only be meaningful if doing this increases their predictive power.

Conclusion: the case for a mindful economics.

> “...sciences which have found new tools have always become more productive by using them.”
>
> (Camerer, 2008: 19)

The argument of Gul and Pesendorfer (2008) could almost be summed up in three words: revealed preference works. In its short history thus far, neuroeconomics has provided fascinating findings of interest to economists, even sceptical ones (Spiegler, 2008). That said it has yet to convince such sceptics that its findings are anything more than an "entertaining sideline" (Rubenstein, 2008: 493) to the progression of economics as a whole.

What, then, can neuroscience do for economics? Colin Camerer (2005: 28) argues that neuroeconomics "needs – at a minimum – to provoke thought, and suggest interesting, fresh perspectives on old problems". If the debate now raging in the literature is any indication, it has certainly succeeded. Furthermore, that neuroeconomic research can motivate or inspire innovations in other areas (for

[9] Initially presented as a response to Camerer et al.'s (2003) manifesto *Neuroeconomics* and subsequently replied to by Camerer (2008). The fierce and sometimes personal debate between them is a striking example of the controversy which often surrounds the birth of a new discipline.

instance behavioural economics) is evident even to strident opponents (Gul and Pesendorfer, 2008). However, it can do more than that. In the first instance, neuroeconomics can provide physiological explanations which are compatible with existing models (as in the example above), but it can also suggest new ones which can meaningfully enrich traditional models (Bernheim, 2009). In particular, as neuroscience and psychology isolate characteristics which vary between people in systematic ways – "types of brains" (Rubenstein, 2008: 493) – introducing these as variables into economic models could have valuable results. Furthermore, neuroeconomic "non-choice" data can be of great value as an adjudicator between competing models in areas of economics (such as the various proposed alternatives to expected utility) where there are a large variety of different models each claiming to be the most accurate predictor (Rustichini, 2005).

Neuroeconomics is a young field, and one which has suffered from immense academic hype in both of its parent disciplines (Spiegler, 2008). It is true that it has yet to produce a 'smoking gun' which revolutionises economic theory and sends all would-be economists reaching for the nearest textbook on introductory neuroscience. Opening the black box has not lead to an instant revolution, but nor has it been a waste of time. It has helped ground abstract ideas in the reality of the brain, rendering the unobservable observable. It has provided a powerful new framework for evaluating models of economic behaviour and made a strong case for the potential to enrich them. Most importantly, it is still in its infancy, and given time to mature, it may yet help change the way we think we think about economics.

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Containing a crisis: finding a private solution to the recapitalisation of the banking system

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The controversy surrounding Ireland's National Asset Management Agency, as well as many international bank bailouts has left critics looking for alternatives to massive injections of tax-payers' money into those financial institutions which are deemed 'too big to fail'. Matt Mennell examines an alternative to government sponsored rescue programmes whereby private investors would step in to fill the void. As concerns about governments' debt-burdens mount and taxpayers begin to question more vociferously the uses to which their money is put, it is clear that a solution which removes the need for state intervention will find purchase with policymakers today.

Introduction

The recent financial crisis and subsequent government bailouts of several banking corporations have pushed banking reform to the forefront of the political agenda throughout the world's major financial centres. It is now widely accepted that the crisis chiefly stemmed from the contagion effects of banking failures that occurred as a result of significant write-downs of mortgage-backed securities. However, subsequent government bailouts had a far more profound impact on investor confidence than the failures themselves (Sorkin, 2009). Government remains focused on finding tougher and more comprehensive regulations that aim to prevent bank failures by constraining the system rather than improving crisis management in the sector. The popular strategy of pushing the costs of financial crises onto the banks will most likely adversely affect the financial system, which itself generates many positive effects on the wider economy.

This article will firstly examine the problems faced by banks attempting to raise capital privately, identifying the incentives facing existing investors when deciding whether or not to participate in an open offering. Secondly, it will evaluate

the role of government-funded capital and its associated problems; in particular the adverse effects of attempts to pass the costs of the recent crisis back onto banks' shareholders. Finally, it will propose reforms to the financial system that resolve the problems associated with raising capital privately, minimising both the cost to the taxpayer and detriment to the wider economy.

Problems with private recapitalisation

To illustrate some of the problems facing banks attempting to raise capital privately during a financial crisis, a mechanism by which an open offer may lead to a run on share capital will be outlined.

Consider the example of a large bank that wants to raise funds through the equity markets by means of an open offer (or entitlement issue) of common stock[1]. For the sake of simplicity, we will assume a 1:1 subscription issue, where the current stock price is $x per share. Additionally, the typical shareholder is assumed to be a rational, risk-averse investor with perfect information about the underlying fundamentals of the bank and an equity position of W_0 shares. They are offered an additional W_0 shares at a price of $0.5x per share. The investor faces three options:

a) Accept the open offer at a cost of $\$0.5W_0x$ and theoretically make neither a profit nor a loss since the price of the stock is likely to be $0.75x after the issue.
b) Decline the open offer and accept a loss in equity.
c) Sell the position W_0 before the deadline and expect to face a small loss.

Regardless of what other investors decide to do, it would be irrational to choose option (b) in the first instance. Ignoring endowment effects, 'willingness to pay' (WTP) should equal 'willingness to accept' (WTA); so if an investor is unwilling to pay $0.5x per additional share to maintain their equity, they will accept an amount of $0.5x per share or over for (at least part of) their current equity, so they should choose (c). Therefore, investors face a decision between options (a) and (c). If we assume an efficient market hypothesis in its strong form, where all information is assimilated in the current stock price of $x, *prima facie* it is expected that all investors will select option (a), which would leave everyone better off. If the capital raised is enough to fulfil its requirements, each investor faces a higher probability of

[1] An 'open offer' or 'entitlement issue' differs from a 'rights issue' as it does not allow shareholders to sell their right to the subscription. These have been more commonly utilised during the recent financial crisis, although several open offers were wrongly termed rights issues by the popular news media.

facing an equal or better outcome than selecting (c), provided others do likewise. Choosing option (c) would put downward pressure on the share price, effectively making remaining shareholders worse off. The investor selling the position would face transaction costs and more crucially, the cost of searching for the next best alternative investment to reach a 'second-best' optimal asset portfolio.

If this case is considered amidst a financial crisis, the assumptions of perfect information and efficient markets are relaxed, since information tends to emerge slowly and there is considerable uncertainty over the future solvency of banks (and potential government intervention). The decision to now accept the offer becomes less attractive. Firstly, investors may perceive the presence of information asymmetries in the form of adverse selection. It is difficult for investors to determine how solvent a bank is, which increases the risk of the stock and puts downward pressure on its price. As a result, corporate financiers, working for more solvent banks, may be deterred from advising open offers and instead seek to find other means of recapitalisation[2]. Secondly, investors will be unwilling to maintain their equity position if they fear it will be diluted by government-funded recapitalisation at a later stage, regardless of their decision[3]. In this instance, the transaction costs of selling an equity position are worthwhile in order to eliminate the risk of holding the position. Thirdly, investors observing large sales volumes in the stock will take it as a signal to sell, regardless of whether any new information has emerged.

During the recent financial crisis, open offers were a common route taken by several British banks in an attempt to raise capital. Although initially some were claimed to be successful, at the height of the crisis, when it was time for remaining investors to decide whether to take up the offer, the share price had often fallen below the discounted offer price. The most notable failure was the open offer by RBS in November 2008, when investors took up only 0.24 per cent of new shares (Montia, 2008). In such cases, the bank still receives the required capital but from underwriters, which in critical instances was the government.

The more critical it was for any particular bank to raise capital, the less willing private investors were to provide it, so governments were left to fund

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[2] For example, in 2008 Barclays recapitalised using funds from the Qatar Investment Authority (a sovereign wealth fund) and the Sheikh of Abu Dhabi to avoid requiring assistance from the treasury because they could not raise sufficient funds from existing shareholders

[3] Partial government ownership would entail existing shareholders forgoing dividend payments for several years. Moreover, the government would become a major shareholder, potentially restricting the activities of bailed-out banks until the bailout funds are repaid.

bailouts in order to prevent the total failure of the banking system. Major losses were extended and became partly collectivised, rather than being entirely borne by the shareholders, who had faced the prospect of losing their entire investment if failure had not been prevented.

Problems with public-funded recapitalisation

Government bailouts, whether through taking part-ownership of banking and related corporations, or buying or insuring troubled assets certainly helped to curtail any complete failure of the financial system. However, these measures have so far been largely funded by the public and remain so, with the limited exception of some American government Troubled Asset Relief Programme (TARP) funds, which have now been repaid with interest (Sorkin, 2009), although, this does not include additional quantitative easing funds received by such banks. This form of resolution was effectively the only option, in the absence of any immediately foreseeable private efforts, especially for larger and more troubled institutions. The after-effects, in particular the backlash from disgruntled voters, have put intense pressure on politicians to find a means for banks to pay back the costs of the crisis and deter future crises.

Treating the financial crisis as a negative externality (or external cost) of banking firms, i.e. ignoring contributions of other agents, such as insurers that issued credit default swaps or hedge funds that short sold large volumes of securities, a divergence between the private and social costs of banking is observed. It would appear desirable for the owners of banks (the shareholders) to be held liable for the cost of a financial crisis. However, Coase (1960) contests this approach, highlighting the reciprocal nature of such problems in relation to social costs. To avoid 'harm' caused by the banking system, 'harm' would have to be inflicted upon the banking system, resulting in under supply and higher prices. If we consider some of the economic benefits of banking – finding the most efficient use for savings; performing the role of liquidity transformation, alleviating asymmetric information between borrowers and lenders and pooling risk – then undersupply and higher prices are not desirable. Thus any government intervention which pushes the cost of the crisis onto the banks by these means would mostly likely be met with failure. Historically, past interventions by governments in financial markets have resulted in numerous unintended consequences (*The Economist*, 2010).

Any proposed reforms must consider potential unintended consequences. A banking levy on liabilities or transactions will most likely result in higher interest rates for borrowers, lower returns for savers and higher prices for additional services. The type of insurance used to fund future bailouts will most likely result in moral hazard, discouraging banks from developing their own prudent measures to

avoid capital deficiencies. Finally, restricting banking activities and breaking up large institutions would likely accelerate the least desirable results.

The increase in the size of banks has been in response to market demand for cross-border activities to aid risk transfer; narrowing the scope of banks will adversely affect global trade and finance (Diamond, 2010). Even abolishing proprietary trading could reduce liquidity in the market, which is currently created by specialists, widening the bid/ask spreads on securities exchanges, and thereby increasing transaction costs for all players in financial markets (*The Economist*, 2010). Without global coordination of reforms, banking firms may simply leave or downsize their operations in jurisdictions where they are enforced, provided they can relocate to an alternative location with a more liberal system.

Considering that government intervention in financial markets can create market distortions and result in government failure, can there be an efficient solution to banking crises? Eventually when financial markets recover, governments will be repaid as banks improve their capital position. However, even with interest this will not cover the full extent of the contagion effects created by the financial crisis, which could have been avoided if private capital had been raised quickly and at minimal cost to cover the banks' own shortfalls. Government intervention could be avoided if a mechanism to raise private capital were to be established, which would significantly reduce contagion effects on the wider economy and might even thwart the onset of future financial crises.

Resolving private recapitalisation

In light of the potential problems associated with direct government intervention in financial markets, there would be significant support for any private remedial mechanism to contain costs. One of the catalysts of the recent financial crisis has been the high degree of leverage at major banks, which measures the relationship between total assets and capital contributed by its shareholder equity. High leverage ratios effectively mean that a relatively small decline in the market value of its assets will deem a bank insolvent. Although banks following the guidelines of Basel II[4], Value at Risk (VaR) calculations are used to set minimum capital requirements in order to avoid this scenario. VaR requires determining a 'worst-case' for short-term liquid assets, which did not cover an all-out financial crisis in most banks risk

[4] A framework laid down by a committee of Central Bank governors aiming to "promote a more forward-looking approach to capital supervision, one that encourages banks to identify the risks they may face, today and in the future, and to develop or improve their ability to manage those risks." (See http://www.bis.org/bcbs/)

management models (Valencia, 2010). Ideally, a private remedial mechanism would be able to decrease a bank's leverage ratio by increasing the capital contributed by shareholder equity and/or decreasing debt. But our analysis of private capital shows how difficult raising capital from shareholders in the midst of a financial crisis.

Given the difficulties of raising capital through open offers, is it possible for banks to become solvent by decreasing leverage? Effectively this could be done by offering bondholders preferred shares in the bank in return for writing-off part of their debt. This would both increase total shareholder equity and reduce debt, which would in turn decrease the leverage ratio on both parts. If the bank becomes insolvent, bondholders could face losses themselves if the value of the bank's assets is insufficient or the assets are too illiquid for them to recoup their investment. This constitutes a cost to the bondholders as a result of the actions of the bank; therefore bondholders have incentives to keep the bank solvent, as it is less costly and less risky. If the bondholders are offered a deal to exchange their debt for equity, the transaction will internalise the cost of insolvency to existing shareholders who now face a dilution of their equity position and may prevent any contagion effects that may result in a large-scale crisis.

Paul Calello and Wilson Ervin (2010) of Credit Suisse stress that Lehman Brothers, at the time of its collapse, only faced a capital shortfall of around $25 billion of unrealised losses. However, bankruptcy amplified these losses to $150 billion and escalated the contagion effects elsewhere in the financial system. If holders of subordinated debt had converted just 15 per cent of their position to equity, Lehman Brothers could have continued operating. Previous shareholders would be issued warrants to repurchase the newly issued shares as the bank recovered, discouraging runs on share capital. The only investors that would be worse off than they are today are those who short sold Lehman Brothers stock (Calello & Ervin, 2010).

If this had been the case, and if it were implemented during the current financial crisis, the collapse of the major banks and government bailouts unnecessary would not have occurred. Coase (1960) challenged government intervention in particular markets, arguing that in the presence of externalities[5], mutually beneficial bargains may be struck if transaction costs are negligible. On the brink of a financial crisis however, such bargains are likely to be costly and potential bargaining space is constrained by a lack of information. Shareholders and bondholders will place diffuse values on any equity stakes being transferred, impeding the bargaining process when it is crucial for it to proceed quickly in order

[5] At this stage, the 'externality' does not refer to an all-out financial crisis but the cost of insolvency imposed on a bank's creditors, i.e. bondholders, by shareholders who theoretically control the bank.

to avoid a collapse. Not even the chief executives of the world's largest investment banks could agree on a way to refinance Lehman Brothers (Sorkin, 2009). Consequently, it was not possible for any private agreement to be made in time to prevent the need for government intervention.

The problem outlined above focuses exclusively on the difficulties of reaching a bargain ex post a capital shortfall. These issues may not arise if they are pre-empted and resolved *ex ante*. The issuance of bonds with a conversion clause – which have been dubbed 'contingent convertible' or 'CoCo' bonds – establishes a legal contract for a pre-defined bargain *ex ante* to a capital shortfall, which can be continually priced by both equity and debt markets, preventing the uncertainty associated with runs on share capital created by open offerings. Already, Lloyds Banking Group successfully raised $14 billion in November 2009 from the issue of such instruments, which partially convert into preferred equity when the bank's core tier one capital falls below a trigger level (Beard, 2009; Patrick & Sandler, 2009). Additionally, if banks are able to recapitalise by this mechanism, it internalises the cost of a capital deficiency to investors, eliminating the requirement for publicly-funded bailouts.

Both bankers and regulators are supporting the issuance of contingent convertible bonds as an alternative to government-funded future bailouts (Calello & Ervin, 2010; Valencia, 2010). If designed and implemented successfully, they should significantly lower the fiscal cost of future financial crises and even help to contain the contagion effects that recapitalisation of the banking system has on the wider economy. However, these are largely untested and may precipitate unintended consequences in the presence of systemic risk. For example, if a financial crisis is already underway, investors may dump these securities as individual banks' ratios near a trigger point (Valencia, 2010). The recent crisis has shown that certain securities designed to absorb idiosyncratic risk can exacerbate systemic risk (Valencia, 2010).

Accordingly, there is still a role for government and regulators in financial markets. Whilst restricting the size and activities of banks may cause severe damage to the banking system, there are several areas in which banks can work with regulators to improve their resilience toward systemic risk and plan ahead to manage future financial crises. Regulators would be required to dictate the terms of recapitalisation using convertible debt (Calello & Ervin, 2010); their involvement in the design and implementation of such instruments helps ensure that there is full transparency of information amongst all parties, minimising unexpected effects. Additionally, there is a need for intelligent reforms that supplement the limitations of risk management models, impose dynamic minimum capital requirements that shift with - rather than aggravate - economic cycles and assist banks in devising 'living wills' in case of failure (Valencia, 2010). These will improve the flow of

information between banks and regulators, encourage a more prudent approach to banking during economic booms and should work harmoniously with the financial system.

Conclusion

In summary, there is a compelling case for the use of a private mechanism to resolve capital deficiencies wherever possible, given the potential implications of government intervention in financial markets. When there is a financial crisis, it is a necessary requirement to recapitalise the banking system but certain studies of crises show that government intervention is usually neither the most efficient nor the most effective means of achieving this (Roubini, 2008). Following the failures of several major banks during the recent financial crisis, there is little doubt that without government bailouts, the lack of private capital would have spelled disaster for the financial system and crippled several advanced economies. However, it is equally important to note the failures of intervention in financial markets. For example, following the government initiated bursting of the property bubble in Japan in the late 1980s, the poor reforms and severe crisis mismanagement that followed led to an 'L'-shaped recession and a decade of stagnation for what was previously a booming economy (Callen & Ostry, 2003).

The many positive externalities created by a healthy banking system have the potential to stimulate economic growth and support a full recovery from a crisis that was induced by the problems of the previous system. The role of government and regulators is to avoid any actions that may impede this recovery and rather work with banks to resolve these problems, help formulate private resolutions to future banking failures and ensure that the banking system as a whole is efficient and sustainable.

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Iceland: a nation in the kreppa
A narrative of a modern financial and currency crisis

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The financial crisis which began in 2007 marked a turning point in the history of modern macroeconomics and served as a wake-up call to those who had previously thought that the business-cycle had been tamed. Some of the biggest casualties of the global economic downturn have been the so-called 'developed economies' whose hyper-active banking sector was at the root of the problem. Fintan Ryan critically analyses the financial crisis in Iceland, one of the major victims of the recent economic turmoil. Developing an understanding of just what went wrong is crucial if another such event is to be avoided in the future.

Introduction

Iceland is an island nation of 320,000 people off the North-West of Europe. Despite many cultural links with the continent and Scandinavia, Iceland has so far resisted joining the European Union and the Eurozone; it is a member of the European Economic Area (EEA) which allows for free trade of goods, services and capital across its borders. Iceland's economy is the smallest within the Organisation for Economic Co-operation and Development (OECD)[1]. Gros (2008) compares Iceland to other small open economies and concludes that it is marked by a low degree of international trade integration but a high degree of financial integration.

In the decade up until 2008, Iceland was considered a safe place to invest. It is democratic and politically stable; the economy was growing rapidly with a high quality of life and near full employment; and it offered attractive interest rates to

[1]http://titania.sourceoecd.org/vl=1353542/cl=45/nw=1/rpsv/factbook2009/02/01/01/index.htm

investors when global yields were very low. Government debt was low and the general budget ran healthy surpluses of four to six per cent from 2005 to 2007[2].

The national currency of Iceland is the krona, which has only been allowed to float freely since March 2001; previously it had been pegged to an official exchange rate index. An interbank FX market was only organised in 1993. The initial band was set at 2.25 per cent, but following the deregulation of capital movements in 1995, this was expanded to six per cent, and later moved to nine per cent in 2000. However, as we shall see, the fate of the krona as an independent currency was inextricably tied to the fate of Iceland's overextended banking system.

Financial System and Crisis

The Sedlabanki Islands or Central Bank of Iceland (SI) has control of monetary policy and overall stability. The Financial Supervisory Authority (FME) is in charge of the health and viability of individual financial institutions. Together, these bodies were meant to protect Iceland's economy from endogenous and exogenous shocks. Carey (2009: 41) sums it up best: "macro prudential supervision cannot be effective unless it has access to information from the micro prudential supervisor and can impact supervision to restrain bank behaviour". This did not occur in practice as SI policy decisions often had unintended consequences on the FME-supervised banks.

Iceland has been one of the most prominent victims of the recent global economic crisis. The *kreppa*[3] that the country now finds itself in is a consequence of its own success over the past decade, as well as the global 'credit crunch'. Following the collapse of Lehman Brothers in September-October 2008, the three major Icelandic banks, Landsbanki, Kaupthing and Glitnir were placed in receivership by the FME[4]. In the chaos that ensued, the stock market and property prices crashed, money flows from abroad seized up, the krona plummeted in value against all major currencies, the cost of insuring government debt (CDS) soared, and Iceland was forced to go to the IMF for aid and enact harsh austerity measures of fiscal and monetary controls. According to *The Economist* (2008b), the banking and financial crisis has been the biggest relative to the size of the economy ever suffered by a country.

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[2]http://www.statice.is/?PageID=1269&src=/temp_en/Dialog/varval.asp?ma=THJ05121%26ti=General+government+receipts%2C+outlays+and+finance+accounts+1998%2D2008+++%26path=./Database/thjodhagsreikningar/fjarmal_opinber/%26lang=1%26units=ISK/percent

[3] Kreppa is the Icelandic word for crisis

[4]http://www.publications.parliament.uk/pa/cm200809/cmselect/cmtreasy/402/40206.htm

The Banks

The currency crisis had its origins in a financial crisis centred on the three major Icelandic banks, which accounted for 85 per cent of the banking sector. Over the previous five years, they had expanded their lending until their assets grew to nearly 880 per cent of GDP from 170 per cent upon their privatisation in 2003 (Carey, 2009). They grew rapidly and their risks increased appreciably. These institutions had very high loan-to-deposit ratios by European standards; lax standards of collateral led banks to lend money based on each other's shares and over 70 per cent of their unconsolidated liabilities were to non-residents (Carey, 2009).

Portes (2008) describes the banks in a relatively benign light: "Like fellow Icelandic banks Landsbanki and Kaupthing, Glitnir was solvent. All posted good first-half results, all had healthy capital adequacy ratios, and their dependence on market funding was no greater than their peers'. None held any toxic securities". However, this proved to be insufficient to ensure their survival in the risk averse markets of autumn 2008.

Buiter and Slbert (2008) identify a number of unique characteristics of the banks that contributed to their subsequent collapse. By the first quarter of 2008, half of Landsbanki's assets and two thirds of those of Glitnir and Kaupthing were located abroad. Despite this, combined domestic assets still added up to over four times Iceland's total GDP. Only 21 per cent of all assets and 15 per cent of all liabilities were denominated in krona – most of the business of the banks was done in foreign currency and there was a large currency mismatch between assets and liabilities. One third of the bank's funds came from deposits; the balance came mainly from the international wholesale markets. Landsbanki (Icesave) and Kaupthing had attempted to increase their deposit bases through internet banking in the UK and Dutch markets. There was a maturity mismatch; the banks had many long-term assets, but short-term liabilities which needed to be continually rolled over on the international money markets. This would prove to be their undoing – it was not a run on deposits or insolvency but a liquidity crisis which caused the banks woes.

From boom…

The movement towards deregualtion and liberalisation allowed foreign investors to invest in high yielding Icelandic assets. These capital inflows buoyed demand for the krona. Banks used the inflows of capital to expand their lending, including their own forays into European markets.

The three main banks lent out money based on collateral of their own shares; much of this money was used to buy shares and as a result, the Icelandic stock market, the OMX Iceland 15 soared in value. By the time of the collapse, the

three banks accounted for 76 per cent of the value of the index. On October 7, trading was suspended for three days; when the market opened again on October 13, the index dropped 77 per cent in value, with only six shares actually trading on the day (Lindstroem, 2008). Cheap credit had inflated another asset bubble in residential property, as house prices increased to two-and-a-half times their value from 2000 to 2007. Investment in construction (commercial and residential) grew to levels comparable with the property bubbles of Spain and Ireland, in terms of percentage of GDP (Gros, 2008).

With the availability of cheap money, Icelandic entrepreneurs the 'New Vikings' bought many prominent brands and assets in Europe such as Hamleys, Debenhams and West Ham Football Club (Boyes, 2008). Due to the large portfolio of European investments and extensive reliance on outside leverage, *The Economist* (2006b) described the economy as "a giant private equity fund". Gros (2008) found a worrying correlation, between the stock market i.e. the market value of the banks and the exchange rate, of close to unity.

Many ordinary Icelanders had invested in stock markets or property themselves. In the five years to 2008, average wealth per capita had grown by 45 per cent (Boyes, 2008). Icelandic households were unwitting players in the carry trade. Buiter and Slbert (2008) state that nearly 80 per cent of household loans were denominated in either Swiss francs or Japanese yen, two traditionally low interest rate currencies widely used as funding currencies. This further served to keep the krona strong when foreign credit was freely available; households preserved demand for the currency when converting their francs or yen into krona to buy cars, houses, shares etc.

Most currency positions were unhedged; when the currency collapsed many households found that the domestic value of their income had fallen or was stable, while their foreign liabilities rose dramatically. Many loans to firms and individuals were linked to inflation or the CPI – imported goods make up approximately one third of the index and they soared during the crisis. The price instability caused by the collapse (Thomas, 2008) further increased the debt burden of households. This led many to default or cut back on consumption, which further hit the economy (Boyes, 2008).

…to gathering clouds…

The country had been given warning of an impending crisis. The krona had depreciated 28 per cent against the euro in the four months to April 2008 stoking inflation as fear gripped the markets over the ability of the banks to finance themselves. The banks' credit ratings were downgraded and Icelandic sovereign debt was put on negative watch. The cost of insuring their debt against default, measured in Credit Default Swap spreads, soared to 1,017 basis points. These had

been trending upwards since the first hints of the credit crunch in July 2007 (*The Economist*, 2008a). The SI responded by further raising interest rates (Mortishead, 2008).

In April 2008, Daniel Gros from the IMF highlighted the potential dangers faced by small financially active countries such as Iceland. A floating exchange rate can act as a shock absorber but can also be a source of economic shock during financial crises; a weakness highlighted by Robert Wade (2008). With such a small tax base for such a large financial sector, the central bank or the government did not have the ability to act as a lender of last resort to the banks, when international capital inflows dried up.

…to bust

With the collapse of the banks, trading in the krona effectively ceased. On October 10 it was reported that the bid/ask spread on the krona on the informal market was 300/450 per euro as investors poured out of the currency, amid fears that the SI didn't have the reserves to defend the krona; confidence and the currency tumbled (Lindstroem, 2008). The SI had secured bilateral currency swap agreements in May 2008 with Norway, Sweden and Denmark for €500 million each, but these proved insufficient. The government initially reacted by attempting to unilaterally peg the krona to the euro at a level of 131 on October 7. This was abandoned two days later.

The SI turned to enacting strict currency controls to stem the outflow of funds. It was forced to set up its own auctions for the krona to provide funding for vital international economic activity. Movements of capital in and out of Iceland were severely curtailed and required a license from the SI with priority going to importers of necessities. Residents were obliged to deposit any new foreign currency they received with an Icelandic bank. Credit supplies dried up as importers were unable to get access to foreign currency for purchases, and their suppliers demanded cash up front before delivery (Lindstroem, 2008).

The fallout

In November, the IMF agreed to provide $2.1 billion in aid. Further loans have been provided by Denmark, Sweden, Norway, Finland, Russia, Poland, the UK and the Netherlands; even the Faroe Islands gave $50 million. The total amount will reach $10.2 billion or over half of Iceland's GDP (*The Economist*, 2008b).

There has been much political fallout; Britain invoked anti-terrorism legislation to freeze the British assets of Landsbanki and Kaupthing in early October – Buiter and Slbert (2008) cite this as a main reason for Kaupthing's subsequent collapse. The liabilities have yet to be settled for approximately €4 billion; nearly half of Iceland's GDP and have led to the collapse of the government. Gross

government debt has increased from 29 per cent at the end of 2007 to 109 per cent in 2009 (Economist Intelligence Unit, 2009).

After much volatility, the krona now has settled at a new plateau of 170/180 per euro. The economic consensus is that Iceland must progress towards joining the EU and the euro common currency area because the krona has now been discredited as an independent currency (Lane, 2008), but several stumbling blocks remain (*The Economist*, 2009c).

The Icelandic situation is similar to what occurred in South East Asia in 1997, as described by Paul Krugman (2008). Thailand, Indonesia, Malaysia and South Korea all faced currency crises due to the volatility of capital inflows, high current account deficits (though modest compared to Iceland), the lack of a credible monetary authority and insufficient international capital reserves to defend their currencies.

Trade and the current account balance

The current account deficit soared during the decade to levels that are unsustainable in the long run. In terms of merchandise trade, 78 per cent of exports went to countries in the EEA in 2007, while they were the source of 65 per cent of imports. Most of this was due to the importing of goods and services financed by debt; for example the importing of materials and capital goods to build an aluminium smelter in 2005-06 cost approximately 15 per cent of GDP. Taking advantage of the volcanic island's cheap geothermal energy potential, exports of aluminium had begun to contribute to the closing of the deficit. Iceland's exports of goods and services are small relative to similar-sized open economies and have traditionally consisted of fish and marine products (Gros, 2008).

Monetary policy and explanations

The sole objective of the SI's monetary policy is price stability. Since 27 March 2001, it has formally targeted a level of 12 month CPI inflation of 2.5 per cent. This remit does not allow the SI to apply monetary policy in the targeting of other economic goals, such as lowering the unemployment rate or balancing the current account. The interest rate is the SI's only policy tool; it gave up the use of reserve requirements "because the banks did not want them" (Wade, 2008). Even back in 2001, this 'hawkish' policy was criticised by Joseph Stiglitz (2001), fresh in the wake of the 1997 South East Asian crises, as unwarranted and short sighted. This policy allied to lax regulation, led to an ultimately self-defeating cycle in Iceland, described by Danilesson (2008).

Explanations

Together with the high current account deficit, traditional FX theory suggests that such a currency should decline relative to the euro as relative purchasing power is eroded; but for several years this was not the case. The policy repurchasing rate of the central banks is the rate charged to retail banks on collateral based loans. Until October 2008, this was a variable-bid-tender process, with the quoted number being the minimum bid rate. Subsequently, the process was changed and the quote rate is now fixed. The Icelandic rates up to July 2007 are the nominal yields on the collateralised loans. After this the rates refer to nominal policy interest on the loans.

Inflation differentials alone seem to be a poor predictor of the Icelandic exchange rate; however taken together, a possible explanation for the relative stability of the exchange rate from 2002-07 can be explained by the Fisher effect (Fisher, 1986 [1930]). This states that real rates of return across countries and currencies will be equalised through different interest and inflation rates. As inflation pressures mounted both domestically (almost full employment and easy credit) and internationally (oil and commodity price spikes), the SI was forced to increase nominal interest rates to keep real investment returns stable and competitive. This ensured that capital inflows would continue and the currency would remain stable. Even during the crisis, the SI raised interest rates to 18 per cent despite the fact that this would choke off domestic demand for credit, prevent businesses from rolling over short-term domestic debts and stifle any chance of a domestic led recovery.

Conclusion

Traditional exchange rate theories seem to be inadequate in explaining the dramatic fall of the Icelandic krona during 2008 and its eventual collapse along with the banking system in October. Though Iceland had high inflation and ran persistently high current account deficits, the effects of these factors on exchange rates were muted by interest rate increases, leverage and the continued inflows of foreign capital and investment. Iceland's unique and overextended financial system meant that any weakness in the banks would lead to a sovereign debt and currency crisis, as SI reserves were insufficient to cover banking liabilities.

Once the inflows dried up, the banks and Iceland, could no longer service their debts and an international confidence crisis turned into a local financial and currency disaster. Krugman sums it up, seeing both Iceland and the krona as victims of a wider financial malaise:

> "The failure of hedge funds associated with a French bank [BNP Paribas in August 2007] is generally considered to have marked the beginning of the

crisis; by the fall of 2008, the troubles of housing loans in places like Florida had destroyed the banking system of Iceland"

(Krugman, 2008: 177).

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An analysis of the concept of fiscal federalism in relation to the European Union

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Sophie Ward makes the case that although the European Union has been a great success in some respects, in others it has been let down by an unwillingness to cooperate in areas outside of the common market. Fiscal federalism is one issue which must be resolved if the Union is to continue to build on its achievements. As Ward points out, enhanced coordination of fiscal policy will generate benefits for all of the EU members and does not necessarily have to be brought about by a centralisation of power which has in the past concerned Europeans.

Introduction

"It is better to be broadly right than precisely wrong"

John Maynard Keynes

Perhaps Winston Churchill, having watched his country wrecked on the rocks of war, believed just this as he stood in front of Europe in Zurich in 1947 pleading for a 'United States of Europe'. Was this the thinking of Robert Schuman during his 1963 speech where the 'European Federation' was envisaged as the product of the new integration process? With these came the inevitable split of views, those of the economist and those of the politician. The economist is far more likely to favour the confederate approach than the politician or sociologist.

The path of integration so far has been an economic one; a fight for an efficient market structure in which each member state may be allowed to flourish independently. Labelling Europe with 'fiscal federalism' is inopportune as it conjures an image of strong centralisation, when in reality, nations seek to allow the economics of multi-levelled governance to efficiently allocate, stabilise and distribute the various resources of Europe as close to the beneficiaries as possible. It

also implies that its primary concern is financial when in fact it also concerns deeper issues of regulation and policy in Europe (Oates, 2002).

The fiscal federalism theory

> *"The promise of federalism is a straightforward proposition that has shown up time and again in political and economic theory from Montesquieu to James Madison to Richard Musgrave."*
>
> Rodden (2006: 5)

The number and depth of theories of fiscal federalism is clear. Rodden (2006) describes the idea from an economic point of view; a view that seems much simpler and based on the task at hand, as the 'optimal assignment of government authority'. The very *sui generis* nature of Europe means that it is difficult to apply traditional theory on fiscal federalism such as Bird (2003), Inman and Rubinfeld (1992) or Oates (2002). The European Union (EU) is a truly unique entity. However, fiscal federalism theory is one from which the EU has taken many of its characteristics, so its general features shall be considered here.

The outline provided by Bird (2003)[1] to describe the purposes of a general theory on fiscal federalism will be considered. One must ask:

1) Who is in charge of raising and allocating funds for activity within the 'federal' community?
2) Who is responsible for the taxation of what and hence where the tax revenue should go?
3) How should expenditure and tax revenues be distributed amongst the levels of government within the community? A correction of vertical imbalance.
4) How should expenditure and tax revenue be allocated amongst government of the same level? The correction of horizontal imbalance.
5) How much should members of the community be allowed to borrow; or the amount of debt they may be allowed to accumulate as a direct influence on the macroeconomics of the community?
6) What form should governments and institutions within the community take? The decision-making procedure.

[1] Adapted from Begg (2009)

What is clear in every theory is the application of subsidiarity in governance. Such a theory will come with trade offs and insufficiencies. These trade offs generally highlight the need for decentralisation in a fiscally federal system. Each comes with a related discussion.

Diversity and local information advantages versus scale economics

Differences in preferences between the member states of a community will make it inefficient, even just from a cultural viewpoint, for there to be a purely centralised government. Local governments have superior information about the people in the area under their control. When applied appropriately, subsidiarity can ease the information asymmetries arising from adverse selection and moral hazard. For example, consider the United States' experience of trying to solve the problem of unemployment within its states (Inman & Rubinfeld, 1992). States had to contribute to a central insurance fund, according to historical employment figures and could withdraw from the fund during periods of trouble. The fact that the level of contributions was decided based on published figures removed moral hazard. Furthermore, as every state was obliged to participate, adverse selection was averted. Overall, it was a novel way of managing asymmetric shocks within the community.

The level at which a decision is made should be chosen at the least cost, considering that it can be costly to accumulate information and implement policy. This is balanced against the possible economies of scale that can arise from high-level decision making. For this reason, an economist might like to place a decision at the highest level possible in the trade off between cost and efficiency of policy.

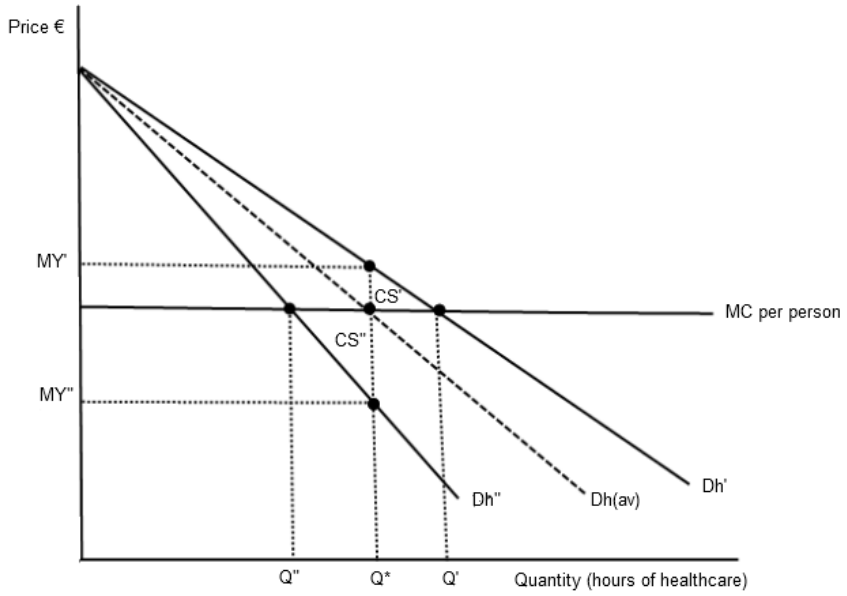

Figure 1: Analysis of consumer surplus at different levels of decision making

Figure 1 demonstrates how the analysis of consumer surplus may be used to show how inappropriate high-level decision making can be inefficient. This diagram illustrates how demand for healthcare is determined for two different regions (D_h' and D_h"). If this decision were to be made centrally, an average demand curve would be assumed (D_h^{av}). In this case, at the optimal position (intersection of D_h^{av} and marginal cost (MC) curve) both regions are worse off than in the decentralised case. Both regions are now paying the same taxes for the service. Region '' is paying for too much for the service and therefore, incurs a loss of consumer surplus as highlighted by the area CS". Region ' is not receiving enough healthcare for their needs since they are no longer generating enough tax revenue, so they lose consumer surplus of the amount highlighted by the region CS'. These losses represent a loss of efficiency for the entire community. Therefore, centralisation can only apply where there is parity in needs.

Figures 2 and *3* show how general equilibrium analysis can be used to show that centralisation can only apply where there is parity in preference. The diagrams show how the rural and urban speed limits are chosen in member states.

The 'budget constraint' is given by:

$$C = f(G, R, Q, L, S).$$

Where: G = Gradient variation of roads,
R = Rural/urban density
Q = Surface quality
L = Number of lane
S = The sinuosity ratio of the road.

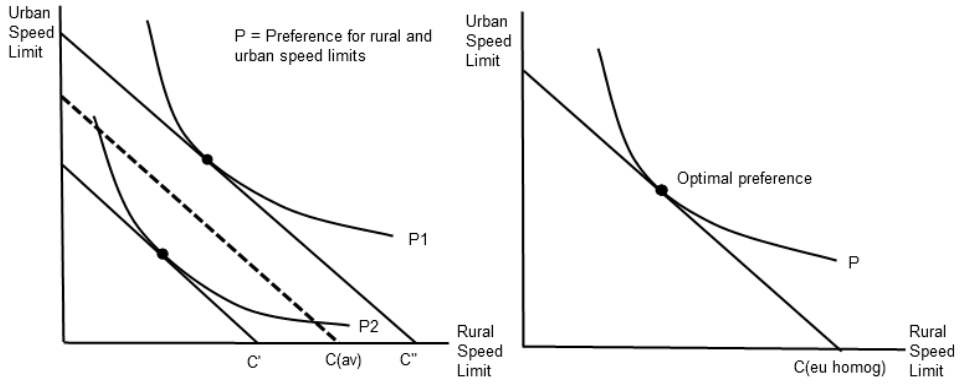

Figure 2: Indifference analysis under different road conditions (1) and homogenous road conditions (2).

In *figure 2(1)*, each country arrives at a different indifference curve due to the variables above differing from one another. As is evident from this analysis, having the same standard for speed limits throughout the community cannot work. In *figure 2(2)*, the countries have homogeneous road conditions and so can have the same preference for speed limits. Therefore, these regions could have a cost effective and centralised policy with the same road taxes to raise the revenues for road improvements. Economies that have arisen via a joint decision-making process are more likely to favour a centralised system.

Spillovers

These occur due to externalities from one region of a community impacting on another. They may be positive or negative. The impact of an army has a significant positive spillover effect since the presence of just one army in the world, with fairly free movement, will deter aggression. On the other hand, the impact of negative spillover effects are currently being felt by Irish retailers due to the disparity between Value Added Tax (VAT) rates in the UK and Ireland of 15 per cent and 21

per cent respectively. This has incentivised many Irish consumers to travel to Northern Ireland to shop[2]. This has been of great benefit to the UK market, but detrimental to the Irish one. These spillovers are important to note, even when positive, as they suggest that decision-making may be better handled at a higher level. Spillovers can imply parity of preference in different areas of the economy which are affected by them.

Democracy as a control mechanism

One of the major arguments for federalism comes from the fact that higher level government eases some of the issues arising from conflicts of interest. One assumes in a democratic society that governments act purely in the citizens' best interests. In reality, favouritism exists in government with the use of tax breaks and subsidies towards inefficient causes. The British national treasure MG Rover, for example, was bailed out repeatedly by the UK government under the pretence of saving jobs before finally going into administration. This cause was anti-competitive and the organisation of competition at supranational level could potentially have avoided this. Such behaviour is also present in pre-election propaganda. Election package specificity tends to increase as its' geographical incidence decreases. This argues in favour of centralisation.

Jurisdictional competition

Conversely, centralised governance takes away some of the competition between regions. This then removes power from the citizens who can no longer use their exit from jurisdiction as a signal of their desire for change. Thus, where intra-jurisdictional competition is heavy, governance is likely to be improved.

Is centralised or decentralised government more appropriate? The USA and Canada show, that where vertical redistribution and the taxation system dominate, there will be a lean towards centralisation. The lesson from Australia and Switzerland is that, where more horizontal redistribution occurs, it is more efficient to use a decentralised structure. Politically as well as economically, decentralisation is considered to be preferable in all cases where the marginal cost of policy may be met at the respective level (Ahmad & Brosio, 2006). It is also clear that to have efficiency, results-driven policy, decisions should be referred to the lowest possible level.

Applications and aims for EU nations

[2] See Kate Holohan's (2010) analysis: "Factors that influence the exchange rate: purchasing power parity – does it hold?" - for a more in depth discussion on this topic.

"One basic formula for understanding the Community is this: 'Take five broken empires, add the sixth one later, and make one big neo-colonial empire out of it all."

Professor Johan Galtung

These words were written at the start of the European integration project by an outsider but show how the aim of the EU has changed since its inception. The aim of fiscal federalism is to share the provision of public goods, the redistribution of income, the act of macroeconomic stabilisation and taxation between the four levels of government available in the EU: local, provincial, national and EU. This can be achieved via a supranational 'community competence' or a cooperative 'shared competence' (Baldwin & Wyplosz, 2009). This is sought through the application of the principle of subsidiarity, that decision making should take place as close to the people as possible, as outlined by the 1992 Maastricht Treaty.

The EU needs fiscal federalism because within the European Monetary Union (EMU), countries forego control over monetary policy. Upon this monetary base, fiscal policy has become the key to macroeconomic stability in the respective Eurozone countries. It is especially important to consider fiscal policy efficiency in the EU, since it can have an inflationary effect. Economic coordination is also necessary because discretionary fiscal policy tends to be unreliable due to its relationship with the political business cycle. A prime example is the recent EU experience of Greece's lack of fiscal responsibility. The effect on financial markets, throughout the community via contagion effects, has been considerable.

Fiscal federalism came with the introduction of the Three Pillar structure and the Maastricht Treaty. The level of national sovereignty and decision-making power of member states lies within these pillars:

1) Pillar 1 commands full authority of the 'community competences': the European Single Market, agricultural policy, competition policy, trade policy and the 'four freedoms': goods, services, labour and capital. It involves the complete transfer of national sovereignty and national courts may be overruled. This is acceptable only because there is considerable parity in national preference over such issues and definitive gains from scale economies. The transfer is diluted because decisions must be made unanimously; unlike the qualified majority voting accepted in the following 'shared competence' policy areas.

2) Pillar 2 is concerned with the foreign and security policies common to all EU member states. There are also gains in scale economies here, but disparity in national preference exists.
3) The issues of pillar 3, justice and home affairs, lie somewhere between pillars 1 and 2 in terms of the possible benefits of economies of scale and national preference (Baldwin & Wyplosz, 2009).

More recent reforms in decision making have included the 'flexibility' principle of the Treaty of Rome. The more extensive reforms, due to the recent community wide ratification of the Lisbon Treaty, seek to extend the competences of the EU. Such an aim inevitably involves further transfers of sovereignty within the community and contributed significantly to the difficulty of its ratification in Ireland and the Czech Republic. The ambiguity in preference and the scale of pillar 3 issues, led to the eventual agreement that the transfer of these competences into pillar 1 and the accompanying loss of national sovereignty, were acceptable under the Treaty. The intricacies of the deal are more political than economic in nature.

European fiscal federalism in practice

Economics has been the main focus of centralisation of the EU with the introduction of the Single Market and its associated freedoms. In terms of the 'Musgrave three-function framework' (Buchanan & Musgrave, 1999), stabilisation has taken precedence so far in the Community, due to the focus it takes from fiscal and monetary policy.

Imbalances between regions are much more pronounced than in other federations. Using CIA (2005) figures, the average Gini Index in the EU was 31, and ranged from 23 in Sweden to 38 in Latvia. The spread in the USA was much smaller, ranging from 41 in Alaska to 49.5 in New York. The situation in Europe is likely to be worse if Turkey joins with a Gini Index of 43.6. The extent of decentralisation in the redistribution of income leads to a loose comparison to traditional models of fiscal federalism. It is more appropriate to compare the progress of the EU to the conditions for 'market preserving federalism', a sort of economics of multi-level governance[3].

F1: Hierarchy of governance
This typically requires a deeply functionalised type I federal government. The EU's type II style of *ad hoc* governance allows supplementation of a base with extra

[3] Adapted from (Weingast, 1995)

arrangements for specific policy by virtue of its pillar structure. Unless there is some increase in the budget, it is unlikely that much more financial autonomy can be expected at the centre despite the ratification of Lisbon. This condition is considered by Weingast (1995) to be the primary requirement for federalism, a community cannot hope to be fiscally sound or market preserving without the other four conditions.

F2: Primary economic authority for national governments
Autonomy has remained high in member states, with the Bank of England's controversial quantitative easing programme and even within the Eurozone, with the Irish central bank's National Asset Management Agency (NAMA). However, the definition of fiscal responsibility in member states remains rather weak, most precisely with the under provision of expansionary fiscal policy due to its' spillover effects. It is also worth noting the disincentivising effects of provision of public goods in the EU[4].

F3: Authority to police the common market
Any violations of the common market are subject to prosecution by the EU court. The court may also overrule the national courts of member states. Most typically, these cases would be due to anti-competitive behaviour - many high profile cases are over mergers, like the GE-Honeywell merger, or misbehaviour in labour markets.

F4: Budget constraint by national governments
The Stability and Growth Pact (SGP) was adopted in 1997 in order to control the fiscal behaviour of member states in order to maintain the EMU and economic integration. In this sense, it is perhaps the ultimate example of how the EU has become fiscally federal. It orders that public debt must be below 60 per cent of GDP and that the budget deficit may not exceed three per cent. In this sense it constrains the budgets of national governments. However, recent experiences have shown this to be ineffective.

F5: Protection of delegation against national alteration
The inception of the EU court sought to achieve just this. The action of either unanimous or qualified majority voting of EU pillar issues means it is difficult for coalitions of member states to unite against a policy (though one can never be sure of what goes on between national leaders at supranational meetings).

[4] Tiebout (1956) saw this effect from spillovers and provides a comprehensive analysis.

There is a distinct national bias in Europe throughout these conditions. If the political horizon for a policy is shorter than its social horizon, the political business cycle will tend to increase the amount governments borrow, and produce lower than optimal tax rates. This supports the lengthening of the presidency of the EU Council's term of office and also for continued reform of the SGP, which has been accused of bias towards larger EU nations, especially during times of economic difficulty. Furthermore, centralisation is reinforced by Roubini and Sachs (1989) who found that Organisation for Economic Co-operation and Development (OECD) countries with decentralised legislatures tend to spend more and have more frequent turnover of their governments. The relationships between the different tiers of government in the EU seem to be marred by historical interaction rather than by the principles of fiscal federalism.

Conclusion

As revealed by the above analysis, Europe conforms to a traditional model of fiscal federalism but it may be more appropriately compared to a model of market-preserving federalism. Next, Europe should progress to achieve Oates' (1977) first generation fiscal federalism: economic federalism whose focus is on horizontal and vertical equity.

One should expect to see an increase in the EU budget, perhaps to three per cent of EU GDP, to produce more financial autonomy at the centre of the Union. Furthermore, it is reasonable to expect an increase in competences for the EU and further reformation of the SGP. This could include a broader application of the majority voting process to increase decision-making efficiency.

With the increasing proportion of 'peripheral' nations in the EU, a coherent method of managing asymmetric shocks must be defined. Without this, the required macroeconomic stability cannot be expected. Perhaps, an acceptable form of a 'European Constitution' should be considered to pursue these aims transparently.

By achieving this, the EU can hope to build towards second generation fiscal federalism, whereby efficient, transparent fiscal policy can be applied to a more homogeneous political economy to inspire economic growth and solid stability across member states.

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Labour market or laboured market: inefficiencies and unemployment in the European Union

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This article by Sean McGrath makes the case that European integration is very much a project which has yet to be accomplished – particularly from the point of view of the labour market. McGrath highlights the various factors which conspire to generate rigidities in the labour market and thus result in the unemployment levels which are well above target. He stresses that these rigidities are of particular concern for policymakers when it comes to addressing the worrying phenomenon of long-term unemployment which looks set to afflict Europe for some time to come.

Introduction

The recent spike in unemployment across Europe and much of the world has been a highly publicised and highly emotive issue. Similarly striking reductions in global trade and industrial output have not evoked the same fear and apprehension in the minds of millions. For many, anxiety regarding the future lies predominantly with the prospect of unemployment, rather than with the concern for the economy as a whole. Unsurprisingly then, given the sensitive nature of the issue, any analysis of the European labour market cannot be approached in a similar manner to that of other markets. Furthermore, the interplay of features such as collective wage negotiations, government regulation with regard to hiring and firing employees, minimum wage legislation and unemployment benefits all contribute to ensuring that the functioning of the labour market presents a unique set of challenges for policymakers to address when attempting to limit unemployment.

This essay will outline how such complexities have resulted in the failure of the European Union (EU) to maintain unemployment levels below even its own, self-imposed targets. It will also examine the manner in which EU policies, such as that of Europe-wide economic integration, facilitate the reduction in European labour market rigidity and ultimately, a likely reduction in initial levels of unemployment. Finally, this essay will analyse the highly controversial issue of

migration and outline some reasons why the consternation which greets this phenomenon may be somewhat misplaced.

An underperforming Europe

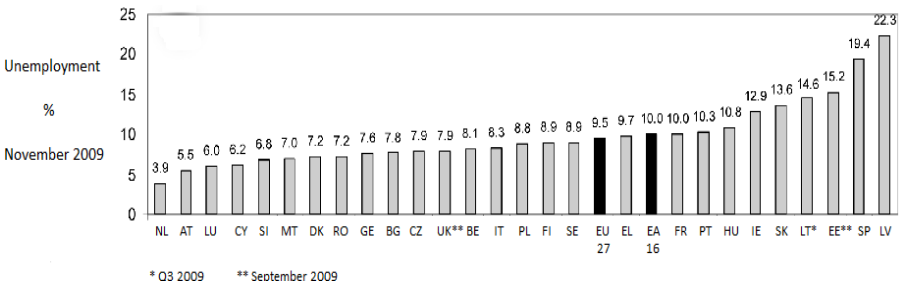
In attempting to characterise the European labour market and assess the success of its policies to limit unemployment, it is perhaps useful to identify a comparison against which the EU can be judged. The USA, as the world's principal economic actor, is appropriate for this purpose. Although, there are some issues which limit the extent to which this comparison is valid, such as disparities in measurement methods, the statistics highlight some points of significance. Ignoring the recent convergence in unemployment levels following the recent crisis, between the years 1992 and 2008, the USA consistently outperformed the EU in both maintaining a higher employment-to-population ratio and a lower unemployment rate.

Source: CEPR (2009)

Although this convergence indicates an improvement in the European position in relation to its American counterpart, the situation in Europe has continued to deteriorate in the ensuing period. According to the Eurostat website, as of November 2009, seasonally-adjusted figures show an unemployment rate of 9.5 per cent for the 27 EU member states, which indicates a 2.3 per cent increase since November 2008[1]. This figure also masks the extent of the disparity in unemployment figures

[1] http://epp.eurostat.ec.europa.eu/cache/ITY_PUBLIC/3-08012009-AP/EN/3-08012009-AP-EN.PDF

across member states, with the best positioned member, the Netherlands at 3.9 per cent and a particularly badly affected Spain with an unemployment rate of 19.4 per cent in November 2009.[2]



Source: Eurostat (2010)

The inability of certain EU member states to secure employment for its residents inevitably begs the question: how can the situation be improved and disparities addressed? In order for this to be undertaken, an understanding of the complexities involved in the functioning of the labour market is vital.

A not so perfect market

It is tempting to approach an analysis of the labour market in a similar manner to that of other markets, using demand and supply curve analysis and identifying an equilibrium level of employment, whereby the amount of labour that individuals' supply equals the quantity demanded by employers at a certain wage level. As previously mentioned however, to proceed in this manner would lead to a fundamentally flawed outcome. In reality, we do not see such fluctuating wage rates which correspond to changes in the demand or supply of labour. As this seems to counteract common economic intuition, it impels us to identify and examine some of the features unique to labour markets, and the consequences these have on wage and employment levels.

One issue which cannot be ignored here is the role of so-called labour market institutions. These "form a complex web of incentives and disincentives on

[2]http://epp.eurostat.ec.europa.eu/tgm/graph.do?tab=graph&plugin=1&language=en&pcode=tsisc070&toolbox=type

both sides of the market" and enshrine in law features such as "specific regulations relating to work time, layoffs, or other matters" (Siebert, 1997: 39). This ensures that demand is not simply determined through "conventional market elements like output prices and the productivity of labour" (Siebert, 1997: 39). Adding to this complexity is the imposition of a minimum wage and social security measures that influence the individual's reserve wage price, creating a further distortion in the supply of labour, particularly at low wage levels. As a result, conventional demand and supply analysis cannot be applied to labour markets. Labour markets, therefore, cannot be expected to clear in the short or medium term and involuntary unemployment will ensue.

A Union for whom?

In the previous analysis of labour markets and unemployment, one crucial feature has been neglected, namely, the collective nature of labour negotiations. Employees come together in the form of trade unions in an attempt to strengthen bargaining positions and improve the outcomes they can achieve in negotiations with employers. In this sense, "the main incentive to join the union lies in the appropriation of employer rents… and in their distribution to members" (Checchi & Lucifora, 2002: 364). However, as labour demand is sensitive to the wage rate, an increase in this rate (due to increased bargaining power on the part of trade unions, for example) can be assumed to have some negative effect on employment levels.

Of further concern is the question of who exactly is represented by trade unions. A trade union represents its members (that is, those who are currently in employment), whereas those who are unemployed receive no representation. If union members were to collectively agree to reduce wages, then presumably some of the unemployed, non-members would have the chance of finding employment through greater demand for the now cheaper labour. However, as there is little incentive for union members to accept such a reduction in pay, it is logical to expect higher wages to be maintained and unemployment to persist. The Irish example provides a useful illustration of the potential outcomes of collective negotiation. In 2006, the pay differential between the highly unionised public sector and the private sector, where unionisation is sparser, was estimated to be 23.5 per cent, with no obvious productivity premium in the public sector, indicating a significant imbalance (Kelly, McGuinness & O'Connell, 2008).

Compounding the above is the broader effects that trade unions can have on labour market flexibility. The influence of trade unions extends into areas such as labour market legislation, with more employment protection for employees resulting in increased labour market rigidity and, thus acting as a further disincentive for employers to hire new staff.

Of course, one must be cautious when discrediting the activities of trade unions. In certain circumstances, the protection that union membership offers vulnerable workers is invaluable, but this must be scrutinised in light of the need to reduce unemployment across the economy as a whole. Furthermore, there are undoubtedly some anomilies which seem to run counter to the theory outlined, notably in the Nordic countries, where union membership is high and unemployment is generally relatively low. This can perhaps be attributed to specific features of the Nordic economies, such as the use of the Ghent System[3] for unemployment insurance and also to specific labour market policies adopted in the Nordic countries that are not reflected elsewhere in Europe. Nevertheless, the Nordic system attests to the fact that trade union membership need not necessarily lead to high unemployment.

Long-term unemployment: a pressing concern

Incorporating the differences between the types of unemployment can help to highlight further issues afflicting the European economy. Short-term, cyclical unemployment is not nearly as detrimental as peristent, long-term unemployment. Several issues present themselves here:

> "First, long-term unemployment is felt to have disastrous effects on the individuals who suffer it both in terms of their labour market opportunities and their more general physical and mental well-being… Secondly, it has been argued that the long-term unemployed become detached from the labour market and play little role in competing for jobs."
>
> (Machin & Manning, 1998: 7)

These individuals therefore, do not exert downward influence on the wage rate resulting in the further possibility of increased unemployment. In addition, the financial burden placed upon states with generous social protection schemes can be quite large if the number of long-term unemployed people remains persistently high. Finally, a hysteresis effect may occur, whereby high unemployment in the past essentially leads to higher unemployment in the future. The logical conclusion here is that long-term unemployment should be avoided wherever possible. Certainly, the past experiences of Germany, Italy and France in fighting consistent unemployment

[3] Under this system welfare payments are the responsibility of the trade unions instead of Government. The Ghent system takes its name from the Belgian town where it was first implemented.

attest to the damaging effects long-term unemployment can have. It also provides justification for the desire to avoid a similar scenario again, in which regard European nations are succeeding to different extents.

Given that long-term unemployment poses such a threat, governments must consider the optimal way to deal with it or, ideally, how to prevent it from occurring. The primary concern is to identify some of the reasons why people who become temporarily unemployed do not find employment again and are consequently consigned to long-term unemployment. Although there may be many reasons, one which deserves particular attention is the level, duration and conditionality of unemployment payments. Certainly there is merit to the argument that recently unemployed individuals should receive some sort of financial compensation. A problem arises, however, if these unemployment payments are large enough to act as a disincentive for the individual to find employment again. In this case, a so called 'welfare trap' develops whereby some unemployed people deem themselves to be better off by remaining unemployed and availing of unemployment benefits rather than accepting low-paid employment.

It is critical that issues such as this be addressed on a European-wide scale and there are numerous initiatives which have and could be further advanced to better address these concerns. One such programme is to make unemployment payments conditional on the individual's acceptance of work or training whenever it becomes available, and withholding payments if this training or work is rejected, as in the so-called Nordic model. Indeed, this point has been stressed by the OECD (2010). Other methods include the gradual reduction in payments as the duration of unemployment increases, therefore increasing the incentive to find employment. In many cases however, these initiatives may not be enough to entice the long-term unemployed back to work. As a result, active labour market policies such as training, 'up-skilling', job-search assistance and public recruitment have been adopted throughout Europe. Although long-term unemployment remains a topic of constant concern, the levels in Europe are currently far lower than those which prevailed in the 1980s and 1990s, indicating some success in the policies implemented in the intervening period.

Economic integration and migration: employment stimulus or sacrifice?

In any discussion relating to EU labour market, it is almost impossible to ignore concerns about further economic integration and migration. Regardless of the facts, it can be argued that increased competition from economic integration and migration has had a negative impact on employment levels, particularly in the more prosperous European states. Certainly the reduction in trade barriers, the adoption of a single currency and the formation of a single market within the EU have led to increased

competition for firms operating within its borders. Whereas once a firm may have had an almost monopolistic position in its domestic market, the introduction of potential competitors with lower prices for similar products or services, exerts downward pressure on wage levels in the originally uncompetitive market. As this has occurred on a large scale throughout the EU, it has resulted in an adjustment of the entire European labour market. Whereas once a firm in an uncompetitive domestic market could shift the burden of higher wages onto the customer through higher prices, the introduction of new lower-priced alternatives eliminates this possibility.

Further intensifying this adjustment are the effects of the monetary union. Prior to its introduction, complications such as a lack of price transparency and the risk of exchange rate fluctuations limited intra-European trade. With the removal of such obstacles, the possibility of increased trade was realised. The result was a reduction in the ability of firms to pass on increases in wage costs to consumers, as well as an increased possibility for growth offered by the opening up of the entire European market.

The cumulative effect from increased economic integration, therefore, would be an expected increase in overall employment levels. This is not to say that everyone benefits equally. Certainly some people will gain more, in some cases at the expense of others, and relocations of multinational corporations from higher-cost economies to lower-cost ones within Europe have highlighted this issue but the overall employment gain from economic integration would be expected to outweigh the employment loss.

Another somewhat more controversial topic is that of migration. Once again, public opinion on this matter focuses largely on negative and sometimes unfounded claims about the adverse impact of migration on the host country. Indeed, immigrants are often held "responsible for high unemployment, abuse of social welfare programmes, street crime and deterioration of neighbourhoods" (Baldwin & Wyplosz, 2009: 252). Whilst a comprehensive study of migration is beyond the scope of this article, some key issues are worth examining. The critical point here, similar to that of economic integration, is that there are asymmetrical outcomes from migration. Undoubtedly, some people gain quite a lot from this phenomenon, such as the opportunity to find more highly-remunerated employment abroad, or the ability to establish a firm in a lower-cost environment, whereas others may find themselves in competition with immigrants who are willing to supply labour at a lower cost. In summation, however, migration can be viewed as beneficial in the sense that it improves the efficiency of the labour market. As labour demand is related to the marginal productivity of labour, migration from lower-wage economies to higher ones is equivalent to the reallocation of labour to where it is valued most highly. In the sense of the European labour market as a whole, this

improved efficiency can be assumed to be beneficial, even though it may lead to resentment amongst indigenous workers faced with unemployment or a reduction in wages due to the increased supply of labour.

Perhaps the critical question to be addressed here is in relation to the overall effect of migration on unemployment in the EU. Unfortunately, empirical evidence on this issue is rather ambiguous. The clearest outcome that can be reached is that "the empirical evidence we have does not support the notion that immigration has large, negative effects on European labour markets" (Baldwin & Wyplosz, 2009: 255). This seems to indicate that the widespread dismay, throughout Europe in relation to immigration, is at least somewhat overstated. The consistent upward trend in the employment rate across the 27 EU members seems to reflect the success of economic and labour market integration[4].

Conclusion

This article has attempted to outline some issues which hinder the efficient functioning of the European labour market, such as collective wage negotiations, as well as those which have seemingly improved its functioning. It has also examined the potentially damaging effects of long-term unemployment and identified why policies to limit its occurrence across Europe need to be maintained and, if possible, extended further.

The transformation of the European labour market in recent decades and the advancement of policies to foster economic and labour market integration, which are fundamental to the entire European project, have undoubtedly led to an improvement in the lives of millions of European citizens. Although this is the case, the sheer complexity of the labour market and the psychological and economic consequences of issues such as unemployment and migration, ensure that it will remain a controversial topic.

[4]Employment has risen by over four per cent in the ten years up 2008 (Eurostat, 2009).

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Key developments in the evolution of the European Union to the present day

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As the European Union contemplates further expansion, it is useful to take a step beck and look at how the EU has progressed from its humble beginnings as a coal and steel community, to the fully-fledged economic and political union that we see today. Graham Lalor traces its origins from post-World War II to the present day, and looks at the challenges it will have to face in the years to come.

Introduction

In the 65 years that have passed since the end of the Second World War, coordinated economic policy on certain matters and political agreement across European countries has resulted in the 27 member European Union that exists today. Where an economically devastated, politically weak and financially ruined continent once stood in 1945, the EU has now taken its place as the world's largest economy. Such a phenomenal turnaround in a relatively short space of time can be attributed to certain events of the past 65 years.

The initial steps towards integration and supranationality, experienced through the Organisation for European Economic Co-Operation (OEEC) and the Treaties of Paris and Rome; the fall of Communism and the quest for reform in the 1990s and 2000s; as well as the establishment of monetary union across numerous member states of the Union, have all helped contribute to the EU that exists today. The EU is at the forefront of global, political and economic affairs, alongside the modern day superpowers of the USA and China. Looking at each key development in its construction, one can better understand the path the Union has taken to the present day and the direction the EU may take in the future.

Foundation of the Union

By the end of September 1945, the continent of Europe resembled a shadow of its former self. Widespread death and destruction across Europe meant that the political, humanitarian and economic situation in Europe was dire. The realisation that the misguided approach taken after World War I had caused unrest in Germany meant there was now a new mindset present, determined to find a new 'solution' to the continuing violence in Europe. In order for peace to be assured and economic stability across Europe to prevail, both France and West Germany would have to work together in order to boost their respective economic growth.

The first 'push' towards economic cooperation came in the form of US financial aid, coordinated by then American Secretary of State George Marshall. The guidelines associated with this financial assistance forced European nations to work together for the first time since the end of conflict. The discussion on how United States' 'Marshall Aid' was to be spent led to the formation of the OEEC in 1948, which eliminated several trade barriers and set up institutions to co-ordinate the economy on a continental level, advancing Europe's economic integration. The moderate success of the OEEC reinforced the belief that liberalising trade and working together was the best way for Europe to prosper once again.

In 1950 the first seeds of deeper economic integration between European nations were sewn by France's Foreign Minister of the time, Robert Schumann. Inspired by a blueprint devised by Jean Monnet, Schumann proposed a coal and steel community, which would provide a joint authority for the management of West German and French coal and steel production. He declared that the proposed European Coal and Steel Community (ECSC) would be "the first concrete foundation for a European federation which is so indispensable for the preservation of peace" (Schumann, 1950)[1].

The signing of the Treaty of Paris on 18 April 1951 by France, West Germany, Italy and the Benelux nations was the beginning of sectoral integration involving European nations and brought into existence supranational bodies that had law-making powers independent of member states' governments (most notably the High Authority). The formation of the ECSC was not just beneficial on an economic level. Politically, it promoted Franco-German reconciliation just six years after the fall of Hitler's Reich.

The initial success of the ECSC fuelled the desire of the 'Six' to enhance economic integration amongst one another. With the Soviet Union rapidly increasing in strength, both economically and militarily, European leaders realised they needed to strengthen relations beyond coal and steel, in order to reduce the likelihood of Soviet invasion. Following unsuccessful attempts at both a European

[1] http://europa.eu/abc/symbols/9-may/decl_en.htm

Defence Community and a European Political Community, a conference was held under the chairmanship of Belgian Foreign Minister, Paul-Henri Spaak, to examine the possibility of a deeper customs union and strengthened economic co-operation between the 'Six'. Indeed, Britain also associated itself with the early works of the Spaak Committee, but it withdrew from talks in October 1955, stating that a customs union would have meant an end to the system of Commonwealth preferences that were in place (Camps, 1965; Laffan, 2000). Many high-profile figures within the ECSC felt the UK were trying to disrupt proceedings at the conference - this being the first sign of a 'frosty' relationship that Britain would experience with the European Communities that arguably continues right up to the present day[2].

Five years on from the formation of the ECSC, the drafting and subsequent signing of the Treaties of Rome in March 1957 established the European Economic Community (EEC). Before 1957, the economies of the 'Six' had been separated by tariffs, quotas and other economic barriers. John Pinder (1998: 11) stated that "the tariff had been the great historic instrument of protection" and the removal of such barriers "was a truly radical project". Indeed, the overwhelming ambition and commitment undertaken by the 'Six' can be observed in Article 2 of the Treaty, which states:

> "It shall be the aim of the Community, by establishing a Common Market and progressively approximating the economic policies of Member States, to promote throughout the Community a harmonious development of economic activities, a continuous and balanced expansion, an increased stability, an accelerated raising of the standard of living and closer relations between its Member States."
>
> - Article II, Treaty establishing the European Economic Community (EEC), 25 March 1957.

It is this groundbreaking declaration that formed the backbone of the EEC's economic mandate – a declaration that remains at the kernel of EU policy to the present day.

Fall of the USSR, Maastricht and subsequent reforms

[2] For a look at EU/UK relations since the Union's inception from a British perspective see: http://news.bbc.co.uk/hi/english/static/in_depth/uk/2001/uk_and_europe/default.stm

The early 1990s was a period of huge change for the continent of Europe. Within the confines of the European Community, the decade began with the introduction of the Treaty of Maastricht in 1992. The Maastricht Treaty represented the biggest commitment to increased economic cooperation since the Treaty of Rome in 1957. The Treaty replaced the EEC with the European Union (EU), and also introduced the notion of 'Three pillars' with regard to decision making for the first time. It strengthened co-operation on several fronts, in both economic and non-economic areas. The powers of the European Parliament were increased, the free movement of capital, initially stated in the Treaty of Rome, was secured and cooperation was strengthened in areas such as security and defence, criminal justice and immigration. Maastricht also created EU citizenship which, although largely symbolic in nature, contributed to a greater sense of unity amongst the people of the 12 member states. Also included in the treaty was, for the first time, a legal framework for monetary union between member states of the EU that would conclude on 1 January 2002 with the introduction of the euro as legal tender within participating nations.

However, the ratification process of Maastricht did not pass as smoothly as predicted. In June 1992, the Danish people rejected the Treaty with a 50.7 per cent majority. In addition to this, a French referendum on the Treaty in September 1992 was passed with a rather worrying '*petit oui*' of 51.1 per cent. In an attempt to restore confidence in the Treaty, the European Council performed some 'constitutional acrobatics' and offered the Danish exemptions in areas such as the euro, common defence and justice and home affairs. This appeared to undermine the commitment of the other fully co-operating EC states and seemed to give the impression to outsiders that the ambitions of the Treaty were being watered down (Nölling, 1993). Following a rather laborious ratification by the German government, the Maastricht Treaty came into effect in November 1993. Once ratified, the Treaty represented the biggest restructuring the EU had undergone since 1957. However, as John Gillingham (2003: 284) stated "the results left no one satisfied", it was this problem that left Maastricht at the heart of discussion in Europe over the next decade.

Coupled with the landmark measures introduced under Maastricht, the collapse of Communist rule in Central and Eastern Europe in the early 1990s undoubtedly altered the context in which the European Community would develop over the next decade and beyond. The Soviet state's collapse shifted the global political and economic landscape, and the EU then sought to take on a bigger role. In an attempt to leave the days of communism behind, the newly-freed countries of Central and Eastern Europe declared their desire to join the EU. Although initially hesitant, the EU, at a Council meeting in Copenhagen in June 1993, acknowledged the "courageous efforts undertaken by the associated countries to modernise their economies" which had "been weakened by 40 years of central planning" (European

Council, 1993: 13). By setting a timeframe for the accession of these newly independent states that would be completed on 1 May 2004, the EU gave the Central and Eastern European countries (and, indeed, themselves) time to adjust and reform.

The next decade within the EU would require reform of the relevant institutions, which would enable the Union to function efficiently in its' newly enlarged role (see *Figure 1*). The first attempt at this reform produced the Amsterdam Treaty (1997). This Treaty, along with other numerous issues, attempted to carry out the necessary enlargement-related reforms that had been suggested by the Westendorp Report of December 1995. Amsterdam was drafted, in order, to allow the successful functioning of a larger, more diverse EU. While unquestionably necessary, the rather paradoxical notion that Amsterdam wanted to unify Europe through 'diversification'[3] gave both the public and the politicians involved an idea of the difficulties waiting on the horizon. Although some of the failings of the Maastricht Treaty were rectified, the Treaty failed to implement most of the necessary enlargement-related reforms, namely Council of Ministers voting rules and the power and composition of both the Commission and the Parliament.

Year (1/1/….)	**Population**	**No. of EU Member States**
1992	347,408,000	12
1995	372,929,000	15
2004	460,334,000	25
2007	495,975,000	27

Figure 1: From Maastricht to Lisbon; growth in size of European Union and its population, 1992 – 2007
Source: Eurostat (2008)

The second attempt at these reforms came with the (somewhat difficult) ratification of the Nice Treaty in 2001. The reforms introduced were insufficient for the task at hand, and almost immediately after the Treaty's ratification, leaders agreed that more needed to be done. Despite the addition of ten more European states on 1 May 2004, the reforms necessary for this enlargement were still not completed. Out of the failure that was the attempt to introduce an EU Constitutional Treaty, came the framework for the 2007 EU Reform Treaty, commonly known as the Lisbon Treaty. The Lisbon Treaty sought to end the difficulties that had plagued EU negotiations since the early 1990s. The Treaty, which was finally ratified in December 2009, addresses the areas in which unanimity and qualified majority voting will exist in

[3] http://www.eumap.org/journal/features/2004/bigday/diversity/

much clearer terms, than laid out previously. It provides the EU with a more efficient way of conducting the day-to-day affairs of what is now a 27-member pan-European organisation and, amongst other things, brings to an end a period in the evolution of the EU that was dogged by reform negotiations and difficulties associated with enlargement.

Monetary union

Unquestionably the biggest development in the evolution of the Union over the past 65 years has been the creation of a single currency within the geographical boundaries of the EU. In response to the numerous financial shocks of the 1970s and the instability of the US dollar over this period, the European Monetary System (EMS) was formed in 1979 in an attempt to stabilise exchange rates and insulate the EEC from any further shocks. The notion of a single currency was seen as a logical complement to the EEC's vision for the Single Market.

In 1989, the idea of monetary union returned to the forefront of European Commission affairs with the publication of a committee report on the criteria needed for the adoption of a single currency. Chaired by Jacques Delors, the committee defined the crucial components necessary for monetary union to be successful (see *Figure 2*). With this criterion now established, work began on laying the foundations for the eventual integration of participating nations' currencies into one single currency – the euro.

	The 'Delorean' Criteria for Monetary Union
1	Total and irreversible convertibility of currencies
2	The complete liberalisation of capital transactions and full integration of banking and other financial markets
3	The elimination of margins of fluctuation and the irrevocable locking of exchange rate parities.

Figure 2: 'Delorean' Criteria for Monetary Union [4]

[4] *Source:* Committee for the study of economic monetary union (1989: 10-12). Section 2 -The Principal Features of Monetary Union.

Heavily influenced by the work of the Delors Committee, the Maastricht Treaty (1992) set out a clear timeframe for the adoption of the euro. It committed participating nations to fixing exchange and conversion rates, combined with the eventual transfer of monetary governance to a supranational European Central Bank (ECB). Measures such as these resulted in both Denmark and the UK opting out of the process of monetary union. It must be noted, that such a decision was a significant moment in the evolution of the European Union. For the first time, the notion of a 'two-speed' Europe was legally accepted – ten of the 12 members at the time pressed ahead with deeper economic integration, while Britain and Denmark remained outside.

The implementation of the Maastricht criteria led to the introduction of the euro on 1 January 1999, a landmark moment for the process of European integration. The existence of a large economic base, political stability within its region and an expected low rate of inflation, meant that the euro was being billed as a potential contender to the US dollar. Nobel Laureate Robert Mundell stated that the euro "will challenge the status of the dollar and alter the power configuration of the system" (Mundell, 2000: 57). The introduction of notes and coins into circulation on 1 January 2002 completed a process begun 30 years previous. The euro has enabled increased price transparency between markets within the EU; reduced transaction costs associated with intra-EU trade and provided participating nations' economies with increased security against market shocks.

The recent accession of 12 new members into the EU has seen an expansion in the use of the euro, with Slovenia joining in 2007, followed by Cyprus and Malta in 2008 and most recently, Slovakia in 2009. Currently, the euro is used as legal tender by 329 million EU citizens (Eurostat, 2010); a figure which highlights the impact it has had on the landscape of Europe, both economically and socially. As several other members strive to achieve the economic criteria necessary to become part of the Eurozone, the area in which the euro is accepted as the unit of currency is expected to increase and with it, the degree of integration across the continent.

What does the future hold?

Since the signing of the Treaty of Paris (1951) by the 'Six', the EU has evolved into a tremendously powerful body encompassing 27 countries and approximately 500 million citizens. Upon the inception of the EEC in 1958, few could have foreseen such a remarkable development, in not only economic but also political, social and financial areas. With the ratification of the Lisbon Reform Treaty, the present day EU now has in place a President (Herman Van Rompuy) and a High Representative for Foreign Affairs (Baroness Catherine Ashton), further enhancing its appearance on the global stage as a unified entity. Although these positions are still in their

infancy, both have already come under heavy criticism from economists and politicians alike (*The Economist*, 2010). It remains to be seen if their creation will have any lasting impact on the Union's affairs.

The EU that exists today, however, does have problems to address in the near future. With the growing presence of a 'two-speed' Union – the Eurozone and the EU-27 – the relevant bodies must ensure that a necessary level of cooperation is maintained between all member states. The inevitable 'greying' of the Union's population from 2015 onwards will also lead to a considerable shift in the demographic outlook of the region (Eurostat, 2008).

The Eurozone itself also faces tough decisions, with future economic growth looking decidedly uncertain, its dominance facing stiff opposition from the emerging Eastern European economies, and perhaps most strikingly of all, the emergence of a debt-ridden Greece as a weak link in the Eurozone framework. In order for the euro to continue to thrive, these difficult issues will need to be addressed in a way that is least harmful to the single currency's future success.

The possibility that the evolution of the Union has reached an 'upper bound' is, due to the huge diversification of cultures and ideologies within the 27 states, also very real. It will become increasingly difficult for the EU-27 to introduce further reforms on numerous issues, and with uncertainty present amongst certain member states over any future enlargement (particularly with regards to the divisive issue of Turkish membership), the European Union that has evolved over the course of the past 65 years may not experience such a rapid evolution in the years to come.

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The case for the privatisation of Dublin Bus

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For anyone who has ever wasted hours waiting at a bus stop, or wondered why buses on certain routes seem to travel in threes, Conor O'Toole's paper on the need for dramatic reform of Dublin Bus is a treat. The central premise of this article is that a more efficient service of a higher quality could be achieved for Dublin's many commuters if the market were to take over the provision of the bus services for the capital. Although there has been resistance to such a step from many quarters, O'Toole argues that privatisation need not signal higher fares, more limited services and a lack of concern for the environment.

Introduction

Dublin Bus has been an established government-run body of inefficient transport since its inception in 1987. This article will attempt to outline those aspects of Dublin Bus's operating core that need severe and urgent reform, paying particular attention to four areas in particular need of consideration: the general state of the bus system in Dublin; efficiency regarding timetabling issues and integration with other public transport systems; cost and revenue issues and finally, a brief look at the structure of Dublin Bus' fleet. The option of part-privatisation for the joint benefit of both the customer base and the service supplier will also be examined.

The bus network in Ireland consists of 8,500 vehicles, of which 1,200 accrue to Dublin Bus and 700 to Bus Éireann, which leaves 78 per cent of the national fleet, 6,600 buses, in the control of private operators (Barrett, 2009). There has been a significant amount of national level deregulation in the industry with an overall positive effect; "the evidence is that the new operators reduce fares, increase frequencies, improve services, operate higher standards of vehicles, add capacity, seek new routes, compete rather than collude and do not receive State subsidies"(Barrett, 2009). However, this privatisation has not extended to the localised Dublin Bus service largely due to the company's fear that changes will be met with public resistance and they will be unable to fulfil 'social obligations'. These obligations include offering bus services along remote and often loss-making

routes. Unconditional privatisation would, perhaps, eliminate these routes all together, but this argument fails to recognise the obligation to provide a reliable, cost-effective and comprehensive service to those residents of the Dublin area who currently avail of the service.

It is already evident that the Irish government gives very little monetary assistance to Dublin Bus in the form of Public Service Obligations (PSO) in comparison with other EU countries. In fact, "[g]overnment PSO payments including capital payments... are relatively low. In 2007, Dublin Bus received €80.1[million] operational subvention to cover its PSO" (Deloitte Report, 2009: 9). This same 2009 report by the consultancy firm goes on to identify that Dublin Bus receives only 29 per cent of revenue in the form of PSO payments from the government, whilst counterparts in London receive 38 per cent, Brussels, 68 per cent, Lyon 79 per cent and Amsterdam, 62 per cent. With this limited budget, it is clear to see how the service falls short of its perceived responsibilities.

A ramshackle service and potential solutions

In terms of efficiency, Dublin Bus is underperforming and the frequency of 'bus bunching' and 'out-of-service' cases is overwhelming. The introduction of bus lanes was a meagre attempt to curb these problems but given the rising number of cars on our roads, the social costs they impose in terms of congestion and on the environment far outweigh the benefits (Walters, 1961). An overhaul of the entire bus network is required with specific attention being paid to improving timetables and the amalgamation of information with that of other public transport services.

The Public Transport Regulation Act (2009) reserves the right for Dublin Bus to publish its timetables in any format, including electronic. However, the current system publishes exactly the same timetable at every stop on that route, giving merely the departure time of the relevant service from the terminus. At the minimum, Dublin Bus could invest in an Automatic Vehicle Location (AVL) System, or implement intermediate timing points along routes, the use of which would result in any "deviations from the core service at certain times of the day [being] kept to a minimum" (Deloitte Report, 2009: 11). Other simple steps which could be undertaken include onboard stop announcements and the physical publication of location names on every bus stop; two steps which would greatly enhance users' service experience, particularly that of tourists. This would also pave the way for the introduction of a LUAS type system of "Real Time Passenger Information" (RTPI) (Deloitte Report, 2009: 11), which can provide stop specific electronic updates of services due. These steps would greatly enhance customer satisfaction by providing a reliable and co-ordinated service at very little long-run

cost; estimated at a mere €11 million (Dublin Bus Annual Report and Financial Statements, 2008) for fleet wide AVL installation.

The Dublin Bus network has remained largely unchanged since its foundation in 1987, aside from a few additional routes and minor modifications. The fact is Dublin is now a different city and its people have different needs. Dublin Bus, however, has not adjusted its network sufficiently in response to the fall in demand along routes already served by other more efficient, and often cheaper, alternatives. A recent report by Deloitte (2009: 46) calls for a "thorough review of the whole network". The report describes the current system as "overly complex with a significant amount of service duplication" (Deloitte Report, 2009: 35). This overhaul should eliminate services no longer needed and introduce routes, which connect the bus system to other public transport systems. Shuttle buses, for example, running from points in the greater Dublin area to either of the rail services could greatly reduce running costs (e.g. fuel), congestion and overall travel times.

Privatisation as a potential solution to Dublin Bus' inefficiencies

Cost minimisation, and by extension profit maximisation, are of vital importance to any business and the bus industry is no exception. It is a well-known economic fact that monopolies are wasteful, both in terms of fiscal and human resources (Varian, 1992). Dublin Bus holds a virtual monopoly over intra-city bus transport and therefore, has no incentive to improve its service, as there is intrinsically very low price elasticity of demand in its transit services. The only competition faced by Dublin Bus is of that offered by the fixed line DART and LUAS services, the introduction of the latter in 2005 caused a fall in demand of 3 per cent (Deloitte Report, 2009). Costs could be greatly minimised in the long run by the introduction of the efficiency enhancing measures discussed above, but there are further arguments that privatisation of the industry could greatly reduce costs both for the companies and the consumer through the introduction of greater competition.

In order to assess the potential benefits of privatisation, an analysis of London Bus will be considered. London operates a franchise type system with the city's bus operators, called competitive tendering. Introduced during the Thatcher-era, this system has brought about substantial changes to the transit system within the city. Since deregulation, the London Bus industry has experienced "very large unit cost reductions – of over 40 per cent (in terms of the real operating cost per bus-kilometre)" (White, 2000: 29). London Bus, a subsidiary of London Transport, is responsible for planning routes, maintaining and creating bus stops, stations and support services, whilst also acting as a regulator and monitor of service quality. However, the actual services are undertaken by private bus companies which are prevented from colluding by strict competition laws. Since this deregulation, "cost

per bus-km on routes subject to competitive tendering [has fallen] by about 18 per cent in real terms, while service quality [has] improved through a greatly reduced proportion of lost mileage" (White, 2000: 31-2), "the number of bus kilometres run by operators, i.e. services and/or their frequency, has [also] increased by around a quarter" (Parr, 2000: 63). This has led to "substantial public expenditure savings [being] obtained, while users [have] also benefited" (White 2000: 31-2).

During the period 2004-07, revenue at Dublin Bus increased 12.8 per cent, but operating costs, in contrast to London, also soared by 19.5 per cent. This net fall in profits should be an area of great concern to company management, but as is the case with any monopoly, there is little drive to address these problems and the industry sees no need to improve. The London case was not an easy overhaul as "real fare levels... increased by a quarter over the period" (Parr, 2000: 63) as companies had to find a way to deal with their costs without the individualised aid of a government subsidy. However, the maximum price paid for a single bus fare in London today is £1.20[1], which is still significantly cheaper than Dublin, where inner-city fares can be as high as €2.20[2]. It is clear that there is scope for improvement in terms of both efficiency and price through privatisation. Although, a significant upheaval of operations will be required; as White (2000: 41) points out, "it will not be an easy ride, as jobs will have to be cut and the real earnings of those remaining will undoubtedly fall as they did post-deregulation in the UK." This will, undoubtedly, be subject to public criticism and strikes may be inevitable but these steps could potentially benefit the expanding population of Dublin over the coming years.

To comprehensively analyse the possibility of privatisation, it is essential to discuss the factors which directly affect prices and thus the revenue stream. Small (1992: 128) recognises that the "setting [of] prices for transit service involves three issues: the average fare level, the fare structure, and the incentive effects of transit subsidy programs". As previously mentioned, Dublin's average fare is higher than that of other comparable countries and this could be partly due to the low level of PSO that Dublin Bus receives. The possible rise in fares post-deregulation could be largely negated by a rise in service usage following increased customer satisfaction brought about by projected service expansion and efficiency improvements. The fare structure is an area upon which the bus companies should concentrate, with a particular focus on price discrimination in terms of time-of-day pricing. In most countries "time-of-day and trip distance are normally considered as potential bases for price differentials [but] they are often ignored for simplicity" (Small, 1992: 129).

[1] http://www.tfl.gov.uk/tickets/faresandtickets/singlefares/2901.aspx. Price quoted with oyster card. £2 with cash.

[2] http://www.dublinbus.ie/en/Fares--Tickets/Fare-Information/Fares/

In fact, Cervero (1986: 348) points out that "time-of-day pricing of adult transit markets is relatively scarce outside the US[A]". The price inelasticity of public transit, especially during peak-periods, means there is great scope for charging a peak-premium without incurring a fall in demand. Cervero (1986) also points out that it can cause an increase in off-peak demand if presented to the public in the correct format (such as an off-peak discount). Furthermore, "the overarching economic rationale for differentiating transit fares by hours of the weekday is that both unit and marginal costs, whether measured on a 'per passenger' or 'per kilometre' basis, are higher during peak than off-peak periods" (Cervero, 1986: 351). In essence, this provides an excuse beyond mere profit maximisation to discriminate in such a way; as it is more expensive to provide a transit service during peak hours given unavoidable increases in time spent collecting money, fuel costs, traffic delays, etc. The generally-accepted view is that this type of differential pricing can greatly benefit bus operators, especially in cities (Barrett, 1982).

Preserving the social obligations of Dublin Bus

Dublin Bus has many problems; amongst them is the limited scope and foresight for future growth. One of the company's biggest difficulties is running services with low numbers of passengers on board. One of the company's social obligations is to provide a comprehensive service to the Dublin area, which results in the waste of resources on some routes with very little demand. The logical answer is to use smaller buses on these routes, and to possibly incorporate commuter or mini-buses into the fleet, which use less fuel and take up less space on both the roads and in garages. Such commuters can even be used on proposed short-haul services to connect with other public transport systems at very little cost. At the moment, Dublin Bus' fleet largely consists of diesel run double-deckers (991) and a grand total of only 52 midi- and single-deck buses[3], which are still too big for many of the more barren routes.

An area of vital importance to the future of the bus industry will be the integration of green buses. With the ultimate goal of zero-emission public transport, Dublin Bus should take steps towards achieving this goal by investing in a hybrid fleet. Over 70 per cent of Dublin Bus' operational expenses in 2007 can be attributed to wages and fuel costs (Deloitte Report, 2009), which is significant by any business' standards. Currently Dublin Bus operates only one hybrid bus in its entire fleet[4] but these buses are used extensively in the USA (notably in New York and San Francisco) and have proven to be effective on a number of levels. In terms

[3] http://www.dublinbus.ie/en/About-Us/Dublin-Bus-Fleet/
[4] http://www.dublinbus.ie/en/About-Us/Dublin-Bus-Fleet/

of fuel efficiency, tests have shown up to a 48 per cent fuel economy over the average diesel equivalent (FTA Report, 2005).

The foremost problem with investment in green transit services is that these services are initially capital intensive. In the extreme case of battery electric buses, the initial outlay for a single 22-foot bus can be upwards of $580,000, whilst similarly sized pure fuel cell buses have been priced between $1-3 million due to the lack of production-induced economies of scale and market demand (FTA Report, 2005). This does not take into account the maintenance costs that these vehicles require for essential items such as replacement batteries. However, with the ever-growing use of hybrid buses, they are more viable in terms of price with "a 40-foot hybrid bus today typically cost[ing] between $450,000 and $530,000" (FTA Report, 2005: 16-7) which represents a 60-80 per cent premium over a comparable diesel bus. If smaller buses were also incorporated into the fleet, this would again be cheaper on a unit level. The latent long-run cost savings are impossible to ignore and the potential incentives that these vehicles offer people to switch to public transport should incite Dublin Bus to consider proceeding down this route.

Conclusion

Although privatisation of the Dublin Bus network may seem like a major step, it is a necessary one. The logical first step is to follow in London's wake or go one step further, as Ireland has comprehensively shown in the airline industry, and become the global torch-bearers when it comes to full deregulation. The evidence suggests the existing system is unreliable, inefficient, wasteful and costly (Deloitte Report, 2009). A number of areas in need of improvement have been discussed, which include a re-think of critical areas including the route structure, timetabling, profit enhancement and fleet composition all of which will require fiscal investment of differing proportions.

Dublin Bus has already embarked upon a gradual development project, but whether they possess the necessary capital or human resources to undertake this mammoth task alone is uncertain. As a state-owned enterprise, the industry will always be subject to the whims of public uncertainty and politicians' fleeting desires. In particular, the concern of the government is the public outcry that would follow a loss of jobs. However, if fairly regulated, the benefits could potentially far outweigh the costs, and many of these benefits could come to fruition in the near future.

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Fiscal and monetary policy: a look at cyclicality and its impact on Ireland

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When Ireland took the decision to enter the Eurozone, it was thought that the advantages of membership outweighed the loss of sovereignty it necessitated. Although the benefits have been manifest, since the recent financial crisis the loss of control over monetary policy has become a topical issue once more. Amelia O'Connell examines both monetary and fiscal policy in Ireland and makes the case for expansionary fiscal contraction.

Introduction

After the Irish economy contracted for a second consecutive quarter, Ireland became the first Eurozone country to officially enter recession (CSO, 2008). The deterioration in living standards to 2003 levels (CSO, 2010), the demise of social partnership and the uncertainty surrounding the National Asset Management Agency (NAMA) has created a difficult economic landscape. Without tough corrective action, future generations will be left to pay for economic mismanagement for decades to come.

The loss of monetary control as a result of joining the European Monetary Union (EMU) has narrowed Ireland's corrective economic responses and has placed the responsibility of recovery solely on fiscal rectitude. The core objective of any effective action has to be a return to competitiveness (Bergin et al., 2009). To appreciate the nature of this effective action, the policies available to the Irish government will be examined in detail, as well as the application of such policies in the prevailing economic climate.

Fiscal and monetary policy in Ireland

Monetary and fiscal instruments are alternative tools at the disposal of governments, employed to achieve specific economic goals such as full employment, high levels

of investment or as a means to stabilise an economy during economic shocks (Buti, 2003). The focus of this section will be to analyse the way in which both monetary and fiscal policy play a central role in ensuring stability and growth, while the inappropriate application of such policies can adversely affect performance.

Monetary policy: a brief overview

A government that has control over its own currency has the ability to stabilise its economy by altering its interest rates. According to the textbook Keynesian view, in the short run a negative demand shock, such as a drop in investment demand, will cause production to fall. In turn, the stock of savings will also decline. The resulting interest rate will be above the natural level and thus, the goods market will be unable to clear (Sorensen & Whitta-Jacobsen, 2005). Effectively, new Keynesians believe the market will not automatically adjust in the short run. Instead, by increasing the money supply through open market operations, the central bank can artificially lower interest rates so that the economy can converge towards its natural rate thus clearing the goods market.

Monetary policy can work through many channels. For example, a fall in the interest rate reduces the cost of capital and boosts demand for investment. Also by affecting the risk-free rate, the central bank can influence a number of asset prices. For instance, the price of a stock is negatively related to its discount rate (a component of which, is the risk-free rate). Therefore, a fall in the interest rate would increase the value of the stock, making stock holders effectively wealthier. It stands to reason that monetary policy should be countercyclical.

Ireland

By joining the EMU, Ireland relinquished its influence on monetary policy at a national level. A closer look at the cyclicality of Irish monetary policy shows that there have been, to some extent, asymmetries. Given the size of the economy, its impact on the decision-making process is somewhat limited when negotiating alongside larger economies such as Germany and France. While most of Europe was in recession during the early 2000s, Ireland meanwhile, experienced unprecedented growth due to low interest rates, which offset the negative demand shock.

It is generally accepted that such low interest rates contributed to the boom in the construction industry between 2003 and 2006 (Lucey, 2009). Demand for property surged and house prices increased, as the cost of obtaining a mortgage fell. Honohan and Leddin (2006) found that the Irish economy suffered large exchange rate and interest rate shocks since joining the EMU. However, it is imperative to point out that these shocks, from what is dictated by the Taylor rule (Taylor, 1993), have not been significantly greater than under previous regimes. Instead, the potentially destabilising effects of the large and sustained fall in nominal interest

rates, is reflected in the persistently large contribution to aggregate output and Ireland's heavy dependence upon it. Furthermore, by causing the price of non-tradables to increase, upward pressure was placed on nominal wages. Coupled with the fixed and exogenous price of tradables, the real wage rose. Ireland subsequently suffered a loss in competitiveness of 32 per cent (National Competitiveness Concil, 2009).

Another matter for concern when adopting a single currency is the loss of the self-correcting process when faced with the erosion of wage competitiveness. There are three major elements which affect wage competitiveness: the domestic wage rate, the foreign wage rate and the exchange rate. If a country appears to be losing wage competitiveness, its' government can increase inflation, thereby reducing the real wage through exchange rate devaluation. However, under the new EMU regime, the exchange rate is now exogenous and the maintenance of wage competitiveness can only be attained through changes in the nominal rate. Honohan and Leddin (2006) found that since joining the EMU no such nominal rate mechanism exists in Ireland.

If monetary policy tends to be procyclical in the coming decade, an increase in the interest rate could have potentially destabilising effects on the Irish economy. Not only will asset prices fall as a result of negative balance sheet effects, but credit rationing will also present Irish consumers with further credit constraints.

Fiscal Policy

Fiscal policy is now the only area over which the Irish government has relatively autonomous control. Its cyclical nature is not only crucial to assessing how Ireland has been adversely affected by the current economic crisis, but it also provides the foundation for proposing ways to stabilise the economy and encourage future economic growth.

According to the traditional Keynesian perspective, fiscal policy should be countercyclical. Individuals prefer a smooth level of government spending if their preferences over this expenditure are strictly concave (Sorensen & Whitta-Jacobsen, 2005). During a boom, governments should reduce the ratio of spending to Gross Domestic Product (GDP) in order to accumulate funds needed to run a budget deficit during economic downturns, without threatening fiscal sustainability. Recent literature has demonstrated the positive effects of public capital on the long-run stock of private capital in an economy. For example, Aschauer (1989b) argues that public capital demonstrates a crowding-in effect on private capital by raising the marginal product of labour, which is inversely related to the interest rate. Therefore, in the long run, lower interest rates lead to higher investment, increasing the private capital stock of the country. Interestingly, a study of 48 American states between

1970 and 1990 found that permanent changes in government variables are consistent with permanent changes in economic growth rates (Aschauer, 2000).

Despite the rationale for countercyclical fiscal behaviour, Lane (1998, 2010) provides empirical evidence showing Irish government fiscal policy to be procyclical. In an attempt to explain such behaviour, Lane (1998: 4) suggests that this fiscal policy is the "rational, albeit suboptimal, outcome of a competitive political process". Recent works have put a greater emphasis on the political economy in explaining such a procyclical bias. With many interest groups or political powers, the allocation of government finances tends to be less efficient. In times of strong economic performance, these groups increase the rate of appropriation. If this increase did not occur, the result would be procyclical government spending (Tornell et al, 1999). The setting of Irish fiscal policy is influenced by multiple groups, including strong labour unions, coalition parties and public sector unions.

Furthermore, the Maastricht Treaty (1992) may also threaten the countercyclicality of fiscal policy. The imposition of strict fiscal constraints on countries wishing to enter the EMU requires candidates to reduce deficits to three per cent of GDP and public debt ratios to 60 per cent of GDP. This policy did not present a problem during times of economic growth. However, this fiscal conformity leads to more than just destabilisation in times of recessions. A slow down in growth tends to lower tax revenues, raise deficits and therefore, force cutbacks in spending, increasing the procyclical nature of fiscal policy. Recessions are further aggravated by the lack of public capital needed to compensate for the fall in private capital.

Expansionary fiscal contraction

Given the precarious situation that Ireland now finds itself in, what options are available for the Irish government to stimulate growth and improve the bleak economic outlook? It is not an option to alter fiscal policy in a more countercyclical direction. With limited public revenues, the government would need to borrow heavily from the capital markets in order to boost aggregate demand. However, by increasing the budget deficit, the government would be signalling to markets a willingness to use less-sound finances. This would incur a huge cost, as the risk premium attached to the government's debt would increase substantially. Furthermore, greatly increasing the debt-to-GDP ratio is not permissible under the Stability and Growth Pact, as outlined by the Maastricht Treaty (1992).

Instead, Ireland could try to run a fiscal adjustment that would, in fact, be expansionary. Expansionary fiscal contractions (EFC) were first documented after a series of fiscal consolidations occurred across Europe in the 1980s. In many countries, particularly Ireland in 1987-89 and Denmark in 1983-86, renewed growth

was preceded by sharp fiscal retrenchments. Giavazzi and Pagano (1990) use the above examples to demonstrate the non-Keynesian effects of the fiscal policies.

Channels through which an EFC can occur

There is much debate as to how a fiscal contraction can lead to growth. Although, it is widely agreed that the integrity of the government in question and the length of the contraction should have a positive impact on its success, there is much less consensus on which channel it should most effectively operate through.

Demand Side

Firstly, fiscal policy can exhibit non-Keynesian effects through the consumption channel on the demand side. Assuming that economic agents have rational expectations, an increase in government spending or a decrease in taxes will make consumers wary about the sustainability and viability of fiscal policy. As a result, consumers react by saving more and reducing private consumption in order to insure against an increase in future taxes.

The opposite is true when governments reduce public expenditure. Agents react by reducing their savings. These episodes of expansionary fiscal contractions further reinforce the idea of Ricardian equivalence (Ricardo, 1951). Afonso (2007) demonstrates the effect of raising taxes on the ability of a fiscal contraction to be expansionary. In this model, some proportion of the economy (λ) is credit constrained. The rest of the population ($1 - \lambda$) is not. The author shows that as λ tends to zero, a tax increase can actually have expansionary effects on the consumption level of the non-constrained consumer. By improving the fiscal balance of the country, the risk premium component of the interest rate falls and creates a positive wealth effect.

However, raising taxes also reduces the disposable income of the credit-constrained agents in the economy and therefore, reduces overall consumption levels. As the banking crisis worsens, it is more likely that λ will approach one rather than zero, rendering this analysis somewhat irrelevant in the Irish context. Furthermore, raising marginal tax rates above the optimal rate dictated by the Laffer curve can have a negative impact on growth (Laffer, 2004). The intuition behind this theoretical model is that by taxing the most productive agents in the economy at too high a rate, it acts as a disincentive to work and as a result, creates a decline in growth and tax revenue.

Supply-side

On the other hand, Giudice, Turrini and Veld (2007: 615) argue that non-Keynesian effects of the policy can take place on the supply side: “rather than through

reductions in real interest rates, the link between fiscal policy and investment behaviour is represented by the impact of government spending, in particular of the government wage bill on the labour market". Barry (1999) decomposes government expenditure into two critical elements. There is a general consensus that government consumption, which includes the wage bill as defined by Barro (1991), has adverse effects on economic growth. Barro (1996) discusses the effects of the size of government on growth and in particular, highlights the undesirable effect of non-productive government spending and associated taxation on the economy. Following a study of 48 US states, Aschauer (2000) discovered that government expenditure is actually above the level needed to maximise growth, finding that a given increase in government spending leads to a greater decrease in economic growth.

Assuming rational expectations, the expected present value of the net marginal product of capital, which is negatively related to the real wage, drives investment decisions. By making expenditure cuts in government consumption, less pressure is put on real wages and so, there is an increase in short-run investment (Giudice et al, 2007).

Barry (1999) also demonstrates that by reducing real wage pressures, an economy will become more cost competitive and attract inward investment; note that the real wage is defined by the nominal wage divided by the price level. However, the Irish government can no longer devalue its currency to increase wage competitiveness. Indeed, Akerlof, Dickens and Perry (1996) argue that it is easier to cut real wages through inflationary pressures, than through deflationary aggregate-demand management (Barry, 1999). Ireland can now only rely on the latter, more difficult method of moderating real wages.

To summarise, Alesina and Perotti (1995) found that successful fiscal adjustments[1] across a number of Organisation for Economic Co-operation and Development (OECD) countries resulted from a fall in government expenditure, particularly in public sector wages. While unsuccessful adjustments stemmed from an increase in taxes leading to a deterioration of the economic environment, it was also found that competitiveness improves drastically during and after successful fiscal tightening. A fall in government consumption 'crowds-in' investment and competitiveness, leading to improvements in growth and unemployment. Finally, this paper also suggests that coalition governments are less able to run a successful fiscal contraction. Of 23 strong fiscal adjustments, only two were successful under such governments.

[1] Defined as a relatively permanent consolidation of the budget

Two-part pay scheme

There is significant resistance to downward pressure on nominal wages, making the process of wage moderation particularly difficult. In terms of flexibility, there are asymmetries; wages easily revert upwards in times of expansions, while failing to adjust downward as rapidly in recessions. This extends the negative impact on unemployment beyond the initial negative shock. If the Irish government is successful at moderating nominal wages, it could be advisable to implement a two-part pay scheme, such as that suggested by Lane (2010), in order to enhance the flexibility of wages during economic downturns and eliminate prolonged periods of unemployment.

In short, a proportion of total income is protected against downward pressure on wages so that agents have some level of income insurance for planning purposes. The rest of the income would be state contingent, which would be reduced or eliminated in the case of an adverse shock, such as a fall in GDP beyond a specified level. The composition of total income would depend on negotiations between policymakers and public sector unions. This scheme would ensure that workers would have some form of income insurance, thus dampening the threat posed by unemployment.

Conclusion

This paper has argued that due to the procyclical nature of fiscal policy and to lesser extent, asymmetries in monetary policy, the Irish government should aim to run a fiscal contraction. This would cut government consumption, particularly the wage bill, while leaving tax rates unchanged. Greater government credibility would help to ensure the successful implementation of tight fiscal measures. By putting downward pressure on the real wage, which has been growing at an exceptional rate, the government could ensure cost competitiveness. However, as a result of EMU membership, Ireland can no longer create inflationary pressures through currency depreciation. Therefore, reducing the nominal wage is the only means available for real wage rate adjustment. Furthermore, introducing a two-part pay scheme will reduce the likelihood of the government having to undertake the unfavourable task of reducing nominal wages again. By encouraging competitiveness, the consolidation could eventually become expansionary.

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Should Ireland have joined the euro?

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The Cambridge team skilfully made the case that Ireland has been damaged by its membership of the Eurozone in the first of the Review's bi-annual debates. However, a carefully argued rebuttal comes from Daniel Eve. While recognising the various limitations of the common currency area, in particular with regard to incomplete labour market integration and uncoordinated fiscal policy, Eve argues that Ireland's Celtic Tiger boom was prolonged by its adherence to the euro and that recent events have shown the need for more rapid integration if both Ireland and its European partners are to weather the storm.

Introduction

The current economic crisis has been labelled the worst since the Great Depression[1], providing the first real test for Europe's single currency. Bank nationalisations, sovereign bailouts and British devaluation have left many questioning Ireland's position within the European Monetary Union (EMU) (McWilliams, 2010). This paper aims to look at the EMU as an optimum currency area, why Ireland joined it and what it has delivered. This essay argues that the current economic situation was not precipitated by EMU membership, but rather by poor economic policy at a national level.

A brief exchange rate history

The Irish punt was always a currency searching for stability (Kelly, 2003). The Coinage Act of 1926 tied the newly formed Irish pound, one-for-one, to the pound

[1] http://www.reuters.com/article/pressRelease/idUS193520+27-Feb-2009+BW20090227

sterling: "[t]he credibility of the new currency being ensured by a full backing with Sterling assets in a currency board" (Kelly, 2003: 89). This meant Irish monetary policy was effectively controlled in London. With the vast majority of Irish trade being with the UK, this link made sense, and it endured for the next 50 years.

However, the 1970s proved to be a decade of change. The breakdown of the Bretton-Woods system of exchange rates, oil crises and Britain's exit from the European Monetary System (EMS) 'Snake' (Baldwin, 2005) eventually led to the break of parity with sterling[2]. Ireland opted to join the EMS in 1979; a system of fixed but adjustable exchange rates that saw all currencies trade in a narrow band against each other and, were essentially anchored against the deutschmark. The EMS ultimately delivered the stability Ireland was looking for and long-run inflation decreased, as low German inflation was 'imported'. In 1999 Ireland, together with ten other European countries, opted to join the EMU. This was a landmark decision especially as Ireland's largest trading partner, Britain, decided to remain outside.

Common currency areas: the USA versus Europe

Labour market integration

Common currency theory states that in a currency union, the free movement of labour is vital for adjustment to an asymmetric shock. If output falls in one region, and hence unemployment increases, then labour will migrate to a different region, where the shock has not taken place. For example, in the United States, if a worker in Virginia loses his or her job then he or she can move to New York to look for another. The problem in Europe is that significant barriers to the free movement of labour still exist[3].

Upon the accession of ten new European Union (EU) member states in 2004, Ireland was the only member state within the EMU to allow the total free movement of labour; with other member states imposing quotas or work permit requirements. The removal of these barriers is vital to the fundamental workings of the currency union and its ability to deal with future asymmetric shocks. With inflexible labour markets, it is quite possible for wage inflation to result in significant regional unemployment. Furthermore, it is possible for regional price bubbles to form which can significantly disrupt local economies (Fitzgerald, 2004). There have been examples of both of these phenomena in Ireland, especially demand-side shocks which have resulted in large increases in nominal wages.

Coordinated fiscal policy

[2] See Kelly (2003) for a comprehensive discussion.
[3] http://news.bbc.co.uk/2/hi/europe/3513889.stm

In the USA, not only monetary policy but also fiscal policy is centralised. In Europe, each country is responsible for its own fiscal policy. Once again turning to common currency theory, it is evident that the idea of 'fiscal federalism[4]', whereby fiscal policy will be built on top of a federal political structure with mechanisms that permit inter-state transfers (Feenstra & Taylor, 2008), is superior to the current European system. Fiscal federalism offers another mechanism of adjustment when an asymmetric shock affects a particular region. Fiscal transfers from an unaffected region flow to the affected region and this allows such regions to adopt a more expansive fiscal policy in recessionary times.

A lack of fiscal policy coordination can have negative externalities for regions within the Union. During German unification, procyclical fiscal policy combined with a tightening of monetary policy, adversely affected a number of Germany's EMS counterparts. Studies suggest that the rise in interest rates and the reduction in EU growth caused a reduction in Irish GNP of approximately six per cent and: "the results suggest that the Irish boom of the late 1990s would actually have occurred in the early 1990s"(Fitzgerald, 2004: 8).

Culture

Unlike the USA, Europe is not a natural common currency area. Sharp economic and cultural differences exist within Europe, which make labour migration a problem and can create very divergent growth rates in the different regions (Crowley, 2002). Indeed, Ireland is probably culturally closer to the UK and the USA than to the rest of Europe – a fact that is reflected by its principal trading patterns. Eurosceptics will argue that the lack of a common European language is a major barrier to the EMU project[5]. Given Ireland's peripheral location, and with English as its first language, there is less importance attached to learning a second or even third language. Other variables such as home ownership rates differ markedly across European countries and this varies the demand for more efficient and advanced housing-finance systems (Earley, 2004). With the European Central Bank (ECB) controlling the interest rate, it means that countries such as Ireland, Portugal and Spain, which have higher homeowner occupation rates and less elastic demand for housing, will have to increase regulation in this area to avoid regional property bubbles.

Cultural differences such as the above make the intricate workings of a common currency area much more difficult. Returning to the earlier example, if an Irish worker becomes unemployed, it would be difficult for him or her to relocate to

[4] See Sophie Ward's (2010) article "An analysis of the concept of fiscal federalism in relation to the European Union" for a more in depth discussion on this topic.
[5] http://news.bbc.co.uk/2/hi/special_report/single_currency/66501.stm

another EMU country in search of work if he or she does not possess another European language. In this sense, the USA does not suffer from the same problems as Europe; it has far less linguistic diversity and a federal redistribution system which complements an integrated labour market. Furthermore, policies regarding home ownership and the improvement of social cohesion can be implemented at a federal level.

The euro and Ireland

Risk premiums, interest rates and inflation

Membership of the EMU was widely seen as a credibility gain for Ireland (Posen & Gould, 2006). Failure to join the EMU would have surely resulted in higher interest rates for such a small currency, as the price of information in financial markets would have been much higher for potential investors. As Fitzgerald (2004: 7) states: "[i]n the past financial institutions that wished to invest in the Irish pound would have had to study the prospects for the pound as well as Irish public finances". EMU membership would reduce the risk associated with investment and ultimately, lower the risk premiums the government had to pay. Furthermore, there is evidence that pre-EMU, the cost of monetary independence was higher interest rates (Fitzgerald, 2004). The euro delivered the lower interest rates that it promised and consequently ushered in a period of rising foreign investment in Ireland.

Without accession into the EMU, the boom that Ireland enjoyed would surely have ended prematurely, before reaching its full potential. Ultimately, lower interest rates were a factor in the prolonged roar of the Celtic Tiger. This is not true for Ireland alone; the EMU led to predicted gains for further participants such as Spain and Italy (Fitzgerald, 2004). The promise of 'importing lower inflation' was also a major potential gain for the Irish economy. Despite already being tied to a low inflation zone with EMS membership, continuing with this arrangement was seen as far superior to leaving it and "there was still a gain in the reduction of exchange rate risk premium with other EMU members" (Honohan, 2000).

A shock absorber

An advantage of a single currency area is its ability to react in a more positive manner to a symmetric shock, affecting all its members. Events such as the bursting of the technology bubble, 9/11 and the recent financial crisis are examples of shocks that can affect all members of the Union and the existence of a centralised policy-making body is a major advantage for an efficient policy response (Lane, 2009). For example, the ECB was able to agree currency swap deals with both the American Federal Reserve and the Bank of England to improve overall liquidity and exchange rate controls immediately following 9/11. The previous system of multiple

currencies could well have delivered inefficient policy outcomes and uncoordinated monetary policy would "have generated an inappropriate shift in the intra-European exchange rate" (Lane, 2009: 5). For a small open economy such as Ireland, exchange rate stability is extremely important and any measures to improve this are surely advantageous (Lane, 2009).

The devaluation mechanism

With EMU membership, countries were prepared to give up the devaluation mechanism. This policy tool essentially allows a country to make its own currency cheaper in terms of other currencies, to boost exports in recessionary times. However, with a single currency this is not an option. As the current Central Bank Governor, Patrick Honohan, points out "the loss of monetary policy is regrettable, but it must be acknowledged that during the ERM period monetary policy has not been effectively geared towards domestic macro conditions" (Honohan, 2000: 9). The loss of the devaluation mechanism has hurt some countries more then others, during the recent crisis. Looking at Irish exchange rate history, it is evident that Ireland never had full control over its' monetary policy; managing the economy on fiscal policy alone is by no means a new situation.

Unfortunately, the global crisis has highlighted the drawbacks of losing this devaluation mechanism. With differing rates of growth among the EU members, a common monetary policy was never going to suit everyone. Interest rates were artificially low for countries such as Ireland and Spain, which experienced high growth rates and property booms. This has resulted in increases in real effective exchange rates, as well as current account surpluses turning into large current account deficits: "shifts [that] testify to unsustainable booms in domestic demand" (*The Economist*, 2009).

The euro as a currency peg

The euro did not offer an ideal peg for the Irish pound due to a relatively low share of transactions being with the Eurozone. This meant that exchange rates with Britain and the USA had a greater effect on the rise in the Consumer Price Index (CPI) (Honohan, 2000). This was evident during the sharp depreciation of the euro against the dollar between 1999 and 2002: which represented a positive, differential shock for Ireland vis-à-vis the rest of the Euro area (Lane & Honohan, 2003). The depreciation of the euro caused an increase in Irish competitiveness and boosted the already strong aggregate demand conditions during that period. Essentially, euro movements against currencies such as the dollar and sterling will have a greater effect on the Irish trade balance than most other EMU countries. For Ireland, the

euro depreciations against these two currencies came at an inopportune time as exports were boosted in an already over-heating economy.

Despite not offering an ideal peg, the risk of asymmetric shocks would have been lower if Britain had joined the EMU[6]. As Lane (2009: 12) argues, had Ireland not joined the EMS and instead floated the punt:

> "…the global liquidity glut during the 2003-2006 period would have encouraged the accumulation of significant foreign debt by Irish banks, in turn the onset of the financial crisis would have triggered a destabilising speculative capital outflow, currency depreciation and more complex type of banking crisis."

Despite the problems currently facing Ireland, the euro looks like it may well have cushioned the Celtic Tiger's fall from grace.

Irish management in the EMU

The Irish economy was growing at a steady pace before the inception of the EMU, in large part, due to government policies that fostered growth and increased inward Foreign Direct Investment (FDI), most notably from the USA. It has been suggested that EMU membership helped Ireland to continue to attract unprecedented levels of FDI, as companies looked for English-speaking countries within the EMU (Murphy, 2000). EMU membership did much to boost this growth with lower interest rates, as mentioned above, fostering a culture of investment and growth. However, it is at this point that Irish fiscal policy must be mentioned, as it can still be used to effectively tackle problems in the event of a loss of monetary policy.

With EMU membership, countercyclical fiscal policy is necessary, as fiscal errors cannot be offset by adjustments to monetary policy or the nominal exchange rate (Lane, 2009). Healthy balance of payments positions during the boom years should have been coupled with fiscal contraction. In the Irish case, the rapid growth of the 1990s saw public sector spending decrease relative to Gross Domestic Product (GDP). Accordingly, part of the expenditure growth since then may be attributed to catch-up dynamics and trend shifts in the size of the Irish public sector

[6] At the time, it was also mentioned that increased labour market integration was necessary to reduce the country's vulnerability to shocks. In addition, it was concluded that having made provisions for the cost of possible shocks, the net benefit of EMU membership in terms of employment was estimated to be of the order of 10,000 jobs (just under one per cent of total employment).

in addition to cyclical factors. Furthermore, the growth in "asset-based tax revenues was primarily used to finance the growth in public spending" (Lane, 2007:17). This was coupled with decreases in income tax rates and a contraction in the tax base (Lane, 2007). Wage increases in the public sector were also irresponsibly high, with growth rates much higher than other sector of the economy. Irish fiscal policy over the boom years took on a procyclical nature, which in a currency area is especially dangerous, when faced with a large symmetric shock.

Conclusion

Should Ireland have joined the Eurozone? The purpose of this article has been to argue that Ireland made the right decision. There is little doubt that EMU membership brought huge advantages, such as the decreased cost of capital, which prolonged the Celtic Tiger. As such, they can be thought of as a 'positive shock' to the Irish economy (Honohan, 2000). It is estimated that excess returns in the long run would have fallen to one per cent if Ireland had stayed outside the EMU. The cost of such a permanent wedge in capital was considered to be quite high (Fitzgerald, 2004).

Ireland has never had its own independent monetary policy and has been used to managing without one. However, the loss of the devaluation mechanism is regrettable. It must not be forgotten that Ireland effectively devalued its currency twice during the EMS period and now that this is no longer an option, fiscal policy takes on increased importance. However, government fiscal management has been poor and not enough was done to curb the rapid rise in wages:

> "…the financial regulator was insufficiently aggressive in curbing excessive credit growth, while national fiscal policy did not accumulate sufficiently large surpluses during the boom to enable a countercyclical response to the current downturn"
>
> (Lane, 2009: 1)

The recent global financial crisis has shown that Europe needs more, not less integration. More coordination of fiscal policy on a national level is also needed: "improved cross-border financial regulation" (Lane, 2009: 33). A more fiscally-integrated and efficient Eurozone will ultimately bring increased benefits to its members.

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