Mathematicising Economics: Time for Revision of Emphasis?

John Clarson

At the beginning of the 20th century, as social sciences were developing an independence from natural sciences, economists were realising the need to test the theories that had been developed to date. In a letter to Walrus in 1908, Moore stated that economics had its scientific status vilified because of the absence of inductive demonstrations of its fundamental tenets. Boulding (cited in Samuelson, 1982) said of economics "any subject which is empirical in the sense that it is interested in the interpretation of actual human experience must have two parts, the construction of logical frameworks - the 'pure' part, and the interpretation of reality by fitting the logical framework to the complex of empirical data - the 'applied' subject." Thus econometrics was begun with this main aim. In this paper I aim to show that econometrics as it is today is not enhancing the scientific status of economics and indeed may be hindering its development.

What have we proved?

The initial step in econometrics is to use mathematics to formulate a model. The first problem I see with econometrics is that mathematics lends itself to the over-simplification of economic models. Emmer (1967) in a discussion on the form of an economic theory points to the problem of time. He states that static models are much more common than dynamic models and even when conceptual time is built into the theory (e.g. short/long run in microeconomics), economic reaction to an event is assumed to take place instantaneously. According to Emmer, this problem rests "almost entirely on the compulsive urge of economists to present theory in a language of rectangular Cartesian co-ordinates" (1967). This problem is compounded by the compulsive urge of economists to assume linear relationships between quantities. While linear algebra and regression analysis are widely used branches of mathematics, I do not see how linearity (or indeed any 'neat' mathematical relation) can be assumed in economics. Maybe the differences between estimated coefficients in different analyses of a linear hypothesis could be explained by the data having come from different parts of the non-linear curve. As the physical sciences experiment with curved space and chaos theory it is surely time for econometrics to re-evaluate its mathematical *ceteris paribus*.

After a model is hypothesised,

data is collected and used to test it. However data is continually being collected and the problem of whether the reasoning and idea for the model came before the data or otherwise is always difficult to assess. Leaving aside this well-known problem of data mining, let's assume that economic theory is developed from the current body of theory, logic and intuition. Economic data evolves and increases as a society does; it is often manipulated politically and may even disimprove. The British recession has been blamed by some on cutbacks in the government statistical office in the mid-1980's.

Does econometrics therefore simply test to see which theory fits current data? Worse, does economics respond to changes in data with changes in its theory? How else can economists justify the swings in opinion from, for example, Keynes to Friedman? A crucial difference here was the slope of the LM curve, one claiming a vertical line and the other a horizontal one. Econometrics and economic data have not produced a definitive answer. Perhaps the slope is closer to forty-five degrees than anything else or maybe it is not linear at all. The point here is that with changing and imperfect data, what can econometrics prove other than vague trends between quantities? When more than two variables are involved, the problem of multicollinearity impinges. As this is impossible to measure accurately I must agree again with Emmer - "I am inclined to think that most economic theories have hardly passed beyond the status of hypotheses." When one considers the dismal results of complex economic models in predicting the future, the question of what we have proved must be posed. Even the basic two dimensional curves, such as the Phillip's curve, vary in slope and shape with data and time. To finish, I think that a by-product of econometrics has been the increasing reliance of economics on mathematics, a branch which came into being as a tool of economics, and has become an important entity in itself, addressing questions on regression analysis and data quality, but which I would argue has not helped economics.

An Alternative

How then can economics progress? I will argue in favour of two disciplines, psychology and history, and within this framework, for the continued use of econometrics as a link between the data generating process and economics, albeit in a different way. In the 1960's in America, the economy was booming and Keynesian economics was being hailed as the answer. The Vietnam war and the 1973 oil crisis soon finished this honeymoon period. A parallel can be drawn with Great Britain in the 1980's: for a few years Lawson could do no wrong and yet the economy nose-dived to a recession shortly after he resigned. Economists will debate at length on what went wrong but few would disagree that both consumer and business confidence dipped sharply. The resulting decrease in spending only served to exacerbate the problems. No doubt economists, being as they are, were talking of a recession as soon as,

if not before the first signs of a slow-down appeared.

The question to consider is whether there would be a difference if the gloomy predictions never started? I believe that if these harbingers of doom did not exist, confidence would not decrease - why should it? It decreases because people are persuaded that things are getting worse, that the boom won't last forever etc. However if people are told nothing is wrong with the economy then what is wrong with the economy? Expenditure and investment remain strong and whatever may need to be done to tune the economy can be done. Currently raising income tax rates, for example, is an admission of an impending recession and so a recession is inevitable. It is in this realm that psychology is so important. If the government can convince the nation to work with it, rather than simply observing its actions, it can make a substantial difference to economic planning. The employment of surveys and discussions can be used to psychologically train businessmen and consumers to think that, as an integral part of the economy, it is up to themselves to make it work. This approach is used to an extent in the 'Buy Irish' campaign and to combat tax avoidance, but the 'science of the psychology of the economy' is in its infancy. With econometrics, perhaps simple models of these 'variables' (confidence, attitudes, beliefs) can be developed.

In conjunction with this new science, economic history must be put to better use. Basmann (1970) in an essay bemoaning the sharp divide between that subject and econometrics, said "it cuts straight through the heart of a natural unit of scientific activity namely, predictive testing of proffered economic 'laws'." Rather than leaning solely on economic data, we should use newspapers from the time and the opinions of the economists and hence, to an extent, that of the nation may be determined. This would be invaluable for testing our new economic models. Therefore, as I have suggested, economics will begin to rely less on maths and become a social science. The data problem now becomes an historical problem, but as the attitudes of people become better known and understood, economic theory may be more soundly based than ever it has been.

Conclusion

In summary, due to the problems of economic data and the relevant mathematics of econometrics, economics has been disrupted as a science as a result of econometrics. I have advocated a new approach, in effect redefining economics as a social science based on history and psychology. I conclude with a rhetorical question posed by Shackle (1972) on the state of economics presently: "being sure that he does not know everything, being certain only that nothing is certain, ought he to be silent."

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A Lesson in Demographics

Alan White

Introduction

Demographics is a subject which has often been regarded as a respectable substitute for sleeping tablets. In recent times, however, it has cast off its 'Cinderella' status and has acquired a new vitality, at least in the eyes of investment analysts, economists, marketing specialists and a plethora of financial commentators who now closely examine demographic trends and speculate upon their implications.

For example, are foreseeable population changes

- good or bad for the economy?
- good or bad for the environment?
- good or bad for certain industries?

Indeed such is the fascination with demographics that five years ago an American professor in Massachusetts set out to answer the question: "how many people have ever lived?" He came up with an estimate of fifty billion, producing the irresistable, but as far as I can see utterly useless statistic: "9% of everybody who has ever lived is alive today" (International Herald Tribune, Oct 1987).

The aim of this paper is to examine a certain aspect of demographics which will have major impacts, economic and otherwise, on many aspects of life.

Outlining the problem

In the period 1961-89 the average size of a household in the UK fell from 3.2 to 2.3 persons. More interesting than this is the fact that the structure of units which form the basis of households has gone through a dramatic metamorphosis. In 1961, 12% of households consisted of one person whereas in 1989 this percentage had risen to 28%. Large families (with dependent children) have fallen in size and non-family units (such as persons cohabitating) have increased from 17% to 29% of all households. So the analysis of a change in household size is equivalent to examining changes in the aforementioned subcomponents.

An examination of the household size cannot be taken in isolation. A *ceteris paribus* assumption is simply wishful thinking on our part, as changes in demographic factors and in society as a whole are interwoven in a complex web. Demographics depends on everything and demographic analysis involves more than the sum of its parts - factors cannot be simply delineated. Thus the analysis which follows will, by necessity, entail more than was originally intended.

Theoretical Model

I wish to explain the variation in the average household size with reference to three factors in particular:

Participation rates

The period under review has witnessed an increase in the participation rate of married women in the labour force from 21.7% to 49.5%. In this period there has been a corresponding fall in the birth rate and indeed in the early 1970's it reached a level that fell below the replacement level (Ermisch, 1990).

It appears that this phenomenon was set in motion by the introduction of the contraceptive pill in the 1960's, which raised the probability of women entering paid employment and led to later marriages. Thus, women have gained work experience and this has raised the opportunity cost of childbearing. The services industry, in which women have traditionally taken jobs has experienced an expansion. This new feature of the UK labour market is underpinned by the British Equal Pay Act (1970) as women strove to be on a par with their male counterparts. An econometrics article in *Employment Gazette* of 1984 (Ermisch, 1990) shows a negative correlation between wages and family size.

Arguably, with modern

	Average Household Size	Participation Rates (married women) %	Divorce Rate (per 1000 married persons)	Internal Migration Rates (per ,000's)
1961	3.2	29.7	2.6	18
1966	2.99	38.1	3.2	18
1971	2.89	42.2	6.0	20
1976	2.76	47.8	10.1	26
1981	2.68	49.6	11.9	24
1985	2.56	49.6	13.4	35
1989	2.3	53.1	12.9	38

Sources: '61,'66,'71,'81 Census of Population
Social Trends 1-21,HMSO Publications
Marriage & Divorce Statistics for the UK,OPCS,1959-'89
National health Service Central Register

Table 1

econometric methods and new technological advances, we may proffer that the economic environment is more predictable than parenthood and its associations - hence perhaps the substitution in favour of work. Thus, this increase in the participation rate has led to a fall in family size and a postponement (either partially or wholly) of childbearing, and to cohabitating, the cumulative effect being to lower family size.

Divorce

In 1986, 16% of all families were one-parent as a result of divorce. In the period 1961-89 the divorce rate (per 1,000 married population) rose from 2.6 to an unprecedented level of 12.6. This divorce rate affects two of the subcomponents previously mentioned, namely one-person households and family units.

Divorce stunts family growth directly and as a general rule gives rise to an additional household, the combined effect lowering household sizes. Indeed it may be the case that children exist before a marriage ends, but a higher percentage of divorces occur at a later age and remarriage rates are low among divorcees.

These postulations are supported by a report by Jonathon Bailey of the Office of Population Census and Statistics entitled "Divorce and family size, 1970-80". This report is somewhat lengthy, but a number of points merit explicit mention:

1) an increasing percentage of persons are divorcing at a later age

2) remarriage rates are declining among divorcees

3) the propensity of those who do remarry to have children is low

Thus, with these facts in mind, divorce adds to the number of one-person households and slows down progress in family growth.

It may be argued that the increase in economic independence of women (as indicated by the rise in the participation rates) may lead to divorce, as slight marital strains arise and indeed, post-divorce financial difficulties may make work a necessity rather than an option.

Internal migration

Whereas traditionally Irish workers have migrated to and from the UK, this characteristic is catching within the UK itself. Movements within England, Wales and Scotland, but more so within England itself, have increased at a steady rate from 14 to 29 moves per 1,000 population, with migration rates within regions being somewhat higher.

It is within the 16-24 age group that internal migration has experienced its highest levels particularly in the late '70's and late '80's (Rosenbraum, 1982). Indeed, this may mirror directly the baby booming generation of the late '50's/early '60's who have reached home-leaving age, and the '80's witnessing a period of rising and falling economic prospects for many industries, thus pushing and pulling the labour force in diverse ways. The 16-24 age group may well have migrated simply to obtain education at a third level institution.

Internal migration leads to a diversification of households and it is thought that those who migrate set up a

'secondary' household which is, on average, smaller than the original household due to the nature of migration (whether to look for work or to use simply as a base for certain short periods of time).

Estimating the model

The estimation of the regression line is done using the Hummer package. I have used sixteen observations on both the dependent and the independent variables. The regression equation obtained is of the form:

$$F^* = 4.096465 - 0.023157P + 0.003075D - 0.01233M$$

where

F^* = estimated average household size
P = participation rate of married women
D = divorce rate
M = internal migration rate

The true regression line is of the form

$$F = 4.096465 - 0.023157P + 0.003075D + 0.01233M + e$$

where e represents the error term.

The model presented can be evaluated in terms of the Hummer printout. Looking firstly at the coefficient of determination of 0.95989 indicates that over 95% of the variation in the average household size can be explained with reference to the variation in the three aforementioned independent variables. Thus, at a cursory glance it appears that the model is indeed a good one.

Regression Results

$R^2 = 0.95989$

Dependent Variable	Parameter Estimate	t-statistic $H_o: \beta = 0$
Constant	4.096459	20.57931
Particn	-0.023157	-3.47998
Divorce	0.003075	0.26287
Migration	-0.012337	-4.89872

With the exception of the divorce parameter, all parameters have signs consistent with our *a priori* expectations and are statistically significant, and thus the data is consistent with the hypothesis of the theoretical model (eg. the participation parameter is negative which means that rising participation rates can be associated with falling household sizes). The 'incorrect' sign on the divorce parameter is most likely to stem from the problem of multicollinearity.

The downfall of multiple regression is that it 'lumps' the effects of all of the independent variables together - the contribution of each cannot be

determined. Thus, for whatever reason (such as multicollinearity), divorce seems to play a very secondary role in the model when the cumulative effects of the independent variables are assessed.

Indeed, not all variables were included. Other factors such as abortion, housing costs and poll taxes may have repercussions on the model presented. Predictions may now be made on the basis of the estimated regression, though care must be taken because the nature of demographics is such as to invalidate *ceteris paribus* assumptions. Predictions made will thus be of a weak nature, though if present trends continue household sizes may fall further.

An Economic Link

Since population growth has always marched hand in hand with economic growth, some economists would argue that the levelling off of population growth in the world's major economies will usher in a new economic era. They suggest that an ageing society (such as that of the UK) values preservation more that innovation and the tradeoff will realise relative economic decline.

I don't happen to agree with this theory, partly because it ignores the issue of finite resource limits, but this is not the crux of the work here. I refer to it to introduce two observations. Firstly, it is always dangerous to regard tomorrow as a straight-line extension of today. Projections which show unrestrained exponential growth, be they projections of average household size or the number of AIDS victims will ultimately be wrong. Secondly, the presence of change must be underlined. The demographic change is real and the UK is entering a new socio-economic environment. There will be consequential changes in society. What these changes will be remains very much open to conjecture. Some thoughts shall be proffered in due course.

What is most interesting about demographic change is the diverse ways in which it diffuses through society and touches on almost every aspect of life, be it economic, political or social. It is this compelling feature of demographics which behoves us to take a closer examination.

This phenomenon was first brought to my attention on observing the UK life insurance industry. In 1988 a new insurance product was introduced called Long Term Care (Swiss Reinsurance (UK) Ltd., 1991) which provides for care of elderly persons who live alone and who have no immediate dependents. The introduction of Long Term Care was first a realisation of changing demographic patterns and an attempt to adapt to the newly changed environment.

Indeed, what role model do insurance companies have in mind when developing products and designing sales materials? I wonder if we have escaped from the clutches of the couple with two children and the wife dedicated full-time to looking after the home and children? Fifteen years ago a report from the US Labour Department (Marital and Family Characteristics of the Labour Force, March 1976) showed that only 7% of

households fitted this image. In the UK there are still married couples with two children, but the rising proportion of working wives tends to shatter this conventional image. On a sadder note, so does the divorce rate currently running at more than 12% of marriages a year.

The consequences of these have resulted in a complete overhaul of insurance policy packaging and design. The income of the working wife is no longer incidental - it is not optional, but rather integral to the household's standard of living. Like the income of the male, it must be protected against foreseeable contingencies such as ill-health to preserve household lifestyle. Of course, the loss of the contribution made by the wife who does remain at home also damages domestic finance and again, there is a need for protection - one which underwriters have become comfortable with in recent times.

As previously mentioned the effects of demographic change touch on society in many ways. The decline in family sizes and birth rates will create problems in the labour force and with a tight labour market this may increase the demand for female workers, raising their relative wages and countering any efforts to increase family size. This may compound the number of lone elderly people and raise dependency ratios to a higher level, necessitating a dedication of extra resources to looking after the old.

The General Household Survey rounds of family intentions (1980-85) indicate that most British people would like to experience parenthood and have two children. Whether or not this will occur remains debatable. Altering the population is impractical - people cannot be told how many children to have. Adaptive policies such as those mentioned are the only hope to tailor the environment to suit the changes that have occured.

Housing planning may prove useful (though difficult). The baby booming era of the early '60's may have required (on average) larger dwellings than those of today, where household and family sizes are falling. Such accommodating actions may lead to less wastage, and thus a more efficient use of resources.

Conclusion

Owing to the diverse and extensive ways in which demographic changes diffuse and filter through society, the analysis of changing household sizes necessarily entails an analysis of many other demographic features. However, it is hoped that the theoretical model is appealing, both at an intuitive and at an econometric level. Indeed, no econometric model can ever be complete (the current one being no exception), as value judgments and space and time limitations can often result in the omission of important explanatory variables. The estimation of parameters converts the model from a theoretical nicety to an operational one, and it is hoped that the current one is thought provoking, if not operational.

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A Model of US Import Flows (1974-1988)

Dominick Answini

Introduction

This paper will attempt to construct and explain a simple time series model of US import flows. The first section will deal with the theory behind the model and the historical circumstances in which the data were generated. The second section will entail an analysis of the data, using regression, correlation, and t-statistics to explain why the model behaves in a certain way when the raw data is manipulated.

The model itself is relatively simple, although some adjustment was needed to get the variables into a useable form. The raw data consisted of the value of dollars in terms of SDR, or 'Special Drawing Rights' of the 'currency' of the International Monetary Fund (IMF) used to help balance monetary exchanges between countries. Since this is a composite currency, it is less vulnerable to fluctuation. This variable was taken directly from the IMF's International Financial Statistics book from the years 1978, 1985 and 1991. That variable, however, was in the wrong form for this model, and had to be inverted to express SDRs in terms of dollars. This inverted variable became the first (X_1) independent variable in the model.

The second independent variable (X_2), US GDP, also comes from the IMF book, but this was given in nominal billions of dollars. It was adjusted into real terms by using price level data from McConnell (1991).

The dependent Y variable also came from the IMF publication. It is the value of US imports in billions of dollars. This too was inflation adjusted using the McConnell data. A selection of these data is shown in table 1.

What the model ought to show, if we believe mainstream economic theory, is a positive relationship between real GDP and imports. The rationale for this follows.

Theory and the American Example

Mainstream international financial theory is quite straightforward with regard to the theory of how exchange rates affect the balance of payments. First, let's assume there is an exogenous appreciation of a country's exchange rate. In reality, the currency has become more expensive in terms of other currencies. Because one nation must pay for imports from another in the importer's currency, an appreciation of the importer's currency makes it more expensive and this also

Table 1

Year	$ per SDP exch. rate	nom. GDP in billions of $	price index (1983-85) =100	nom imports in billions of $
74	1.22435	1399.8	49.3	108.00
76	1.16183	1685.7	56.9	129.57
78	1.30279	2088.2	65.2	183.14
80	1.27541	2586.4	62.4	256.98
82	1.10311	3021.3	96.5	254.88
84	.98021	3724.8	103.9	302.37
86	1.22319	4205.4	109.6	352.46
88	1.34570	4847.3	118.3	424.44

(100/price index)* Nominal Imports = Y dependent variable
(1/exchange rate) = X_1 independant variable
(100/price index) * Nominal GDP = X_2 independant variable

Source: International Financial Statistics 1978, '85, '91

drives up the price of any goods purchased with that currency. The opposite will also hold: a depreciation of currency will make it cheaper to purchase the foreign goods. The price of currency also affects exports. The appreciation of the currency may make it cheaper to buy imports, but it makes exports more expensive and less attractive, (Grubel , 1977).

As Keynesian theory had a great laboratory in the Great Depression, so does the aforementioned theory have in the early 1980's. Circumstances fell into place that apparently illustrated the theory perfectly, though it was apparent by the late 1980's that the theory had lost some of its validity.

In 1981 the presidency of Ronald Reagan began a programme of deficit spending not witnessed in the United States since the second World War. A cut in taxes and an increase in military spending along with little or no cut in social programs caused the national deficit to grow to record levels and government borrowing to increase. This borrowing, along with the Federal Reserves Bank's 'tight monetary policy' to fight inflation, meant skyrocketing interest rates. It was not unusual for interest rates to hover over 20% (for borrowing) in the early 1980's. These high interest rates attracted a lot of portfolio investment from overseas, much of it from the newly oil-rich nations. Portfolio investment is similar to trade in that to invest in a country

(US), one must be able to turns one's currency into US currency. This caused an increase in the demand for dollars and an appreciation of their value relative to other currencies. In terms of international trade theory, we see that Americans now held dollars with inflated value and this made imports cheaper. (Of course it also made US exports more expensive in foreign countries but that is not the concern of this paper). This explains how - in theory - the exchange rate has an effect on the level of imports (McConnell, 1990).

A second reason why imports might be rising stems from the natural increase in GDP. It is reasonable to assume that as GDP rises so does disposable income and imports. This would occur regardless of the exchange rate (extreme circumstances excluded). Another reason for the American trade deficit in the 1980's was that the US economy was growing faster and increasing import demand faster than many of the US trading partners (including the EC). Although the trade deficit is not the subject matter of this paper, we should be aware of the explanatory power of increasing GDP on imports, which explains its inclusion as the second explanatory variable in the current model.

Regression Results

$R^2 = 0.78725$

Indept. Variable	Parameter Estimate	t- statistic $H_o: \beta = 0$
constant	26.159418	0.29310
x-rate	0.097344	6.21966
GDP	-79.867566	-1.07629

The raw data from the International Financial Statistics was used as previously explained and is reproduced in the table. Some of the results from the analysis using the 'Hummer' econometrics package are shown.

Estimated regression line

Using the information produced by Hummer, and in particular the parameter estimates, we can construct regression equations for the level of US import flows regressed on GDP and the exchange rate to yield the following

$Y=26.16-78.87X_1+.097X_2$

The most surprising fact that emanates from this analysis is the inverse relationship between the exhcange rate (X_1) and the level of imports (Y). Plainly said, this goes against all the theory that was explored previously. This can perhaps be best explained by a degree of multicollinearity between the two independent variables. The R^2 obtained is 0.76671 indicating that the model has good explanatory power though one that seems to dominated by GDP, whose parameter estimate is statistically significant at the 5% level.

What went wrong?

Although the entire model seems to have good predictive powers, the main independent variable, the exchange rate, seems to have little, if any, explanatory power. How then could this be true, given the generally accepted mainstream economic theory? There are several reasons.

It is widely recognised that at the same time as the US was experiencing higher exchange rates it was in a deep recession. A look at the raw data illustrates this clearly. When the exchange rate should have encouraged more imports the recession reversed this tendancy to some extent. This was the primary reason for choosing GDP as the second independent variable, to smooth the effect of this anomaly.

A second reason has already been explored. The US economy was simply growing too fast to let exchange rates stand in the way of its demand for foreign goods, many of which Americans had begun to prefer after exposure to them in the early 1980's. The declining exchange rate in the late 1980's would not have been enough to reverse this preference.

A related reason was that many US firms that were in competition with foreign firms found that after surviving the recession, they couldn't survive the high exchange rate foreign competition and went out of business. This caused some industries, like consumer electronics, to have no American suppliers, so regardless of the exchange rate, all goods bought from these industries would be foreign.

Finally, many foreign suppliers simply lowered their prices to keep them the same as they were in the mid-1980's after the exchange rate fall in the late 1980's. The exchange rate effect was simply negated. That was, in particular, the experience with the Japanese car industry.

Conclusion

Although many of the conclusions from the statistical analysis seem quite evident and straightforward it should be pointed out that there is a lot of analysis that has not been included. The F-test, Chow test, and differencing the data are but three methods by which the data could be manipulated to give more insight. Without this additional analysis, however, we must accept that what we have is a very simple model with relatively good predictive powers.

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Part-Timers in Europe

Aedin Doris

Introduction

The purpose of this paper is to examine the causes of the large discrepancies which exist between countries in the extent of part-time employment.

Part-time employment has expanded in most OECD countries in the past decade, along with other forms of 'atypical' employment, such as temporary employment, fixed-term contract employment, homeworking and on-call contracts. However, an examination of the statistics describing this growth reveals that the initial levels from which the growth occurred varied enormously. An analysis of the reasons for this might prove useful to a government which wished to raise the level of part-time work in its jurisdiction. It would be informative to gauge the extent to which the level of part-time employment is influenced, if at all, by government action, and how much is due to cultural and historical factors, which are more difficult to change.

It is not immediately clear why a government might wish to encourage part-time employment, but the literature is emphatically in favour of part-time employment, from the point of view of all those involved. Both supply and demand factors influence the leve of part-time employment in any country. On the supply side, microeconomic theory states that the availability of working hours other than the standard forty hour week allows for the maximisation of individual utility of a larger proportion of the population. This is particularly important to women to whom home responsibilities, as is traditional, fall, but who maintain a commitment to the labour market after childbirth. A survey carried out for the EC Commission by Nerb (1986) indicated that present working hours and ideal working hours do not coincide for almost half the workers in Europe, and for most of those unhappy, they would prefer shorter rather than longer hours. This is particularly true for women. In contrast to full-time employees, part-time employees were found to be predominantly happy with their working hours.

On the demand side, the reasons why employers might prefer to employ part-timers rather than full-time employees are twofold. Firstly, part-time employees are generally less costly because they are not usually entitled to such fringe benefits as overtime premiums, sick pay, and, more importantly, because in some countries, employers do not have to pay social insurance contributions for employees working below a weekly hours

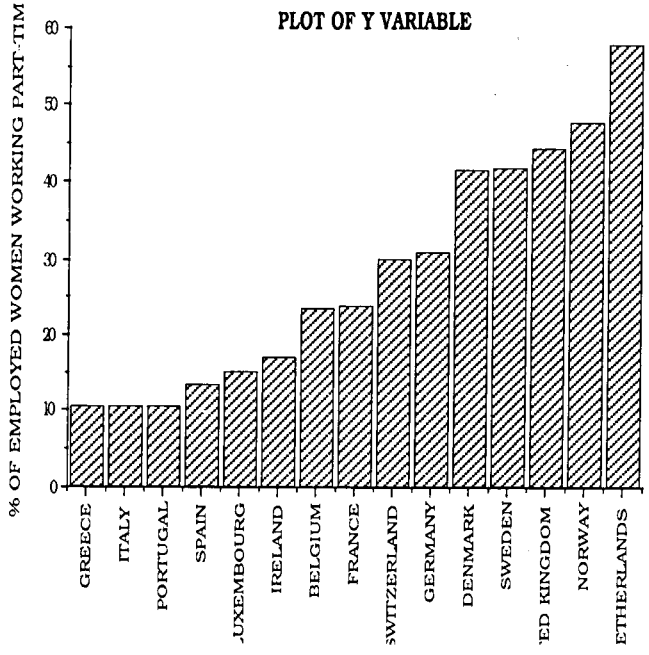
threshold. Secondly, management literature has increasingly stressed the numerical flexibility afforded by part-time employees (Atkinson and Meager, 1986), primarily by virtue of the lack of employment protection afforded to those working below a certain weekly hours threshold. The advantages of employing part-timers are not provided across the board, however. Pollert (1988) has pointed out that part-time employment has always been most suit d to the service sector, in covering peak hours for example.

Although these determinants of supply and demand are very complex, it may be possible to capture at least some of their sense using simple variables.

The Model

The variables which were chosen for use are as follows:

Y variable: The proportion of employed women working part-time. This is somewhat different from the absolute levels of total part-time employment of the labour force suggested above, for a number of reasons. Firstly, the analysis was reduced to the case of women, as it is generally accepted that the reasons for the decisions to work part-time are distinct for women and men. Men



generally work part-time while in full-time education, whereas women who work on this basis are generally married, and are thus combining work with family responsibilities. Secondly, if the proportion of female part-time employees in the labour force had been used, it would have been accounting to some extent for female labour force participation *per se* rather than part-time participation. By measuring Y in this way, it was intended that the extent to which the causality might exist between the X variables and the participation rate, rather than between those variables and the prevalence of part-time employment, should be minimized.

A representation of the Y variable is shown.

X_1 variable: The proportion of all employees in the service sector. This is a fairly broad demand side variable representing the extent to which employers are able to take advantage of the benefits of employing part-timers, since, as suggested above, part-timers are more readily employed in the service sector. A positive relationship is expected between X1 and Y.

X_2 variable: The proportion of the male labour force unemployed. This variable was chosen on the grounds that women who work after marriage are often seen as supplementing their husbands' income. However, if a woman's husband is unemployed, she will be less likely to work part-time and more likely to work full-time, so as to earn a wage on which the household can survive. (The possibility of the option to stop working so as to avoid jeopardising social welfare payments is negated by the fact that the Y variable is the proportion of total female employment which is part-time, rather than being expressed as the proportion of the female labour force). Thus, a negative relationship between Y and X_2 is expected.

X_3 variable: The proportion of the population aged 0 - 4. This variable was chosen to account for family responsibilities, the idea being that a woman is more likely to work part-time rather than full-time if her child-rearing responsibilities are significant. Thus, a positive relationship between Y and X_3 is anticipated.

The model is linear of the form:

$$Y_i = \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + e_i$$

where β_1, β_2, and β_3 are parameters, and e_i is the error term.

The Data

Cross-sectional data for the 12 EC countries, and Norway, Sweden and Switzerland, were used in the regression. The EC data were freely available in the Eurostat Labour Force Survey published each year, and data for Norway, Sweden and Switzerland were obtained from their annually published statistical abstracts, which were made available by embassy staff in each case. Most of the data applied to 1989, with a few notable exceptions.

Swedish data were perfectly compatible with the EC's; data for 1989 were available in every case, and the definitions of part-time employment and unemployment used are those recommended by the International Labour Office, which Eurostat also

employs.

Norwegian data were also reasonably compatible with the EC's. However, the Y variable was computed using 1990 statistics, as a breakdown by sex for years prior to this was not available in this year's abstract. Moreover, the Norwegians use a slightly different method for calculating part-time employment. ILO recommendations are that self-description be used, and this is the method used by Eurostat, but Norwegian statistics use self-description only beyond a 35 hours per week cut-off point. The discrepancy arising from this difference should, however, be negligible.

Swiss data are the least satisfactory. All figures given are for 1985, except for X_3, the proportion of the population aged 0 - 4. Moreover, the Swiss use an hours cut-off point rather than self-description in counting

Country	% of Employed Women Working Partime	% of Employees In Service Sector	% of Male Lab.Force Unemployed	% of Popn. Aged 0-4
	Y	X_1	X_2	X_3
Belgiun	23.4	65.3	5.8	5.9
Denmark	41.5	66.5	7.5	5.4
Germany	30.6	56	4.5	5.1
Greece	10.3	48.9	4.6	5.6
Spain	13.1	54.2	13.1	5.6
France	23.8	62.4	7.3	6.7
Ireland	17	55.6	15.9	8.4
Italy	10.4	58.8	7.4	5
Luxembourg	15	67.8	1.1	5.9
Netherlands	57.7	68.8	6.8	6.2
Portugal	10.5	45.9	8.6	6.2
UK	4.2	64.7	7.6	6.6
Norway	47.7	69.2	5.6	6.5
Sweden	41.7	66.5	1.8	6.8
Switzerland	29.9	58.9	0.8	5.7

Table 1

part-timers, so this figure can be expected to represent some undercounting.

However, the four variables do not vary much from year to year since they are expressed in proportionate terms. The only one which might be problematic is X_2, the proportion of the male labour force unemployed which can, in some economies, vary significantly from year to year. The 1985 figure for Switzerland was 0.8%, and this showed little variation with the other years for which data were available, and so the Swiss variables can be taken to be suffiently compatible with the other data used.

The regression results obtained using the variables outlined above were somewhat disappointing.

An R^2 value of 0.527 indicates that 52.7% of the variation in the dependent variable, Y, can be explained by the variation in the three independent X variables. This value, although not particularly high at face value, is satisfactory given the complex nature of the determinants of labour supply and demand.

Moreover, all parameter estimates were of the signs anticipated a priori, although only that for $\beta 1$ was statistically significant at the 5% level. However, despite the hopelessly insignificant parameter estimates for X_2 and X_3, the F-ratio, which is used to test the joint significance of all the independent variables, suggests that the null hypothesis of an overall poor model be rejected at the 5% significance level.

Model Evaluation

The poor results outlined above are certainly caused by inadequate

Regression Results

Dependent variable is: **PART-TIME WOMEN**
R^2 = 52.7% R^2(adjusted) = 39.8%
s = 12.08 with 15 - 4 = 11 degrees of freedom

Variable	Coefficient	s.e. of Coeff	t-ratio
CONSTANT	-71.9456	34.910	-2.06
EMPL IN SVCS	1.5150	0.458	3.31
MALE UNEMP	- 0.1920	0.906	-0.21
POP AGE 0-4	1.5012	4.488	0.33

model specification; data problems could not be responsible for such insignificant parameter estimates in respect of two of the three independent variables.

The two supply variables chosen were, in retrospect, too simplistic to account for the factors which determine labour supply, particularly by women. Only microeconomic, sample survey data could hope to capture the attitudinal variables involved in the determination of labour supply, and while such data are available for individual countries, such as that provided by the Women and Employment Survey (WES) in Britain, there exists no standardised cross-country survey which would allow a cross-sectional analysis of the determinants of supply. Data that are available that could have been used to raise the explanatory power of the model include the availability of state creches, or alternatively, the tax deductibility of payments for childminding.

Although the demand variable was more satisfactory, one crucial variable was neglected which would certainly have significantly improved the explanatory power of the model, that of the effect of social insurance arrangements on the demand for part-time employees. The difficulty in modelling this factor arises from the differences in the calculation bases for the employer's contribution between countries, which results in there being no single variable which would summarise the degree of advantage to employers of employing part-timers, in terms of social insurance arrangements.

Thus, although the model specified above leaves much of the variation between countries in the level of part-time employment unexplained, it is hoped that it will provide the base from which more useful work on the subject can be done.

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Gold as an Investment

Vivien Wallscourt

Introduction

Throughout history, gold has always played a prominent role in investment, due to the fact that it is viewed by many as the ultimate store of value and hedge against inflation. It possesses these properties due to its tangability, durability, high value for small bulk (which aids both concealment and portability) and due to the fact that there is a continual demand for gold to create jewellery and other valuable objects.

The duality of gold's role is such that it is seen as both a real asset of exceptional value and a monetary asset of exceptional liquidity. It has been at the core of domestic and international monetary systems for many centuries, and in the present century it has served as the basis for the gold standard system (continued from the 19th century), by which currencies were directly convertible into gold; and the system agreed at Bretton Woods whereby currencies were convertible into a currency based on gold, namely the dollar which was convertible into gold at $35 per ounce.

Gold is traded internationally and studies show that gold assets represent between 5% and 10% of a typical European or Middle Eastern portfolio, while investment in gold bullion represents more than 5% of total investible wealth (Solnik, 1991).

Investment in gold can take several forms, including bullion, gold stocks, coins, jewellery, bonds, mining equities, futures and options. These forms differ on many counts, including marketability, trading costs and other features. However, it is noticed that all tend to rise and fall in relative unison with the free market price of gold bullion. It is this compelling feature of gold which motivates an examination of the price of gold.

Price of Gold

The London Gold Bullion market (1972-88) shall be used as the backdrop for examining investment in gold using a multiple regression of the form:

$$Y_i = \beta_0+\beta_1 X_{1i}+\beta_2 X_{2i}+e_i,$$
$$i = 1,.....,17$$

where

Y_i = real price of gold ($US) on the London market

X_1 = rate of inflation

X_2 = real rate of interest

e_i = error term

A rudimentary knowledge of micro-economic theory dictates that the price of gold is determined by the simultaneous interaction of supply and demand and it is, however, interesting to note that hoarding demand is the decisive factor in setting the price of gold (Clendenin, 1978), with supply remaining relatively inelastic.

Therefore, we can make the simplifying assumption that the price of gold is a function of the demand for gold, which in turn is a function of the inflation rate and real interest rate.

Inflation

Inflation has been chosen as the X_1 variable, as there is a general consensus that inflation and gold prices are positively correlated. Therefore, β_1 should have a positive value. Gold is seen as the ultimate hedge and store of value, and hence as the best protection against inflation crises and monetary devaluation. Thus, the price is influenced by expectations of future price changes. Gold provides no income and thus price increases constitute the only return to the investor. Generally speaking, price expectations that are not linked directly to income flows are quite volatile, which explains the large volatility observed in international gold markets (Solnik, 1991).

Interest rates

Over the past decade, gold prices have not risen greatly, and a possible explanation for this has been the high real interest rates available in most currencies. This has made gold, which pays no income, less attractive as an investment. Therefore, β_2 would be expected to have a negative sign, reflecting a negative correlation between gold price and the real interest rate. This encapsulates the idea of a negative substitution effect, with rising interest rates effectively raising the opportunity cost of holding gold.

Beyond the model

Other factors affecting the demand for gold which are subsumed in the error term are : 1) movements in the dollar - when it weakens people look for other investments, and if currencies are unstable, investment in gold becomes attractive; 2) shocks to the economy - the oil price shocks and the 1987 stock market crash are examples; 3) the price of oil - rising oil prices necessarily entail inflation, and thus the price of gold tends to follow the price of oil; 4) alternative investments providing a hedge against inflation - there has been an explosion in the availabililty of such investments as futures and options, especially since the 'Big Bang'; 5) the stock market-gold price changes are slightly negatively correlated with stock returns (Sennholz 1975). This renders gold attractive for diversifying a portfolio of wealth. Gold enables investors to diversify against types of risk that affect all stock markets simultaneously. It would thus seem that the error term in our model is likely to be large, owing to a degree of misspecification in the current model.

The supply of gold depends on the Western mine production (mainly from South Africa); that production is steady, rising slowly in the 1980's. In any case, each annual output of gold adds only a small percentage to the quantity available from previous years (Solnik, 1991).

Results

In estimating the model, time series data from 1972-1988 has been

used. The price of gold has been taken from "Financial Statistics" (published by the Central Statistics Office (UK)), as has the rate of interest. Both figures are provided by the Bank of England. The rate of inflation is published in "Economic Trends Annual Supplement" (CSO, UK). The inflation figures have been used to calculate the real price of gold and real interest rates.

The multiple regression has an R^2 of 0.70118, suggesting that inflation and interest rates together explain 70% of the variation in the price of gold. The forecasting power of the model has yet to be ascertained. The t-statistics are significant at the 5% level, indicating that their contribution to the explanatory power of the model justifies their inclusion. A reliable model could, in theory, be used to make predictions about the price of gold, which could prove invaluable for trading on the gold market. However, it is extremely difficult to predict both the extent and timing of price level increases, and to gauge accurately the behaviour of different investments under conditions in the future.

Relevance

On an international scale the price of gold no longer has much policy relevance. As gold is no longer the basis for currency, governments are unlikely to intervene to affect its price. It is also highly unlikely that a return to the gold standard is desirable. International trade and financial transactions grew to such an extent that the gold standard exploded in the 1970's. This trend has been even more marked since the 'Big Bang', making a return to the gold standard even less probable. Gold does not play the role in international monetary systems and transactions that it once did, but nevertheless it retains its attractiveness as a valuable, low-risk investment.

REGRESSION RESULTS

$R^2 = 0.70108$

Independent Variable	Parameter Estimate	t-statistic Ho : $\beta = O$
Constant	82.187072	1.25657
Inflation	45.336761	5.72990
Interest	44.580425	5.09468

Table 1

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Will it stay or will it go?

Tony Lynch

When men are employed, they are best contented (Benjamin Franklin).

The objectives of government macroeconomic policy vary over time. For instance, the objective of full employment was associated with the British Labour Party up until the early '80's, while price stability had long been the priority of the Thatcher administrations of the '80's and previous Conservative governments. Given that price stability in Ireland is pursued by the Central Bank, economic growth is generally perceived as the primary policy objective of the government. However, full employment, or rather zero involuntary unemployment, may re-assert itself as the primary policy objective of government macroeconomic policy in this country, as unemployment continues to spiral upwards without bound. This paper will examine the conventional wisdom regarding the failure of the labour market to eliminate involuntary unemployment, and suggest why policy measures to alleviate the problem will entail more hope than expectation.

Whichever view of the non-utilisation of vast quantities of the labour force is taken (unfortunate consequence of necessary anti-inflation policies or the greatest evil in society), it is possible to make some specific assertions about the consequences of unemployment. Unemployment implies the existence of a displacement of the economy from the production possibilities frontier and hence from the utilities possibility frontier. Hence, by definition, the unemployment (and even underemployment) of any quantity of labour (or capital) constitutes a non-Pareto optimum in the economy. In this regard, unemployment, irrespective of economic ideology, is clearly undesirable, and hence the subsequent orientation of policy towards its elimination.

This paper will examine why unemployment prevails in any market economy, and why the labour market may fail to achieve equilibrium. The process by which a conventional tradeable good or service achieves equilibrium in the market is first examined. The prevailing theories regarding labour market disequilibrium will then be reviewed. The characteristics which distinguish labour from conventional goods or services will then be examined, and finally the implications of these distinguishing characteristics for the functioning of the labour market will be assessed.

Market forces

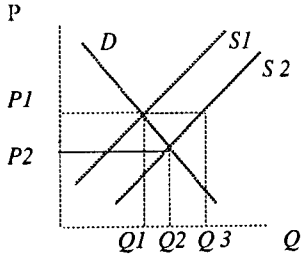

Figure 1

One of the primary contentions of economics is that when the supply of a good is matched by the existence of a demand for that good - that is, individuals are willing to pay a price to consume the good - markets forces, the invisible hand, or the Walrasian auctioneer will ensure that, for an equilibrium price, the quantity demanded will equal the quantity supplied. In Figure 1 the market for a conventional good such as a radio, a haircut or an apple is mapped, where the initial equilibrium is at (P1,Q1). A shock occurs in the market, such as a technological breakthrough, which causes the supply curve to shift outwards from S1 to S2. Initially the price will remain at P1, but, as can be seen from the diagram, this will result in excess supply equivalent to Q3-Q1. Suppliers will be unable to sell all of their output, and inventories will accumulate. In a bid to halt the accumulation, suppliers will reduce prices to increase the quantity demanded. This process of reducing price to halt inventory accumulation will continue until the new equilibrium of (P2,Q2) is achieved.

Conventional wisdom

Were labour such a typical good or service, this process would ensure that the labour market would attain an equilibrium position; unemployment would be voluntary and the economy would move towards (but not necessarily be on) the production possibilities frontier. However, labour does possess distinguishing characteristics which interfere with the mechanism by which equilibrium is achieved. I will outline the primary 'supply-side' traits which frustrate the market's attempts to bring about equilibrium, and will then propose two 'demand-side' factors, which will also act to retard market forces and constrain the ability of the market to equilibrate.

Neo-Classical theory proffers three[1] primary 'supply-side' factors which interfere with the market mechanism; namely income taxes, replacement rates and trade unions. Income taxes and non-discretionary social insurance contributions drive a 'wedge' between the wages paid by the employer and those received by the employee. Effectively, taxes shift the supply curve to the left - the extent of the shift being determined by the level of taxes - thus requiring higher wages to be paid to maintain a given quantity

[1] Job-search is another factor to which unemployment is attributed, but space and time limitations do not permit a thorough discussion of same.

of labour supplied.

Replacement rates also act to distort labour supply. The level of unemployment benefit, social assistance and non-monetary benefits such as medical cards and free travel, will affect the decision of whether or not to accept a job offer. The lower is the *net* benefit (total income while working less total income while unemployed) from taking a job, the lower will be the incentive to take a job, and hence the higher will be the rate of unemployment. Trades unions also 'tamper' with the market mechanism, albeit in a more direct way. The unions can intervene in a number of ways such as the imposition of a minimum wage which *does* create involuntary unemployment, or, minimum qualifications (such as M.R.C.S.I or B.L. from Kings Inn) which *do not*. Herein lies a paradox - for while price cartels and collusion are prohibited by law in most, if not all market economies, trade unions - cartels in the labour market - are not.

New Classical theorists maintain that the existence of differentials between the *expected* and *actual* rates of inflation contribute to the problem. Labour contracts will incorporate a clause to adjust for the rate of inflation to prevent the erosion of the purchasing power of wages, which will typically be based on the expected rate of inflation for the period of the contract. New Keynesian theories propose that it is the manner in which labour is traded - by contract over time - that lies at the root of the unemployment problem. Labour contracts will typically specify the wages for the period of the contract and incorporate a clause by which both sides can terminate the contract as long as a specified length of notice is given. Therefore, if a slump in demand for the output (and by implication labour) occurs, wages will not be able to adjust downwards to their new equilibrium level. Unemployment - involuntary unemployment - will result as employers are left with the thankless job of terminating contracts.

Demand aspects

The primary differentiating characteristic of labour from any other tradeable good or service is its heterogeneity. In the simple supply/ demand analysis presented at the beginning of the paper, it was implicitly assumed that the goods were homogeneous, i.e. that the product supplied by different suppliers was identical. This is evidently not the case for labour. The heterogeneity of footballers, for example, can actually be measured by their transfer prices - while some players are sold for over £5M, others are given free transfers. The output, and hence the supply price, of labour is determined by factors such as education, motivation, personality and other less clear cut factors such as social attitudes. In the labour market it will not be possible to perfectly assess all of these factors, so activity in the labour market will have to operate within the constraints of imperfect information.

The consequence of this is that there exists not one, but a whole series

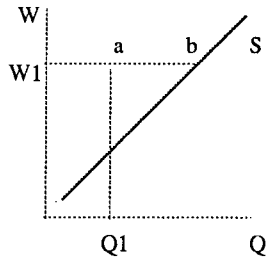

Figure 2

of labour markets for individuals with different skills and qualifications. Therefore, while there may be chronic shortages of French teachers in secondary schools, there could simultaneously be an abundance of German teachers. This will give rise to a new type of undesirable involuntary unemployment, whereby individuals would take up employment at the going wage but are prevented from doing so by their skill shortages.

Heterogeneity also involves other problems. Consider Figure 2 where an employer offers a wage of W1 to attract a labour supply of Q1. This depicts a situation where the employer can set both the price and the quantity as a result of the market power - a demand aspect. But the situation will clearly attract an excess supply of labour equivalent to ab. This situation at first appears to be counter-intuitive as the employer can attract the required amount of labour with a lower wage, but it is here that the characteristic of heterogeneity applies. Excess supply entails the existence of a 'pool' of labour from which the employer chooses those workers which he perceives to have the greatest productivity potential. These demand-side problems prevail in most labour markets to some extent and constitute even more institutional factors which prevent the market from operating as efficiently as it otherwise would.

Conclusion

This paper originally set out to highlight the failures in the sort of thinking which suggests that piecemeal deregulation of the labour market will eliminate involuntary unemployment. The demand-side factors must be surmounted before the labour market will operate as efficiently as conventional markets. One can pessimistically (though realistically) conclude that prospects for countries with large scale unemployment are dim. Their plight will not be resolved by market forces, and the only policy prescriptions I can make are active measures to restrict supply, such as lowering the mandatory retirement age. Failing a fall off in labour supply, I can only conclude by asserting that the return of large scale emigration is the only foreseeable event which will make serious inroads into the unemployment statistics of countries plagued by this affliction.

What is a Firm?

Paul O'Connell

Introduction[1]

An understanding of the firm is surely basic to any cogent analysis of markets. However, in conventional Neo-Classical theory, the firm is viewed simply as a "rhetorical device adopted to facilitate discussion of the price system" (Demsetz,1987). The question of what determines which activities a firm chooses to do for itself, and which it procures from others, is glossed over within a 'firm-as-production function' tradition.

It is contended in this paper that a better understanding of the economic system can be obtained by pursuing in more detail the question of what a firm actually is. The central message of Coase (1937), that the firm and market are alternative institutions for organizing the same transactions, is argued to represent a basic and fruitful insight into the nature of the firm. The discussion is divided into three sections. The first canvasses the shortcomings of the firm-as-production function approach. The second section elaborates upon this, illustrating the problems which plague comprehensive contracting. Finally, the third section identifies vertical integration in the shape of the firm as the second-best solution in the presence of transactions costs.

The competitive equilibrium firm

Within the competitive equilibrium framework, the basic economic actors are firms and households. Both treat prices parametrically, and engage in optimizing behaviour. Given perfect knowledge and the absence of external effects, weak assumptions concerning preferences and technological possibilities suffice to yield general welfare results, notably the first and second welfare theorems.

Couched in the vernacular of this general equilibrium framework, the firm emerges as an entity whose essence is ill-defined. Rosen (1987) furnishes a useful benchmark. He argues that "If there were no scale economies, transport costs or economies of joint production, it is difficult to imagine why complete decentralization of

[1] This paper draws extensively on the proceedings of a 1987 conference organised to celebrate the fiftieth anniversary of the publication of Coase's (1937) seminal article "The Nature of the Firm". The award of the 1991 Nobel Prize in Economics to Ronald Coase makes this article all the more timely.

[factor] markets would fail to achieve efficient allocations.This echoes the seminal questions posed by Coase (1937): "Why is there any internal organization?"; and "Why is not all production carried on by one big firm?"The orthodox response is that "the natural boundaries of the firm are defined by technology - economies of scale, technological non-separabilities, and the like" (Winter and Williamson,1991). Hence the firm is perceived as a cost-minimising conglomeration of productive resources, its shifting boundaries contingent on productive efficiency. However, this perception is arguably glib. As Tirole (1988) adduces, it is not immediately obvious why economies of scale should necessarily be exploited within the firm: "They could, *a priori*, also be obtained through contracting between legally separate entities" (1988). Williamson concedes that there are circumstances, interpretable in applied price theory terms, under which firms will internalise transactions. However, such explanations, together with technological determinism, "...explain only a small number of the total activities in which firms engage"(Winter and Williamson, 1991).

Clearly, a more satisfactory theory of the firm is requisite. It is here that the work of Coase (1937), and subsequently Williamson (1975), becomes relevant. Coase asserts that the firm and the market are alternative modes for organizing the same transactions: "[when] a workman moves from department Y to department X, he does so not because of a change in relative prices, but because he is ordered to do so"(1937). What distinguishes the firm is the supersession of the price mechanism. Hence there are two separate mechanisms that can be used to ensure that productive resources act in concert - comprehensive contracting (price-based), and hierarchy (quantity-based). The choice of which to employ is contingent on comparative costs of utililisation.This comparative institutional perspective generates a more worthwhile theory of the firm. The next step is to examine the efficacy of the market mechanism in performing its coordination role. This is the purpose of the next section.

Coordination of productive resources: the market

Rosen (1987) endeavours to formalise the coordination role played by the market.[2] His point of departure is a specification of labour. Workers own or rent a place in the assembly line, the economic value of which resides in the 'residual rights of control' it confers. This is the profit accruing from purchasing intermediate products from adjacent upstream sellers and selling the value-added units to contiguous downstream buyers. Joint production entails complementarities of time spent with co-workers.

[2] Rosen notes that, while Coase is adept at formulating his arguments in terms of lucid elegant prose, the theory of the firm lends itself to mathematical treatment. This is not to say that Coase always eschewed such formalism.

Denoting the output of worker i by x_i and the time that i spends with j by t_{ij}:

$$x_i = F^i(t_{i1}, t_{i2}, .., t_{in}), \text{for } i = 1,2,..,n, \quad (1)$$

for a total of n workers. If the total amount of time spent producing by i is normalized to 1, then summing across $j = 1, 2,..., n$, $\Sigma t_{ij} = 1$, for all i. Given that the total time that i desires to spend with j must equal the time that j wants to spend with i, the firm's problem is:

$$\text{problem: max } \Sigma x_i \quad (2)$$
$$\{t_{ij}\} \; i$$
$$\text{s.t. } \Sigma t_{ij} = 1 \text{ for all } i = 1, 2,...,n$$
$$j$$
$$t_{ij} = t_{ji} \text{ for all } i, j = 1, 2,..., n$$
$$i = j$$

where $\{t_{ij}\}$ is an allocation sequence of n^2 elements.

From the Kuhn-Tucker theorem, first-order conditions take the following form. For t_{ii}:

$$F^i_i(t_{i1}, t_{i2},..., t_{in}) \leq \phi_i \; i = 1, 2,..., n \quad (3)$$

where ϕ_i is the multiplier on constraint i in the first n constraints. If $t_{ii} > 0$, the constraint is binding, and ϕ_i represents the shadow price of i's time. On the other hand, for t_{ij} and t_{ji}:

$$F^i_j(t_{i1}, t_{i2},..., t_{in}) \leq \phi_i + \beta_{ij}, \; j = 1,2,..,n \quad (4)$$
$$F^j_i(t_{j1}, t_{j2},..., t_{jn}) \leq \phi_j + \beta_{ji}, \; i = 1, 2,.., n \quad (5)$$

where $\beta_{ij} = -\beta_{ji}$ is a multiplier associated with the last $(n^2-n)/2$ constraints. Once again, (4) and (5) are equalities for $t_{ij} > 0$. Together with (3) they yield:

$$\frac{\delta F^i}{\delta t_{ii}} + \frac{\delta F^i}{\delta t_{ij}} = \frac{\delta F^j}{\delta t_{ij}} + \frac{\delta F^j}{\delta t_{ji}} \quad i, j = 1, 2,...,n. \quad (6)$$

Intuitively, if it is efficient for i and j to work together (i.e. if $t_{ij} > 0$), the marginal product of joint production must equal the incremental output of their working separately.

It is immediately apparent that the decentralized price system that implements this condition is very complex. (4) and (5) refer only to *pairs* of workers, and hence since $\beta_{ij} = \beta_{ik}$ in general, the marginal product of a *given* worker's time is not equated across all workers. The implication is that different time-prices must obtain for each possible pairing. Since the number of independent pairings $(n^2-n)/2$ is an increasing function of order 2, the number of prices requisite for efficiency increases with the square of the number of workers. In these circumstances, not only does the calculation of the efficiency price vector require full knowledge of the underlying technology and productivity of workers, but also an inordinate amount of calculation.

This complexity imputes large transaction costs, the consequences of which can be severe. Contracts are formulated based on the *ex ante* incentive alignment, but as long as they are complete (i.e. fully contingent), the *ex post* division of surplus reflects *ex ante* investment decisions, and returns to capital are undistorted. However.

"..in a real world characterized by uncertainty, changing input prices, changing technology, multiple products, and long-lived investments specific to a particular buyer/seller relationship, there are significant costs associated with writing, monitoring and enforcing...different types of contract"

(Williamson, 1976; quoted in Joskow,1987)

When such transactions costs impinge, the parties to a relationship cannot write a contract that anticipates all contingencies. Rationality is therefore bounded, with the result that, "...all complex contracts are unavoidably incomplete" (Winter and Williamson,1991). In terms of Rosen's (1987) model, it is impossible to ascertain the efficiency price vector when the number of workers is substantial, and agents engage in satisficing behaviour. Incentives exist for parties to an agreement to *ex post* dispute the meaning of its clauses, or to seek to change them. Such opportunism results in a distorted distribution of returns, propagating dynamic inefficiency. In these circumstances, provision for *ex post* governance is needed.[3]

An alternative coordinator: the firm

It is in this context that a rationale for the firm can be discerned. In the presence of transaction-costs-induced incompleteness, Tirole (1988) identifies a number of courses of action. The first, *ex post* bargaining, is rejected since it will, in general, distort investment *ex ante*. Alternativ-ely, parties engaged in the production process can engage in one of two forms of intermediate contracting. The first of these, arbitration, imposes a considerable information burden and moreover is vulnerable to prejudice on the part of the arbitrator. The remaining alternative is integration.

This was Coase's (1937) original insight. He highlighted the nature of the employment relation: one contract is substituted for many and employees "...agree to obey the direction of an entrepreneur..." (1937). According to Williamson (1976), such a shift from the market to hierarchy sacrifices incentive intensity in favour of greater bilateral adaptability. As Rosen asserts, errors in price can be more costly than errors in quantity (1987). The second-best result of recourse to authority is the least-cost governance structure.

Williamson (1975, 1979, 1986) and Klein, Crawford and Alchian (1978) refine this analysis by isolating specific investments as a critical factor causing "simple spot market transactions to be plagued by transactional difficulties" (Joskow,1987). Asset-specificity is present when the investments that parties make have a much greater use within the relationship than outside it. Under such circumstances, the incentive to engage in opportunism is larger, and the need for *ex post* governance concomitantly greater. Williamson (1979) asserts that as investments become more specific to the buyer/seller relationship, cost-minimisation will involve moving from simple (anonymous) spot-market contracting to more complex long-term contractual arrangements with protective provisions, and ultimately to vertical integration (Joskow,1987).

[3] This discussion pays scant attention to reputation effect penalties. It is merely noted that, while they do deter opportunism, Klein does not find them dispositive.

This reasoning is complemented by the work of Grossman and Hart (1986), who also focus on asset-specificity, but in addition, quasi-rents and hold-up problems, in explaining incomplete contracts. They canvass the idea of residual rights of control identified with asset-ownership, and establish that the distribution of authority exerts a significant influence on *ex ante* investment decisions. From this result they demonstrate that integration, or the reallocation of rights of control, constitutes a second-best solution.

In sum, the presence of transaction costs leads to incomplete contracts which distort prepense investment. This gives rise to inefficiency, the extent of which is contingent on the level of transaction costs, but also on the degree of asset specificity. The second-best solution is a redistribution of authority, and the firm provides the nexus for such a redistribution.

Conclusion

This paper has canvassed the transaction costs approach to the theory of the firm. The first section examined the chimerical nature of the firm within the Arrow-Debreu framework. The second section illustrated how in theory a conglomeration of productive resources could be mediated through a system of comprehensive contracting. However, complexity and transaction costs are likely to cause the failure of such a system. This provides the motive for integration. Clearly, Coase's insight ranks among the most fruitful of economic theories.

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The Harberger Triangle Re-Visited Re-Visited

Billy Stamp

Study	Subject	Welfare Loss
Harberger (1954)	Monopoly	0.07% US GNP
Schwartzman (1960)	Monopoly	0.01% US GNP
Scitovsky (1958)	E.C. Tariffs	0.05% EC GNP

"Unless there is a thorough theoretical re-examination of the validity of the tools upon which these studies are founded ... someone will inevitably conclude that economics has ceased to be important" (Mundell 1962).

Introduction

Ryan and O'Sullivan considered the welfare costs of monopoly in the 1991 edition of the *Review*. The purpose of this note is to extend their analysis of the Harberger study by consistently applying profit maximising behaviour on the part of the monopolist, and by this means it will be suggested that Harberger's results, when recalculated, are more appealing than at first sight. It will be argued that Mundell can rest easily.

How Harberger upset Mundell

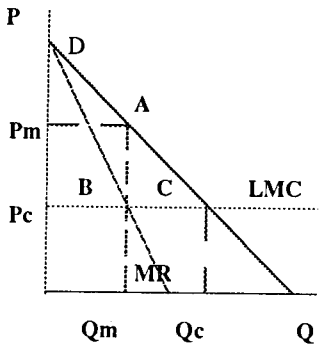

Figure 1

As in the 1991 article, the situation in which a monopolist and a perfect competitor face identical and constant costs in the long run is depicted.

The authors then allow a perfect competitor, with no market power, to maximise profits setting AR = LMC, producing Qc at a price Pc. Thus no supernormal profits exist, and net surplus (producer surplus plus consumer surplus, NS) = consumer surplus (CS) = DPcC, the social optimum.

The monopolist, however, does have market power, and by setting LMC = MR he produces Qm at a price Pm, restricting output, raising price, and generating PS (producer surplus), supernormal profit, π = PmABPc. CS is reduced to PmAD.

In summary, NSm (net surplus under monopoly) + ABC = NSc, (net surplus under competition) where ABC is the famous Harberger Triangle, the deadweight loss (DWL).

Given assumptions of demand curve linearity and constant long run marginal cost, Harberger argued that:

DWL ~ ABC

$= \frac{1}{2}.dP.dQ$

$= \frac{1}{2}.dP.dQ/dP.dP$

$= \frac{1}{2}[(dP)^2/P].[dQ/dP.P/Q].Q$

due to linearity

$= \frac{1}{2}[(dP)^2/P].\varepsilon.P.Q/P,$

in the limit

$\Rightarrow$ ABC $= \frac{1}{2}(dP/P)^2.\varepsilon.P.Q$

where $\varepsilon = (\delta Q/\delta P.P/Q)$ is the point home price elasticity of demand. This is where the 1991 article left off.

One of Harberger's assumptions was to let P=Pm, Q=Qm, thus:

$dP/P = r = (Pm-Pc)/Pm$, and multiplying above and below by Qm yields:

$r = (Pm.Qm-TC)/Pm.Qm$

$= \pi/TR$

thus ABC $= \frac{1}{2}.r^2.\varepsilon.TR$

$= \frac{1}{2}.\pi^2.\varepsilon/TR$

It was from this equation, setting $\varepsilon = 1$ (its minimum possible value, and a serious underestimate), that Harberger calculated the cost of monopoly to be 0.07% of US GNP thereby puzzling overcharged consumers, annoying Mundell, and upsetting the career plans of potential Monopolies Commission employees.

Some Solace for Mundell

What should be argued is that in order for the ABC to be identified as a deadweight loss in the first place, we assumed, controversially, that the monopolist was a profit maximiser who set LMC = MR. If we consistently apply this assumption, then his objective function is given by (arbitrarily choosing quantity as the choice parameter):

$\pi(Q) = P(Q).Q - C(Q).Q$

$\Rightarrow \pi(Q) = TR(Q) - TC(Q)$

Maximising,

$\delta\pi(Q)/\delta Q$

$= \delta TR(Q)/\delta Q - \delta TC(Q)/\delta Q = 0$

$\Rightarrow P(Q) + Q.P'(Q) - C'(Q) = 0$

i.e. $MR = P + Q.\delta P/\delta Q$,

and $\delta P/\delta Q < 0$, thus $MR < AR = P$.

{NB: under competition,

$\delta P/\delta Q = 0$, giving $MR = AR = P$}

at π max MC = MR

$\Rightarrow$ $MC = P + Q.\delta P/\delta Q$

$= P(1 + Q/P.\delta P/\delta Q)$

$= P(1 + 1/\varepsilon)$

or $MC = P(1 - 1/|\varepsilon|)$, the inverse elasticity rule,

$\Rightarrow (P-MC)/P = 1/|\varepsilon|$, the Lerner index of monopoly power.

Note that we can easily see that in the limit, (P-MC)/P -> 0; i.e. the more elastic is demand, the less is monopoly power. Now, (P-MC)/P = dP/P = r, => $|\varepsilon| = 1/r$, so referring back to Harberger,

$$ABC = 1/2.r^2.\varepsilon.P.Q$$

and by substitution for ε,

$$ABC = -1/2.r^2.1/r.P.Q$$
$$= -1/2.P.Q.r$$
$$= -1/2.P.Q.\pi/TR$$
$$\Rightarrow \quad ABC = -1/2.\pi.$$

Thus by consistent application of the original assumption of profit maximising behaviour on the part of the monopolist, an assumption that was originally necessary to identify ABC as the deadweight loss, we have arrived at an estimation for DWL = $1/2.\pi$, and using Harberger's original data, this would have yielded DWL ~ 4% US GNP.

It should be noted that having dispensed with the necessity to make an assumption about the magnitude of ε, we have overcome any argument as to exactly how much an underestimate was Harberger's original estimate of $|\varepsilon|=1$.

Conclusion

Underlying Harberger's famous 1954 study are a number of dodgy assumptions. These are discussed in Ryan and Sullivan's 1991 *Review* essay. What has been shown in this short note is that by applying the assumption of profit maximising behaviour on the part of the monopolist consistently, Harberger's original estimate of welfare loss due to the presence of monopolies in a society is greatly modified.

Why do we do it?

Mark Aplin[1]

Introduction

The first principle of economics is that every agent is actuated only by self-interest (Edgeworth, 1881). It is perhaps reassuring to know that even in 1881, economists were being encouraged to dismiss that aspect of human nature known by many as 'compassion'. We are still told that the only reason we help others is to help ourselves. All feelings of sympathy and 'compassion' are inherently selfish, for we are inherently selfish.

However, as Collard (1975) points out, even Edgeworth was highly suspicious of what he saw as an inaccurate representation of human motivation. Why then does it remain a fundamental precept of microeconomic theory?

Revealed preference theorists tell us that if we choose something, then by definition, we prefer that selection to all other feasible selections. When queried as to the validity of such a philosophy, many adherents will defend the stance, beginning by assuming that it is in fact correct. Thus, for example, when one gives money to charity, it is done because it makes one feel better, net of the loss of money. Thus, one cannot set one's own interests aside, giving preference to those of the family, for alas there are no other interests, only selfish ones. This is because, in the final analysis, one chooses that which maximises one's utility function. Like Polemarchus in Plato's "Republic", we are meant to stand back, aghast by the wisdom of this searing insight into our daily lives. In truth, however, it is merely a circular argument, one which avoids the issue, and does not do the science of economics justice.

Homo Oeconomicus

We then have our economic animal; one which is *'rational'*, it acts so as to maximise its own welfare, given structural and budget constraints. Unless choices are explained by some preference relation consistent with the narrow bounds of economic rationale, the agent will be deemed to be behaving irrationally.[2] We are left with no choice-independent way of assessing welfare. We do not need one, for we can rely on

[1] The author would like to thank Professor John O'Hagan for his many helpful comments on an earlier draft.

[2] Such views are looking increasingly stringent with the development of chaos theory, which suggests that there are grounds to believe that the behaviour of atoms, molecules and subatomic particles may be modelled as random.

the individual agent to maximise that welfare through its revealed preferences. Thus, all non-choice sources of information on welfare are ignored.

It is perhaps to be expected that behavioural characteristics will remain anonymous behind such stifling, formal, limitations. However, it does not stop there. Economics has developed two models of human behaviour. One is an unsympathetic isolationist, and the other is an agent which allows the welfare of others to affect its selections and welfare. These may be represented as:

Isolationist : $U_i = U_i(X_i)$,

Integrationist : $U_i = U_i(X_i, U_j)$,

where Ui is the utility of the ith person, Xi is the consumption bundle of the ith person, and Uj is the utility of the jth person.

I wish to concentrate on the integrationist, as the isolationist is perhaps more self-explanatory.

There are two ways in which exterior influences can affect i. One is through a change in j's welfare leading to a perceptible change in i's welfare. Thus

$U_i = U_i(X_i) + \phi(U_j)$, where $0 < \phi < 1$, i not equal to j

This model does not explicitly state that changes in j's welfare will alter i's behaviour, although it seems clear that if i feels that through a change in its preferences it can radically alter j's welfare, and hence its own welfare, it will do so. The second possibility is that changes in j's welfare lead *ipso facto* to changes in i's preferences, without necessarily altering i's welfare. Thus

$U_i = U_i [X_i (U_j)]$, i not equal to j.

Thus consideration for j leads i to choose bundles which it otherwise would not have chosen. Examples of such behaviour are ethical decisions, or reactions to suffering of those in foreign countries. Though the distinction may seem overly technical, it is significant as the latter form of integrationism, what Sen (1982) refers to as "commitment", is not egoist. Sympathy in the first case constitutes concerns which must be directed towards the self for them to have any importance. This is an important difference for behaviour theory.

Rational behaviour, as a model of human behaviour, is often criticised for being too complicated. Certainly, it is admitted that individuals do not consciously equate the marginal costs and benefits of all their actions. It is also true that individuals do not carefully investigate all options available to them - an information problem. Maximisation of utility often comes a poor second to habits formed over years. However, it may plausibly be argued that individuals do tend to 'gravitate' towards an efficient allocation of resources in the medium-term, even though there are clear imperfections which lead to minor inefficiencies, especially in the short-term. However, the manner in which the workings of the human mind are presented, far from being overly complex, are misleadingly simplistic, rendering Homo Oeconomicus a "social

[3] See Sen, A. op. cit. Moron is his word not mine!

moron".[3] This creature has but one manner of selection which must accommodate such diverse impulses as self-interest and normative judgements on the welfare of society. This Homo Oeconomicus is sadly incapable of distinguishing between greed and altruism. The motivations behind eating and devotion to loved ones is but an opaque blurr. We must ask ourselves whether this is an acceptable view of human nature.

The Problems of Igor

Our Homo Oeconomicus shall henceforth be referred to as Igor. Igor is desperately (in every sense) in love with Voluptua, the most beautiful girl on the street. Igor, though not the brightest of individuals, realises that the effects on Voluptua of his attempting to demonstrate his stifled emotions, would most probably be irreparable. Thus Igor restrains himself. He does this, not through a fear of embarrassment (poor Igor has made a fool of himself on far too frequent a basis for that), but rather through concern for Voluptua's emotional stability. Though one hesitates to infer too much from such a flippant example, I believe that it demonstrates that there are two aspects of consumer theory which are erroneous. The nature of Igor's concern for others - in this case Voluptua - exposes the true form of interdependent utility functions.

Concern for others does not act as a determinant of selfish utility; rather it acts as a constraint, making impossible options which would otherwise be optimal. Instead of a utility function in which the welfare of others acts solely as an influence on selfish utility, there is a function which represents preferences as being personal, but tempered by concern for others. Using the example of a two good, two person economy with no production, in which all consumption derives from endowments and person B has an 'income' which is below subsistence level, then with goods x and y, the position can be represented thus:

$Qa = \alpha x + \beta y$

$Qb = \chi x + \delta y$

where Yo is total income for the economy.

$Qa + Qb = Yo$

If A's income exceeds Qa*, there will be a transferral of resources from A to B [Qa* - Yo = Qb', such that Qb' is below subsistence level for B]. This will be the case because A is unwilling to see his sole companion die of starvation, while he (A) eats to excess. Thus A's utility maximisation problem is Max U = U[Qa (x,y)] + λ(Qa-Qb' - Yo).

It is quite possible, therefore, that preferences do not reflect welfare maximisation. To view exterior concerns as being merely elements of utility maximisation is the same as viewing conformity to budget constraints as being but a source of utility. We thus keep to these budget constraints because we like it, not because something tells us we should. The analogy is deeper, for ethics enters into both. Those individuals who do

not feel bound by intertemporal budget constraints (including credit extensions) will by definition take that which is not theirs. Many feel that this is morally unacceptable. Similarly, many feel that it is morally unacceptable to ignore the plight of others in our community. However, in the case of concern for others, the effect on preference cannot be quantified; it cannot be modelled satisfactorily for the purposes of hypothesis testing etc. The increasingly mathematicised nature of economics has perhaps led us to sweep away those qualities which do not lend themselves to quantitative analysis. This whole approach makes the concept of sacrifice somewhat incongruous. If someone starves for twenty four hours, allegedly for those dying in the Sudan, she or he must be lying. In fact, she or he is clearly doing it due to some macabre pleasure derived.

"Commitment" violates this quite unique economic pleasure principle. It drives a wedge between personal welfare and personal choice. Returning to the tired example, let us say that Igor knows that he could embarrass Voluptua into receiving his advances, and yet he remains inactive. Economists tell us that he does nothing because nothing is what he wants to do; we always do what we want. However, Igor would be happier doing something. Certainly, there will be some benefit derived from the knowledge that Voluptua has been spared the worst experience of her life. Yet this is merely an externality from inactivity. It is insufficient to compensate Igor for the loss he suffers from inaction. At the risk of labouring the obvious, what is being said is that people are driven by a plurality of forces. To subsume all human emotions under the blanket of self-interest, while useful for pedagogical reasons, is an unreasonable over-simplification. One major drawback of this approach is that it can lead to incorrect inferences regarding societal welfare. This is due to the fact that people are not necessarily the best judges of what is best for others. While we can probably sleep safe in the knowledge that Igor's assessment of the situation is uncharacteristically accurate, in other situations divergent assessments can be a source of inefficiency, prohibiting the exploitation of Pareto improvements.

We do not always choose what we want

Apart from commitment, there are two other reasons why there may be a divergence between preference and utility.

i) Rigid adherence to habits prevent individuals from exploiting utility-increasing opportunities. There is an overlap between this problem and the question of the role of ethics and its impact on the basic premises of rational economic behaviour. Are we to say that strictly honest behaviour can be irrational? If economics is to fulfill its purpose of aiding the community in understanding the workings of the economy, then it must explicitly incorporate that system of ethics which influences the behaviour of economic agents. Instead of this, there is a tendency to feel that somehow people are misbehaving if they refuse to obey

the strict rules set down by economic rationale. Prescriptive modelling has no place in a science.

ii) Due to the psychological make up of certain individuals, they may be unable to act rationally in the face of extremes of pain or pleasure. The concept of free will in general, however, is undergoing radical transformation. The legal precedents regarding the inclusion of subliminal messages in song lyrics opens up an enormous dilemma. Is any one of us in control of what we are doing, when there is the possibility of implanting concepts within our minds without us knowing? Thankfully, such philosophical niceties are beyond the scope of this paper (and writer).

Conclusion

It may be felt that the thrust of this paper is merely a discussion of semantics. I wish to refute this. To say that it is unimportant whether one includes concern for others as an indirect influence (via personal welfare) or as a direct impingement on personal welfare, is simply not true. To use personal welfare in the broad sense that economics currently uses it is to denude the term of all its meaning. It is similar to one referring to all books as novels, ignoring all other categories, and destroying the usability of the term novel. Now no one knows precisely what one means by 'novel'. In the final analysis, as words are the sole medium of discussion, to destroy them leaves us with little to discuss.

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Banking Regulation and Supervision in the United States: Lessons for a United Europe

Lisa Finneran

Ne tournons pas nos regards vers l'Amerique pour copier servilement les institutions qu'elle s'est donnees, mais pour mieux comprendre celles qui nous conviennent, moins pour y puiser des exemples que des enseignments (Alexis De Tocqueville).[1]

Introduction

This paper begins with a justification of the topic chosen. Firstly, why study regulation? A short theoretical section attempts to show why regulation is necessary. A more practical section then shows how regulation is particularly important in the financial world of the 1990's. Then comes the question, why study the United States? At the risk of being disjointed, we shall look at the evolution of the different regulations, and their relevance to the European situation separately. It shall be seen that the practical disappearance in importance of certain instruments has meant the increase in importance of others - what the Federal Reserve has called 'new instruments with old names'. Before commencing, we note that what is presented in this paper is a summarised version of a vast topic.

Why study regulation?

If regulation is important, then the study of it is important in order to discover the most effective methods of regulation. Regulation is important for the following reasons:

- What Friedman and Schwartz have called 'contagion'; the failures of one bank can lead to instability, or eventual collapse, of the whole banking system, if it causes the public to doubt the health of other banks and to attempt to withdraw their assets all at the same time;

- Collapse of the banking system, as the sector which creates money, would have massive externalities for the whole economy ;

These two banking characteristics do not in themselves justify regulation, because if bank failure had a zero probability of occurrence, or if the market could control the risks involved, these characteristics would not worry us. However, the facts are that risk is fundamental to the concept of banking and it is a risk for which the market cannot account.

To explain this statement; risk

[1] We should not look to America with a view to copying her institutions servily but rather to understand better those which apply to us and to draw lessons rather than direct applications.

in banking arises due to asymmetry of information. Bankers can make investment decisions which do not take fully into account the interests of the depositors. This applies also to banks themselves as depositors on the inter-bank market. Ordinary market devices such as risk-pricing cannot take this into account, as depositors cannot charge banks for risks they do not know about. Coase's theorem states that when negative externalities exist in any social contract, there will be an incentive for economic agents to organise behaviour in order to internalise these costs. However, because control of risk is, in a way, a public good (risk-taking banks benefit from the reputation of conservative banks)[2], free rider and prisoner's dilemma problems mean that a mechanism for the establishment or enforcement of risk-control is necessary. Thus it is the public good aspect of risk-control, both for the banking sector, and in turn the whole economy, which justifies regulation.

Why study the US?

De Tocqueville's quotation above applies as much to our inter-continental comparison of financial regulation today as it did to his comparison of political systems in the last century - we do not want to copy directly the US system as it clearly would not suit us and, in any case, we would prefer to avoid the present severe problems. Rather, we can see the US, with its complexity of regulations and its turbulent evolution over the past twenty years, as an "immense financial laboratory" (*The Economist*, 1991), offering us various examples of different regulatory policies. From this we can draw lessons on those which suit our European situation. Our free-riding on the American experience is all the more valuable when we take into account that the US financial markets are considered to be approximately twenty years ahead of their European counterparts.

The crucial question, however, is - how applicable is the American experience to Europe? - how similar are the two systems in question?

If we take any one country in Europe, comparison with the US seems practically worthless. For example, Belgium at the end of 1986 showed a market concentration of 45% for the largest five banks, while that of the US was only 10% (Baltensperger, 1990). Regulation in Belgium is covered by one law and one regulatory body, La Commission Bancaire et Financiere, while in the US regulatory legislation is complex and controlled by four bodies - the Federal Reserve, the Comptroller for the currency, the Federal Reserve Deposit Insurance Corporation (FDIC) and the Federal Savings and Loan Insurance Corporation (FSLIC). The multiplicity of establishments in the US makes this control all the more difficult. Deposit accounts are regulated in Belgium and

[2]"These banks that run horrendously large deposits are to be deplored." The concern of the consertative banks can be seen in the remark of Godfried Bruder, GM of Commerzbank, London ("*Banker*" April 1989).

are now free in the US. The US was ,for a long time extremely restricted in product and market expansion. No such restrictions have been imposed in Belgian banking.

Thus the differences seem too important to allow constructive comparative study. However, if we compare the US with the EC as a whole more direct parallels can be made:

-market concentration in the EC is 13%; in the US, it is 10%;

-different national regulations make legislation complex and supervisory bodies are numerous, a situation that is similar in the US;

-many countries still have interest rate controls, but these are fast disappearing in the attempt to move towards harmonisation ;

-geographical restrictions and movement towards their abandonment is in direct comparison to those of the sovereign European countries and their move towards unity ;

Of course, there are still large dissimilarities (which will be covered in later sections) but the above similarities would seem to indicate such a study to be worthwhile.

What have been the most important policies of the US banking system and how have these evolved in recent decades?

Interest rate regulation

Regulation Q was one of the measures implemented after the 1929 stock market crash. This set a maximum rate payable on deposit accounts and, along with rules placing ceilings on usury loan rates, aimed at preventing competition from encouraging banks to take unnecessary risks. Such controlled rates meant that return was not related to market risk. Thus relatively risk-free clients were subsidising the risky clients as they were not earning what their funds were worth on the money-market. This problem became more acute during the 1970's due to higher banking costs and interest rates. Estimates by McKinsey show that by the end of the 1970's, on average 15-25% of clients contributed to profits of more than 70-80% (Bryan, 1989). This led to what was then called 'disintermediation' and 'securitisation', as depositors withdrew their funds from the banks and invested them directly in equities and bonds.

To prevent disintermediation from crippling the thrift institutions they were allowed to offer competitive rates on large certificate of deposits ($10,000), then banks had to be permitted to do the same. However, this did nothing to solve the problem of small depositors, and with the appearance of money market mutual funds (MMMF), accounts competition became worse. (MMMF offered shares in asset portfolio made up of highly liquid money market instruments offering competitive interest rates). This resulted in two things: (1) bank costs increased by 50% from 1976-79 as banks tried to keep their clientele by offering more services, and (2) these institutions took on even more risky projects in the struggle to remain profitable. Thus a regulation which was meant to be contributing to stability was causing instability.

A number of EC countries,

including France, Belgium , Greece and Portugal, still have controls; however it is expected that these will be phased out gradually due to the completion of liberalised capital movements and movement towards monetary union.

The American experience shows how a banking system which ignores the risk portions of its customers, using one group to subsidise another, cannot survive in the world of modern financial innovations. It also demonstrates the severely damaging effects of interest rate control in a sector exposed to competition in terms of both profitability and risk undertaken.

Geographical expansion

Santomero (1990) speaks of the "historical and deep-seated geographical restrictions" in US banking which seem to echo the European system. In fact, the banking systems of the United States have long since been even more separated than those of 'United Europe'. This does reduce the relevance of the comparison but, nevertheless, there may be some lessons to be learnt here.

As well as interest rate regulation, geographical restriction also had the aim of limiting excessive competition. Laws prevented inter-state banking but for various reasons these have been side-stepped in recent years.

Geographical expansion in the States occurred in a context where obstacles to inter-state commerce were practically non-existent. In Europe, however, the goals of1992 link commercial and financial expansion. Thus, the success of financial intergration may be dependent on that of commercial trade.

Product Market Expansion

The 'Glass-Steagal Act', more properly entitled the Banking Act of 1933, established product market barriers between commercial and investment banking by separating deposit-taking activities from under-writing and securities; this was to prevent any possible business crisis from leading to financial crisis. In the years of the depression and World War Two there was not much opposition to this Act. It was only in the 1950's that banks began to try to expand their activities by establishing bank-holding companies which avoided the regulations regarding wholly-owned subsidiaries. Legislation was implemented to control this and in doing so, sanctioned the bank-holding form. Interpretation of federal regulation in the 1960's and 1970s led to increased product expansion. Today the Glass-Steagal division is very weak in comparison to its previous position. Banks now offer a vast range of services to customers and are less constrained in their own activities (in June '89 the Fed allowed commercial banks participation, although limited, in under-writing of corporate debt). Today, the major area of market concentration defines the principal participants rather than separation on industry lines (Glastner, 1989).

European financial systems have never been as segmented as those of the US and perhaps in this respect

the US has more to learn from Europe than vice-versa. Much blurring of demarcation lines between formerly segmented sections of the financial system has occurred in recent years to varying degrees in the different countries, due to market forces, as in the States, and due to the monetary authorities trying to 'level the financial playing field'. The OECD points out the main developments:

-policies towards diversification, which have been most important in countries with traditionally more segmented systems. In some countries, institutions which traditionally were only guardians of savings have now become full-scale retail banks;

- the activities of the post-office, with its vast branching network, have increased rapidly;

-the bank sector has begun to be integrated with the securities markets institutions. Here, the German tradition of universal banking where there are no limits on bank participation in industry, stands in sharpest contrast to the American system for example the Deutche Bank presently controls 35% of Mercedes-Benz. Arguments in favour of this system include economies due to banks' access to information on businesses, and that it allows diversification of risk for bank investment. Against it, though, it can lead to monopolism in banking, and also the great effect an industry collapse would have on the financial system.

Belgium represents a country which is somewhere between the two extremes. Investment in quoted companies is permitted up to 35% of a bank's capital providing investment in any one company surpasses neither 5% of voting rights in the company nor 5% of the bank's capital.

Indeed, all of the different European systems differ in the degree of permission of band-activity on the stock exchange. In the move towards unification and the principal of home supervision, these systems are expected to converge due to competitive pressures. The question of supervision of these activities will therefore become even more important. The definition of the safety net will have to be defined so as to cover the banks only and not the non-bank affiliates. Santomero suggests the best way to do this would be to follow Federal Reserve regulation which prohibits various financial transactions (such as loan/sale of assets) between affiliates.

Deposit Insurance and Lender of Last Resort

Deposit insurance and the role of the Federal Reserve as Lender of Last Resort are relied on heavily in the US as a method of preventing bank runs, by guaranteeing the public the safety of their deposits should bank failure occur and by guaranteeing liquidity and solvency of the system. Every bank or saving institution can have deposit insurance up to $100,000 per client. The aim is thus stability. However, the changes in the financial system, especially the competition aspect, has called into question the effectiveness of these protective measures.

Firstly, since competition offers depositors a choice of different

institutions to invest in, and since they feel their deposits are safe, they ignore risk considerations in their choice of institution, looking only for the bank offering the highest interest rate. This means that inefficient banks which must take high risks to survive are supported by the federal guarantee system. Otherwise low-performing banks and S&Ls would have dropped out if competition had been permitted. The current system actually leads to a vicious circle. When in trouble, a bank undertakes ever more risky projects, thinking that if they succeed, well and good; if they lose, the insurance corporation will bail them out. The system has now reached such a critical situation that at the FSLIC estimates are that losses will reach $100 billion ($400 per head of population).

The response of the political practitioners has been to increase the cost of the insurance to the banks and S&Ls in order to cover the expected losses. Among the economic theorists, however, the calls have been for drastic reform or even abolishment of the system, replacing it with a private insurance scheme. This proposal is not feasible through as a private insurance scheme cannot cope if all claims are made on it simultaneously, which is what would occur in the banking system were failure to occur (due to contagion).

The European system is very different to the American (Baltenspeger, 1990). Firstly, the public is not aware of the existence of deposit insurance schemes - in Germany publicity is even banned in the fear that knowledge of their creation could cause loss of confidence in the banking sector. Secondly, systems are very different across countries, which could have a destabilising effect if depositors went searching for best coverage. Thirdly, deposits of foreign banks are insured by local agencies, but on the principle of home country control, these agencies cannot monitor the risks taken by the foreign banks. Fourthly, losses are not supported by the tax-payer by the inter-bank market. This could mean severe weakening of the Euro-banking system at a time when it is more exposed than ever to the American and Japanese competition.

Baltenspeger and Dermine's call for the abolishment of the deposit insurance system echo the same calls in the US. They recommend instead, reliance on LLR facilities given randomly. Herring (1990), however, argues that this could not work as the market participants would simply work on expectations of which banks would most likely receive LLR. Genuinely uncertain LLR assistance is unworkable.

The most interesting proposal for a modern deposit insurance system still comes from the States. These views consider modern financial innovations as perfectly substitutable for insurance schemes in guaranteeing stability and solvency. Glostner calls MMMF "run-proof", because shareholders have no fixed claim if the value of assets fall; shareholders bear the loss instantaneously. Thus incentive to withdraw is much less than that of ordinary depositors. If they do decide to withdraw they can only take their now reduced share of the fund and so cannot threaten solvency of the fund.

This is a topic on which there will obviously be much debate, especially considering the catastrophe of the US situation.

Capital adequacy requirements

This is a regulation whose existence has never been questioned. Banks must keep a certain ratio between their reserves and their deposit creations. At present, the US, like Europe and most of the other OEDC countries, are following the initiatives of the Cooke Committee on risk-based capital requirements. This international harmonisation of regulation is hoped to increase efficiency and reduce exposure to risk due to international operations.

Conclusion

Deregulation of interest rates and progression abolition of product market and geographic restrictions mean that deposit insurance and capital adequacy requirements are now the two pillars on which the American regulatory system rests. This massive increase in stature of the capital adequacy requirement has, in itself, meant that this is indeed a "new instrument with an old name", although it has been changed in form also (calculation of adequacy requirement based on risk already existed in the States so the inclusion of off-balance sheet activities in the calculation is probably the newest feature). The status of the deposit insurance system is not quite so sure however. The present crisis poses the question of whether this regulation is simply an "old instrument with an old name; begging to be replaced. However the only feasible replacement, such as suggested by Glostner or Bryan, would necessitate radical restructurating over an extended period of time of the banking system. Thus, the regulatory bodies at present are stuck with a Catch-22 situation - can't live with it, can't live without it. We note that this is mainly the result of the system in the sixties and seventies whose problems are only surfacing today.

With the removal of geographic barriers due to harmonisation of regulation, the disappearance of product market barriers due to harmonisation of regulation, and the disappearance of product market barriers and interest rate regulation due to competition, capital-based requirements and deposit insurance will increasingly become the twin pillars of European regulation . Deposit insurance systems are a relatively new creation, and at present do not seem to pose as many problems as the American system. Relative to the American situation, competition has not forced the European banks to take excessive risks, due to certain characteristics of the European situation: the smaller number of establishments, greater market concentration at each country level, interest rate regulation taking place in most countries before effective innovation, and less geographical restrictions, although I must say that I, personally, am not convinced that deposit insurance is the best solution to our regulatory problem, while admitting that the system at present does

necessitate it.

The US is indeed an immense financial laboratory and raises some very interesting and important questions for the future of European banking. Also interesting, as has been brought to the attention in writing this paper, is that Europe may have some very relevant lessons to offer to the States. This is seen most clearly in the fields of product market and geographic expansions. In the light of their present crisis, this information should be very valuable to the States. For us, in the light of European union, we can little afford to ignore any information beyond our own experience in deciding on the structure of our financial system, since the soundness of this structure will be a major determinant of the success or failure of the achievement of monetary union.

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Who Killed John Maynard Keynes?

Rory Carroll

"Magnificent, Poirot!" Hastings clapped the little Belgian heartily on the back as he delicately drained the last of his hot chocolate. "To have succeeded where the economists and historians of five continents have failed! To have solved the most sensational crime of the decade - the murder of John Maynard Keynes!"

Poirot made a lame pretence of modesty . "C'etait pas difficile, mon brave, if one only uses the eyes and the brain. Let me explain how I came to my conclusions."He leaned back and half closed his eyes.

"The first task was to consider the circumstances of the crime. You will recall that the authorities were quick to announce Milton Friedman's notorious Chicago gang as the perpetrators of the deed, acting independently of other groups. The 'lone gunman' so to speak. Fire was concentrated on two targets - consumption and investment.

"We know that Keynes favoured the psychological law that as aggregate income increased, so would consumption, but by a lesser amount. From this he concluded that unless investment increased to absorb the growing savings, total effective demand would not grow rapidly enough to keep all employed. It was this that provided Friedman with his opportunity. First he prepared his alibi of rational consumer behaviour to explain that as some people have volatile incomes, they will save a disproportionate amount for lean years. Empirical evidence had proven Keynes wrong - as society got richer, the proportion of national income saved did not fall. Thus Friedman successfully exchanged Keynes' multiplier for a consumption function, thereby eliminating the spectre of underconsumption in the long-run because of the implausibility of savings exceeding investment.

"Yet for Friedman, it was not enough. He liked to 'kick a man when he is down', as you say. Wielding his Monetary History of the United States he battered Keynes' liquidity preference until money demand was seen to be stable. Thus, economic instability was not due to the instinct of businessmen, but due to governments' erratic changes in the money supply. It appears that the particular weapon here was quantitative equations.

"But of course the correct question to ask is why the dog did not bark in the night? Who might have known the plans of this dedicated assassin? So I had to consider the object of motive, objectively and without prejudice. First, who was the immediate beneficiary of

the deed? A.C. Pigou."

"Great Scott, Poirot", Hastings burst in "Pigou, the friend, the teacher of Keynes! Surely you could discount...."

Poirot raised an indulgent hand. "Mon cher Hastings, you have the feelings the most decent. I would, however, remind you that we speak of economics, of power. The elimination of Keynes reinforces Pigou's attack on the liquidity trap which, you may recall, suggests that a fall in wages would increase aggregate demand, independent of a change in interest rates, because the real value of money cash balances and private wealth would increase consumption by reducing the need to save out of a given income level. In short, it denies Keynes' liquidity trap by proposing a shift out of the IS curve. Yet the neglect of this theory embittered Pigou, thereby furnishing him with a motive to finish off Keynes."

"On the other side we have that rabid fundamentalist of the Austrian school - Hayek..."

"That filthy swine, I'd like to get my hands on that cur."

"Pas de zele, pas de zele, Hastings", said Poirot beseechingly. "Of course, it is unlikely that he had any knowledge of the Monetarist plot, given that some of his shots ricocheted off Keynes and hit Friedman! Nevertheless, he first hit Keynes' concept of realism, which, as you know, ascribes a real existence to arbitrary statistical aggregates. Thus Keynes' 'wage' cannot actually enter into economic relations. Secondly, he riddled the artificial depression of interest rates advocated by Keynes, arguing that it could cause boom and bust. The rationale for this was that capital, as a complex interlocking structure, cannot be treated as a homogeneous substance. Thus, lowering interest rates induces entrepreneurs to invest heavily - a commitment that requires much time and money to be fully integrated. Yet, such an increase in investment increases employment, consumption and wages - thereby diverting resources away from capital, choking off its cheap credit and leaving an incomplete and uncoordinated structure. Boom and bust, n'est-ce pas?

"Yet the story does not end here for Hayek likes to put the boot in a la Friedman. He also attacked the existence of quantitative functions in economics as the myriad behaviour of individuals in a constantly changing society as too complex to be formulated on arithmetic grounds. Thus Keynes had to be wrong if no fixed relationship existed between income and consumption. Yet naturallement such sentiments are not popular with economists as it renders much of their efforts futile. Perhaps, this accounts for our hostility - n'est-ce pas?"

Hastings reddened. "But Poirot, you are forgetting the Marxists!"

Poirot smiled soothingly. Always your favourite suspects, Hastings. Bien

sur, they had no love for Keynes, the man who highlighted the declining influence of private capital and formulated the theoretical underpinnings for the revived capitalist system. They too must be included in the list."

"I must say", Hastings broke in, "that meddling by the supply siders had something to do with it."

"Precisely. As usual, you have hit the nail on the head. Keynes' view - that if demand was correct, supply would look after itself, infuriated Say's cronies. They retaliated by using structural obsolescence and industrial concentration as a means of blunting the edge of traditional Keynesian fiscal and monetary instruments. Their coup de grace, so to speak, was the decay of market discipline produced by Keynesian economic rigidities - par exemple, the commitment to full employment would aggravate cost push inflation."

Poirot regarded his friend with amusement. "You are baffled, hein? Always, mon cher, you think with emotions. We must consider the theories with dispassion. To continue with our suspects - we must of course consider Schumpeter who distastefully compared democracy to a political market place where large groups pursue their self interest without the presence of budget constraints. Thus Keynes' short run money creation failed to account for the political nature of decision making. The result - excessive, unsustainable deficits.

"Nor must we neglect our friends who follow the new fashion of undermining the significance of unemployment. As much is composed of mere women, untrained or uneducated blacks and restless teenagers - what is the urgency? Why fuss with Keynes if there is no real problem?

"Enfin, to complete our list, we have the optimistically titled 'developing' world who are disillusioned with the widening gap between rich and poor. Unfulfilled expectations were created by the Keynesian concentration on fixed capital investment. It seems Keynes failed to appreciate the effects of an increasing population in soaking up the gains from capital accumulation and technical improvements that would otherwise have increased incomes and wages."

After a moment he said absentmindedly, "Ratchett."

"Eh, what's that, Poirot?"

"You will recall, Hastings, the murder of Ratchett aboard the Orient Express - an intriguing little mystery. But an instructive one, no?" Poirot raised his eyebrows humorously as he studied the face of his faithful friend.

"Of course, Poirot! That's what gave you the clue!"

"Precisely. They all killed Keynes!"

My Favourite Economist: The Early Economic Writings Of George Poulet-Scrope (1797-1876)

Colm O'Reardon

Introduction

As Hamlet doubted his lady because she 'did protest too much', so the mound of accompanying histiographical literature is an indication of the difficulty with which excursions into the history of economic thought are justified. So great is the volume of these writings that a meaningful presentation of even some of the key concepts involved is impossible in the space available. Neither would it necessarily be of great value to the reader, to whom there are available several volumes of collected works in the field (e.g. Blaug, 1991). Rather it is my intention in this paper to outline some personal observations which have arisen from a recent investigation of a little known English economist, George Poulet-Scrope, whose writings focus heavily on the problems of poverty and inequality, as well as monetary issues and several other aspects of political economy.

Two principal themes will emerge. Firstly, for those as yet unconvinced of the merit of studying the history of our discipline, I argue the value of confronting established ideas with the thoughts of writers who approached the subject from a different, perhaps fresher, perspective. Moreover, one often finds the roots of modern economic and social concepts in the writings of a previous century. Where this is true, we are challenged by the philosophical underpinnings of earlier versions of modern ideas. We may accept or reject, but we cannot ignore such philosophical foundations. Secondly, for those favourably disposed towards the history of economic thought, the case is made for a closer perusal of Scrope *in the original* (rather than relying on secondary) sources. He is an author who displays independent and original thought, a maverick in his time whose contributions to economics are, perhaps, currently underrated.

George Poulet-Scrope: Some Biographical Notes

Born George Julius Duncombe Poulet-Thomson at Waverly Abbey in Surrey in 1797, our subject was educated at Harrow and latter at St John's College, Cambridge. He initially excelled in geology and was particularly interested in volcanoes. His scientific endeavours won him Fellowship in the Royal Society, while he also served as secretary of the Geological Society. Had he never encountered political economy, he would undoubtedly have been remembered as a geologist of considerable stature.

In 1821, the same year in which

he took his B.A., he married Emma Phipps Scrope, the only daughter and heir of William Scrope, of Castle Combe in Wiltshire. Taking the name and arms of that ancient family, Scrope (as he now became) moved to Castle Combe and assumed the lifestyle of a country gentleman. His experiences as a magistrate and his observation of the agricultural labourers in the area prompted him to enquire into the problem of poverty, and into political economy generally. Elected M.P. for Stroud in 1833 at his second attempt, he sat in the House of Commons for that constituency until 1868.

Scrope was an extraordinarily prolific writer. Sturges (1985) has catalogued over 175 items attributable to his pen. Opie (1929) estimated that the seventeen pamphlets preserved in the British Museum under his name are but a sample of approximately seventy which he produced during his career, earning him the sobriquet 'pamphlet Scrope'. Much of his finest material appeared in the periodical *'Quarterly Review'*. In accordance with Victorian convention, these articles carried no by-lines, but modern historical research has established quite convincingly that Scrope is the author of the contributions in question. Finally, Scrope published two books. The first was entitled 'Principles of Political Economy Deduced from the Natural Laws of Social Welfare and Applied to the Present State of Britain. A second edition appeared in 1873 under the title 'Political Economy for Plain People', which is indicative of his intention that the book should make economics accessible to the widest possible audience. The second is a memoir of his brother Charles (Lord Sydenham), who was a prominent Whig and Governor-General of Canada.

Scrope's Welfare Economics

The first edition of Scrope's principles contains a system of welfare economics based on the natural law philosophy of the eighteenth century. While denying that "what is, is right", he nevertheless postulates the existence of a 'natural right' or natural justice. The basis of this argument is that when the individual chooses between different courses of action, only one choice is right, i.e. that which is "most for the welfare of mankind" or "for the best". Therefore, "abstract right" or 'natural justice' may be defined as "that disposition of the circumstances within his power by man, which is most for the welfare of mankind ". Maximisation of social welfare will be attained naturally provided that four fundamental rights are maintained. These are

1) the right to private property.
2) the right to personal freedom.
3) the right to an equal share in the common bounties of heaven.
4) the right to good government.

Each of these is relatively self-explanatory, with the exception of the fourth, to which we return later.

Scrope does not, however, content himself with outlining the conditions for attaining maximum social welfare, but also specifies the form which the social welfare function (SWF) will take. His SWF represents a consolidation of individual utility

functions, which are specified in a very particular form. The relationship which he postulates between individual utility and individuals' holdings of wealth is asymmetric, being kinked at the point where there is sufficient wealth to maintain "a comfortable subsistence and a reasonable certainty of its continuance". Above this point we cannot assume that added wealth increases utility, but below it we can be certain that "real suffering" will ensue. The SWF, or "test of national happiness", therefore, is primarily dependent on the proportion of the population which attains a comfortable subsistence.

The mode of thinking employed in this definition of social welfare could be argued to represent a simplified version of Sen's "commodities and capabilities" analysis. In Sen's view the possession of a commodity gives the individual certain capabilities, from which he/she derives utility. Poverty ought not to be considered as a relative deprivation of commodities, but rather an absolute phenomenon in capability space. If one accepts Sen's analysis and one agrees that Scrope's is a simplified version of it, with only one capability, i.e. maintaining a comfortable subsistence, then one is confronted with the philosophical underpinnings of Scrope's work. One must question, therefore, whether it squares with the philosophy of Sen, or indeed of the individual reader. Moreover, had one not previously encountered Sen, an excursion to Scrope opens up an interesting analysis in a very readable format.

Say's Law and Monetary Theory

We have already stated that Scrope saw the maintenance of four fundamental rights as sufficient conditions for the maximisation of social welfare. While labour mobility and the right to private property are well known prerequisites for the existence of properly functioning free markets, the "right to good government" is not a familiar term for modern readers. At the risk of over-simplification we may view "good government" as the opposite of mismanagement in the economy. For Scrope, human folly expressed in mismanagement and faulty institutional arrangements is the fundamental cause of poverty and unemployment. An interesting example of where this might occur is in the monetary system, on which Scrope wrote extensively. The great monetary debate of the time was the so-called "Bank Charter question" which centred on the organisation of the banking system and the rules governing note issue. Schwartz (1987) has an interesting account of the three schools of thought in the debate, namely the 'Currency', 'Banking', and 'Freebanking' groups. She is mistaken, however, in assigning Scrope to the 'Freebanking' school, which believed in an unregulated banking system with no Central Bank. While Scrope did hold these views in 1830, he had changed his mind by 1833 and could no longer be viewed as a 'Freebanker'. The details of his monetary thought are beyond the scope of this paper, but his concern with providing the nation with an adequate money supply must be noted. His experience of deflation in

the 1820's led him to argue in favour of the possibility of a "general glut". Such a state of affairs exists when there is "a general fall in the prices of the mass of commodities below their producing cost". Such a glut was "proof, not of an excessive supply of goods, but of a deficient supply of money". According to Sowell (1974) this is the first recorded denial of Say's law.

The import of this result will not be lost on those who concern themselves with Keynesian exegesis. As Keynes (1936) said of Say's law

"If .... this is not the true law relating the aggregate demand and supply functions, there is a vitally important chapter of economic theory which remains to be written and without which all discussions concerning the volume of aggregate employment are futile."

Scrope and Keynes were apparently addressing the causes of like phenomena (i.e. the 'general glut' or depression). It is interesting to note that, while in 1831 Scrope identifies the origins of a "general glut" as a shift in "the propensity to save, as compared with that to spend", by 1833 the phenomenon is explained in terms of a deficient money supply. Recent Keynesian interpretations have also (correctly, in my view) given greater emphasis to the role of money in Keynes' model. Scrope's analysis is, of course, far less sophisticated, but the direction in which he travels has again become popular.

Social Insurance

One of the primary reasons for my interest in Scrope is that he devotes considerable time to guidelines for the proper design of social welfare systems. Of course, his perspective is that of an early Victorian, which may make some of his views seem unduly harsh to the modern reader. He does, however, reject the Malthusian population theory and is convinced of the need for state intervention to provide for the unemployed and those who cannot work. One of his more interesting notions is that, in order to encourage a feeling of independence and self-respect among the 'labouring classes', the contemporary poor-law legislation ought to be gradually replaced by a compulsory mutual insurance scheme. A fixed sum per week, invariable with income, was to be paid into a fund in the employee's name by the employer. While this scheme does not correspond exactly with the Irish PRSI system, there are several similarities. What is striking is that the reason for Scrope's scheme is to make the claimant feel that he/she was not receiving charity while unemployed, but rather is drawing down on accumulated savings. A reading of Scrope on this issue begs the question of whether our social insurance schemes have come to be seen simply as taxation, and whether they don't lose a considerable degree of merit as a result.

Conclusions

My aim has not been to provide a comprehensive account of Scrope's writings, nor a detailed histiographical discourse. Instead, I have attempted to bring out some of the more interesting

and original aspects of Scrope's works and to point out how modern ideas and institutions may be challenged by them.

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Proceedings of the Student Economic Workshop 1991-92

European Community policy was found wanting in three of the workshop meetings this year. Addo Barrows presented the first paper of the year entitled '1992 - Will it Work?' which set out the social, political and cultural reasons for his belief that the Single European Market will not succeed. This reasoning provoked an excellent discussion which touched on topics such as the plausibility of the emergence of a European identity among the citizens of the European Community, the re-awakening of German nationalism, and the problems thrown up by the coagulation of so many cultures in one community, among others.

European Community policy came under particularly strong attack in the next two papers. The first of these was given by Sandra McNally on the topical issue of 'The Reform of the Common Agricultural Policy'. The ensuing debate concluded that the CAP owed its continuing existence to the failure of consumers to identify the benefits which CAP reform would undoubtedly bring. Billy Stamp had further unfavourable comments to make about EC policy in his paper 'GATT - Who's the Villain?' This paper focused on the continuing problems caused by the CAP in the Uruguay round of the GATT, and the welfare losses to the world economy which would inevitably result if these problems were not resolved. A spirited attack on the Theory of Comparative Advantage was made in the discussion afterwards, but the dangers of a trade-war between the two trade-blocs of the EC and the US were noted.

The next paper 'The concept of an Actual Replacement Rate' was presented by Ciaran John O'Neill. This paper, based on thesis work, concerned itself with the practicalities of relating replacements rates to unemployment. The various measures by which replacement rates can be measured and defined were highlighted in the paper.

The next workshop meeting was the highly successful 'Colours Economics Match': this was the first economics debate between Trinity and UCD in 17 years and as UCD won last time out, this was surely 17 years too many. Professor Patrick Geary chaired the meeting, which was adjudicated by Professor Patrick Honahan of the ESRI, Damien Kiberd, editor of the Sunday Business Post, and George Lee of Riada Stockbrokers. In a packed Thomas Davis Theatre, Garrett McGuickian opened for Trinity proposing the topic 'EMU - What s Good for Europe is Good for Ireland !' and was followed by a very witty and decisive delivery by Paul O'Connell. Celine Armstrong rounded off for Trinity referring to the 'UCD

Dinar'and the UCD Inter - Railer.The judges were unanimous in the decision that the home team had deserved to win.

In his paper 'Economics - The Road to Nowhere?' Diarmuid O'Conghaile touched on many points in his attack on the 'conventional wisdom' prevailing in the subject today. He noted that those who countered the 'conventional wisdom' such as Marx had their analysis marginalised within the discipline, and Diarmuid also challenged the very postulates upon which the subject is based.

Tony Annett was the next to present a paper entitled 'Conning the Public or the Public Interest - Politicans and the Economy'. Again based on thesis work, it highlighted the various theories of the 'Political Business Cycle' and presented convincing evidence of such under various administrations in the US.

Two further papers will be delivered this year. Patrick Dawson will present a paper entitled 'Where Fingers Prey', focusing on the developing and developed economies of the Pacific Rim. The final paper of the year will be presented by Tony Lynch on the topic of 'The Failure of Economics' which will suggest that the discipline of economics has failed in its primary duties to man. Dr. John Fingleton, representing the establishment, will reply to the charges levelled against the subject.

This year was another highly successful one for the Workshop, especially with the revival of the Colours debates. The interest shown in the Workshop and the *Review* are tangible evidence of an interest which goes beyond academic benefits and for this reason these debates and meetings will continue long into the future.

Tony Lynch,
Chairman

Don't Move or I'll Blow My Brains Out[1]

Billy Stamp

Introduction

History shows that sentiment turns toward protectionism when adverse national economic conditions prevail. That there have been enormous gains from the progressive liberalisation of international trade since the disastrous Smoot-Hawley Act of 1930 is undeniable. Yet despite these gains there has been a reversion to protectionist policies at a unilateral level on a scale alarming to those who understand that world social welfare can only be maximised through free international trade in all commodities, tangible and intangible.

In this paper, the rise of unilateralism since 1980 at the expense of the multilateral approach of the General Agreement on Trade and Tariffs (GATT) will be examined. The approach will be as follows. The first section will examine what will be argued to be the root causes of this reversion - the combined effects of a declining US manufacturing sector and the fast progressing unification of Europe. The second section will then cast the issue in terms of the GATT negotiations. This section will encompass a brief discussion of new theories of trade. The third section will, in conclusion, assess the implications for the world trading system.

The paper will concentrate on US and EC trade policy. The US has dominated world trade-policy making since the turn of the century, and has been the major force for trade liberalisation, especially since Roosevelt sought an export-led recovery from the pre-WWII depression. The EC, continuing its efforts towards unification, faces major internal restructuring. It will be argued that it is principally internal US pressure for unilateral action, combined with EC internal adjustment processes, that have been responsible for the reversion to protectionism since 1980. The major question appears to be why, when economic liberalism seems to be winning everywhere, does this victory not extend to international trade?

The Declining Giant and the New Kids on the Block

The USA - Paradise Lost?

Despite the fact that the International Trade Organisation was stillborn due to US Congressional opposition to

[1] This title, alas, is not original, being taken from Oxley (1990, p66). The author wishes to thank Professor Dermot McAleese for helpful comments on an earlier draft. Thanks also to a fellow student, Alan Kelly, for some ideas and sources.

ceding what they saw as vital national interest to a non accountable body, the 'stop-gap GATT' has been an enduring success. That success is mainly due to the fact that the US has been the driving force behind the negotiations. In the GATT's first thirty years, the average tariff on manufactured goods fell from 40% (1947) to 5%.

World trade, over the same period, has grown by 500%, set against growth in global output of 220%. The reason for the US's drive for free trade over this period is exactly the same as was Britain's in the late 19th Century - the US has been the world's leading manufacturing nation. However, prior to 1980, the US had a trade surplus, which allowed the administration to point to the benefits accruing to the country from free trade, or at least a steady progression towards it, and thus resist calls for protection.

What has changed in the US is its trade balance. From a current account surplus of $2Bn in 1980, the US has developed a current account deficit of alarming proportions during the 1980s ($126Bn in 1988), led principally by an increasingly poor trade performance.

It is at this point that political economy becomes relevant. Much of this trade deficit is with Japan and its neighbours. The US had balanced trade with the EC in 1989 ($89Bn), but ran a deficit of $95Bn with the Asian/Pacific Rim countries from a total trade deficit of $115Bn. Economic theory dictates that a current account deficit must be matched by a capital account surplus if reserves are to be maintained. Such has been the case, but it has been particularly galling for the average US citizen to see much foreign investment being made by Japanese money, especially in highly visible areas such as car manufacture. The US administration is finding it increasingly difficult to maintain resistance to GATT-illegal protection in the face of these developments.

Enter Fortress Europe - The Rise of Regionalisation?

The progress towards economic and ultimately political unification of Europe continues apace. Major steps were taken at the December 1991 Maastrict Summit towards Monetary Union, and a true free trade customs union is due for completion by the end of 1992. It is, perhaps, ironic that the initiative for the EC's formation came from the USA, in order to lessen the probability of a future war in Europe, and bind what was left of Germany into free trade democracy after WWII. The completion of the single market will see the EC12 emerge as the world's largest single free trade bloc. Also, an agreement with the mainly Scandinavian and non-EC western European countries of EFTA will provide for an enlarged tariff-free market. Finally, the collapse of the managed economies of the European east provides room for further expansion and a desperate need for western investment.

Problems arise because such upheaval in twelve developed economies creates major structural adjustment issues. The most famous, of course, is that of agriculture. The CAP is funded centrally, and accounts

for in excess of 70% of the EC budget - that for a sector whose contribution to EC GNP is of the order of 4%, and 7% of civilian employment. The farmers, clearly, have a political influence which far outweighs their economic contribution. Agricultural protection has been a major source of conflict with the USA, itself no stranger to protecting its farmers, who represent 2% of US GNP, a trade war over US losses in agricultural exports to Spain and Portugal on their entry into the EC having been avoided only by the EC agreeing to pay ECU200M compensation annually to the US, an agreement which was due to expire in 1990, but was extended for two years.

In addition to agriculture, the European Commission, responsible for European trade policy, finds it easier in the short term at least to protect many European industries from outside EC competition while they come to terms with a true free market at home and adjust accordingly. It may well be that Europe feels it has enough on its hands striving to secure the projected 2.5% - 6.5% once-and-for-all gain in GNP projected by the Cecchini Report without managing simultaneously a clamour for free trade from the rest of the world.

It should not be forgotten that the EC12 are not a political unit as is the USA. Quite often, though the EC commission has the power to negotiate at the GATT on behalf of the twelve national interests are judged by the nations involved to be at risk. Witness Irish, French and German reaction to the Cairns group and USA's demand for 75% cuts in EC farm support over five years set against Britian's tacit support for such demands .

It is, no doubt, US fears of an emerging protected European market that has led impetus to negotiations on the North American FTA comprising Mexico, Canada and the US. Such agreements, like the EC - EFTA agreement, are not GATT illegal, so long as falling tariffs and Non Tariff Barriers (NTBs) apply to a wide range of goods, not just a selected few, and barriers are not raised against the rest of the world as a result. The extent to which the possibility of protected trade blocs becoming prevalent represents a threat to the world trading system, or a set of leverage devices at the current round of GATT talks is moot. If it is a game, it is a dangerous one.

The possibility of a reversion to protected trading blocs must surely be in question given the interlinkages between the developed and developing countries. Third World debt reached crisis proportions in the early 1980s, as their ability to service debt deteriorated with the world recession, the situation being salvaged only by prompt if overdue action by the World Bank and the IMF. Part of this rescue has involved an acceptance on the part of the developed world that the developing nations be allowed to trade out of their debt. This will involve allowing access for textiles, currently governed by many bilateral multi-fibre arrangements (MFAs), and agricultural produce, to OECD markets. A major source of unilateralism, Article 18 of GATT, is being abandoned by many developing countries willingly (and by some at the prompting of the World Bank), pointing

to the experience of those countries who do not use it, among them Kenya and the ASEAN bloc, in comparison to those who do, among them India, much of South America, and much of black Africa as justification.

The Retreat From Free Trade

This section will examine the reversion to unilateralism, encompassing both GATT-legal and GATT-illegal measures. Before proceeding it may be helpful to outline briefly the underlying principles of the GATT before considering these issues.

GATT - The Administrative Arm of Economic Common Sense

The following are the guiding principles of the GATT:

* Reciprocity

A market-opening measure is regarded, alas, as a concession, for which reciprocal measures are expected. Because this variety of reciprocity aims to match reductions in protection (threats to raise tariffs are not allowed), not levels of protection, it is termed 'first difference reciprocity'. The principle is based exclusively on bargains on lower tariffs all round.

* Non-discrimination.

The 'Most Favoured Nation clause' requires that every country is treated as favourably as the most favoured.

* Transparency.

GATT urges that NTBs be replaced by tariff barriers, combined with a commitment (Binding Agreement) not to raise them further.

The GATT also incorporates a complaints conciliation service, whereby accusations of unfair practice by member countries can be adjudicated upon, and recommendations issued.

The Rise of Protectionism

Since the mid-1970s, the volume of world trade has continued to grow, but at a slower rate in relation to global output growth. It is reasonable to suggest that the proliferation of new varieties of NTBs are a major contributing factor. Some of these devices are GATT-legal, i.e. they conform to, or are not incorporated in, the articles of the GATT. Others are GATT-illegal, or form part of the grey area.

Voluntary Export Restraint (VER), a favourite policy instrument of the USA, and also widely used by the EC, is a GATT-legal measure (because of its 'voluntary' nature) which threatens another country, under pain of retaliation to restrict exports of the good in question. Throughout the 1980s, the use of VERs spread from textiles and clothing to steel, cars, machinery, consumer electronics, and more. The GATT secretariat has enumerated around 300 VERs, mostly protecting the US and the EC. 50 affect exports from Japan, 35 affect exports from South Korea. Because they are 'voluntary', they are difficult to monitor, and there are no reliable estimates of their impact on trade.

By far the most famous of the unilateral measures in use is the GATT illegal Section 301 of the US Trade act (1974) which requires the President to retaliate unilaterally against foreign trade practices that unfairly discourage US exports. The law is vague, and the

US decides what constitutes "unfairness". From 1974-1985, there were 27 cases; from 1986-1988 11 cases covering $4Bn. What the US is looking for in response is a Voluntary Import Restraint (VIE) - US trade policy in the 1980s has broadened from concern at a high level of imports to a more aggressive concern over low export levels.

Section 301 was strengthened by the Omnibus Trade and Competitiveness Act (1988) which has been dubbed Super - 301 (or the crowbar) allowing complaint about a whole range of practices adjudged to be restrictive. 'Named' countries have 12-18 months to comply. Japan, India and Brazil[2] were named in 1989, though Japan and Brazil have since been removed from the list. Through the use of Super-301, the US negotiated the 1990 Structural Impediments Initiative with Japan.

The GATT contains rules preventing predatory action on foreign markets, usually referred to as 'dumping'. These rules allow tariffs to be placed on under-priced or over-subsidised products. They are more widely used than Section-301, accounting for 77% of all trade actions from 1979-1988 (under-pricing) with countervailing (duties on goods adjudged to be over-subsidised) accounting for 18%. The US and EC are regularly accused of misusing this provision for the blatant protection of uncompetitive industries.

On average, anti-dumping duties are four times higher than the average tariff on manufactured goods. Such action often leads to VERs - 66% of VERs from 1980-1987 had this source[3].

Conclusion

The first section set the scene for an examination of the extent of the increase in unilateral protection in the 1980s. Two main arguments were made. Firstly, the US's competitive advantage in some manufacturing industries appears to be slipping away, and this combined with a visibly successful Japan, is placing increasing pressure on the US administration for protectionist policies. Secondly, the continuing unification of Europe, complicated by the collapse of COMECON may be a major force for retreat from free trade. Set against this, however, was a 'pessimistic' prediction of the future of aggressive regionalisation given the truly global nature of international finance.

The second section went on to

[2] India and Brazil were accused of breaching international intellectual property laws, especially in the field of pharmaceuticals. Intellectual property, like services, are not included under the GATT, though the US and EC want them included in this round .

[3] It is perhaps worth noting that VERs are a particularly brainless way of dissuading foreign competition. With the use of a tariff, some revenue is generated for government. VERs cede this revenue to either the importer or the exporting country. From a purely national point of view, tariffs are always more economically efficient than quotas.

examine the extent of unilateralism in the late 1980s. It was concluded that there is abundant evidence of the use of GATT-legal, GATT-illegal, and non-GATT measures for unilateral purposes. Some of the impetus comes, for the first time in the modern era, from the economics profession itself. It was argued, however, that should the Uruguay round succeed in encompassing intellectual property and services under the authority of the GATT, and further succeed in strengthening the GATT's powers of conciliation and enforcement, then many of the reasons for unilateral action will disappear.

A significant black cloud remains. Unless the US regconises the transient nature of competitive advantage and engages in progressive restructuring of the economy, and further succeeds in having services included under GATT, rather than choosing the politically attractive, but dangerous option of unilateral action, then, to use a classic free trade phrase, everyone will suffer.

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Can The EMU Fly?

David Swan

By the year 2000 consumers could be paying for their purchases in ECUs; interest rate levels could be set by an EC central bank; and the Minister for Finance could find that his annual budget is drawn up within guidelines set at EC level. But is EMU just a Delorian dream that will utimately be watered down? In this paper I will describe the 'irreversible course' towards European Monetary Union (EMU) and its much proclaimed benefits, as a background to a discussion of the risks, reforms and threats that need to be addressed if EMU is to live up to the expectations of both Eurocrats and Europeans.

The Road to EMU

Post-Maastricht, the road to Economic and Monetary Union has been clearly mapped out, and, if Ireland meets the rules for membership, the punt will be replaced by a single EC currency by 1999 at the latest and possibly as early as 1997.

The first stage of EMU is already under way and entails the tying together of currencies in the European Monetary System band, with as many countries as possible to be in the narrow band of the system by the end of this stage. The narrow band allows a 2.25% variation of currencies from a central point, while the wider band, in which British and Spanish currencies lie, allows a 6% swing. The Greek and Portuguese currencies are not in either band.

In 1994 the second stage of the process will get under way. A European Monetary Institute (EMI) will be established and will replace the existing Council of Central Bank Governors. Member states will appoint a president on the basis of a recommendation from the central bankers. The EMI will have limited powers, its main role being to prepare the way for final union, act to coordinate monetary policy, and promote the use of the ECU. During this transitional stage the Community member states will be directed not to run large budget deficits, to reduce high debt levels, and generally to conduct policy within set criteria for moving to the final stage of Union.

By the end of 1996 the EMI and the European Commission will assess whether the member states are ready to move ahead to a single currency. A move will only be made if a majority, seven member states, meet the rules on inflation, interest rates, and government finances set for those moving to final Union. If the decision is not taken in 1996, then by mid-1998 the member states must decide which countries are ready to move ahead to final currency union. Who can join will be decided by a qualified majority vote on the basis of

financial criteria. One way or another, the final stage will commence on January 1st, 1999.

At this stage the EMI will be replaced by a European central bank. The central banks of the member states will continue to exist, but their power to set interest and exchange rate policy will be transferred to the European central bank. A mechanism will be set up to ensure that member states keep their budget positions in order, and do not run large deficits. This will involve financial penalties for errant states.

The Hopes .....

EMU was conceived as the next logical step beyond the creation of the single market. The 1992 programme involves free movement of labour, goods, services and capital. A single currency would increase the benefits of the single market, lowering the cost of business transactions and eliminating currency uncertainty. For member states, full economic and monetary integration carries hopes of lower interest rates, lower inflation, financial stability, and membership of a dynamic economic bloc, thus boosting investment and employment. In addition, financial market integration can only be perfected with single currency. The ECU should provide the benefits of price stability and central bank independence. As a single currency, the ECU would become a major international currency, providing several second order benefits.

The Risks.....

The ambitions of politicians can sometimes run ahead of economic realities. This may be true of their enthusiastic push to establish a single currency for Europe. Convergence of inflationary expectations is a necessary condition for EMU to work successfully - but not a sufficient condition. Irrevocably fixing the exchange rates of the potential member countries could be destabilising for the European economy, unless the individual national economies are sufficiently well integrated. A single currency means that individual countries can no longer use changes in exchange rates as a tool of economic policy. This loss of autonomy may be no bad thing when it prevents governments from devaluing to boost output today at the expense of higher inflation later. Yet fixing of exchange rates brings costs too. It means that governments can no longer use exchange rates to offset the effects of surprise economic events which affect economies differently. Events such as diverse swings in oil prices or one-offs like German re-unification can quickly push relative prices between countries out of line. Unless relative wages and prices are flexible and adjust quickly, the result will be lost output and higher European unemployment.

The potential costs of EMU therefore depend on the extent to which individual European economies behave as one economy, the extent to which they suffer from different shocks, and the speed with which relative prices adjust. Many economists argue that the Exchange Rate Mechanism (ERM) and the prospect of the single market have already increased the degree of integration between EC member states. At first sight the evidence suggests

they may be right. The scale and timing of economic shocks can be measured, albeit imperfectly, using stock price movements. If two economies are affected in the same way by the same economic shocks the share prices in the two countries should move together. The average correlation between changes in the stock price indices of the main European economies has been rising constantly since the early 1980's.

First impressions can be misleading. Sushil Wadhani of Goldman Sachs has studied this increase in European stock market correlations and has found that stock market correlations between the US and Europe have risen by as much as those between European markets since 1985. A closer analysis shows a rise in intra-European correlations has occurred largely because the individual European markets move more closely with the US. The ERM and the 1992 programme had only a modest effect.

Furthermore, the main determinants of movements in individual company equity are national rather than European in origin. The more integrated European economies become, the less national influences should matter relative to factors that affect all European companies in the same industry. Yet individual stock prices remain considerably more responsive to the performance of national share prices than to European sector share prices. Only in the UK do the national and European influences appear equal.

Further analysis also shows that the positive returns of certain industrial sectors compared to the national average are poorly correlated across countries. The UK and German electronics sectors, for instance, do not appear to outperform or underperform their national markets at the same time. The evidence suggests that the main European economies are far from being fully integrated. I would draw two conclusions at this stage: first, that the lack of European stock market integration still makes it profitable for investors to spread their risks by diversifying their portfolios across countries, and second, that investment companies should continue to employ individual country analysts.

Thus it would seem that EMU remains a somewhat risky venture. The European economy is not highly integrated, and country-specific economic shocks do occur. With exchange rates fixed, relative prices can only be realigned through changes in relative wages and prices. As labour mobility in the community is low, these adjustments could prove to be long and painful.

Will Ireland be eligible to join the club ?

The Irish football team may only have been seeded in the second group in the draw for the World Cup, but the economy should have little trouble qualifying for the first division in the move to the final stage of EC economic and monetary union. The Maastricht Treaty sets a target for debt to Gross Domestic Product ratio of 60%, compared to the current Irish rate of 97%. It is crucial to note that it makes

it quite clear that a state will be allowed to join once its debt position is moving fast enough in the correct direction. The same applies to the budget deficit target of 3%. With freedom to alter exchange rates removed, some flexibility of budget deficits will be allowed so as not to put national policy makers in a complete strait-jacket. In other words, the final decision on deficits, as on debt ratios, will be political; only major offenders will be excluded. Much will obviously depend on how the rules are interpreted. Those wishing to move ahead with the first group will also have to have inflation rates and interest rates close to the lowest in the EC, and a stable EMS link.

While the Irish government is confident that the rules, as set now, will allow this State to move ahead with the first group to EMU, it will require a much tighter budgetary policy to bring this about. NCB, in a study published last December, point out that the need to continue reduction of the debt ratio will mean a succession of tight Budgets. If borrowing is reduced to 1.5% of GNP by 1993, in line with the Government targets, then it would need to reduce the debt to within 10 to 15 points of the 60% target by 1997. Whether an economic upturn arrives in time to assist the government in honouring the already partly postponed pay increases agreed under the PESP will be a crucial factor.

The Irish authorities have little choice but to try to move with the first group to EMU. Not doing so would not stop the economy suffering from the disadvantages of EMU - the risk of activity moving to the richer central EC members - and would deal a serious blow to confidence in the Irish market from overseas investors.

Current Threats to the Creation of EMU

* The difficulties surrounding German re-unification. Until the German inflationary danger is put to rest, the prospects for EMU are dim. EMU is an extension and consolidation of the ERM. Germany is the anchor of the ERM, to which other countries are tied, despite the polite fiction that currency parities are fixed to ECUs. Thus if Germany goes through an inflationary phase, the attraction of a new single currency will wane, at least temporarily . The German public will not want to risk currency experiments and other countries will be less keen to sacrifice their monetary sovereignty to what they view as a German system.

* More fundamental, however, is the threat of forced budgetary transfers between member countries. Both the opponents of EMU and some of its more misguided supporters are insisting on the need for increased transfers to an ever growing list of poorer countries and regions. This is claimed to be necessary to compensate for the freezing of exchange rates and the eventual elimination of national currencies. This whole line of thought represents a failure to understand the type of convergence required for monetary union, which is the convergence of inflation rates or, more strictly, of cost levels for internationally traded products. Provided comparative

pay reflects prevailing productivity, rich and poor countries can engage in harmonious trade under a single currency, as they did under the 19th century gold standard. It is because such market-based ideas are neither accepted nor widely understood that the pressures for budgetary transfers are mounting.

* The so called 'social dimension' will hurt the very people it is designed to help. The Social Charter is not technically part of EMU, but it is part of the total package of which EMU is part. The Charter aims to improve benefits such as holidays, maximum hours, social security and so on. This will help existing employees, but will add to costs and discourage firms from taking on new workers. Moreover, because it will become more costly to lay off existing personnel, the bargaining power of the latter will be increased. The Social Charter amounts to a tax on jobs, and to an especially heavy tax on taking on new workers in conditions of uncertainty.

Conclusion

This essay has set out the path ahead for European Monetary Union. While the many potential benefits are widely known, I chose to view these benefits in the light of the real risks EMU holds for member economies, the ability of the Irish economy to meet the required criterion on time, and the current threats facing the flight of EMU. EMU will eventually find its wings but unless the costs, reforms and threats I have discussed in this essay are addressed before take-off it could prove to be a bumpy flight.

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Understanding the Gains from Trade

Joanne Aron

International trade is justified on the grounds that trade is beneficial for *all* countries and persons involved; there are no such things as 'losers' in trade. Here, I shall explore the gains from trade by explaining the bases of international trade theory. This shall be achieved by the adoption of a convenient backdrop; let's assume an employee in the clothing industry has lost his job. How do I explain the gains from trade to this person whilst avoiding a thump?

My primary concern in my unhappy situation of having to explain the gains from trade to this ex-employee is my own physical well-being; for in an endeavour to explain the gains from trade - essentially, the very trade that has caused his job loss -I risk being the object of his violence and frustration at the entire free trade system. Hence, my first step is to ascertain his frame of mind and to gear my explanation accordingly. Regardless of the worker's character, he will be interested in learning why he lost his job. Since my task is to explain the gains from trade to him, it is via this explanation that I shall, at least partially, clarify the reasons for his redundancy. Now, he is obviously interested first and foremost in his future prospects. I shall explain that, depending on the cause of his redundancy, his ability and ease of being re-trained are affected, but that, in theory, he shall be at least as well off as he was before he lost his job. Finally - and whether I make this 'confession' shall depend entirely on his demeanour - I may admit to him that in the real world, where there are no such things as 'ideal' lump-sum transfers or Walrasian general equilibrium, there are no guarantees that he shall be as well off as he was before trade.

Assuming that the worker lives in a developed country such as Ireland, it is probable that he lost his job due to import competition in an industry which still exists in his country; but in the branch of production in which he unfortunately specialised, it became more profitable to import. The classical comparative advantage argument, where the entire industry gives way to import competition, also remains a possibility, and I shall deal with this first.

Comparative Advantage

"Each region is best equipped to produce the goods that require large proportions of the factors relatively abundant there...clearly, this is a cause of inter-regional trade, just as varying individual ability is a cause of individual exchange" (Ohlin, 1935). The theory of comparative advantage simply states

that it pays a country to trade by exporting the good it can produce relatively more cheaply and to import the relatively more expensive good, (Krueger, 1991). Ricardo, the first to formalise this theory, demonstrated that even though one country may have the absolute advantage in the production of *all* goods, trade is *still* worthwhile; as long as the opportunity cost of producing some good is lower at home than in the other country, that is, as long as each country has a comparative advantage in some good, then trade is mutually beneficial (or, at the limit, one country shall gain and the other shall neither gain or lose). He used the example of a two country, two good world, with one factor of production (labour) and compared their costs of production in units of labour-hours:

	1 unit of wine	1 unit of cloth
Portugal	80	90
England	120	100

In other words, it costs Portugal 80 hours of work for one unit of wine and 90 hours of work for one unit of cloth, whereas it costs England 120 hours of work for one unit of wine, and 100 hours of work for one unit of cloth. Therefore, the opportunity cost for Portugal of one unit of wine is 8/9 units of cloth, and for England, is 12/10 units of cloth. Thus, if Portugal can get cloth for less than 9/8 units of wine, or, alternatively, get more than 8/9 units of cloth for 1 unit wine, trade will be to its advantage, and if England can get wine for less than 12/10 units of cloth, trade will be to its advantage. So, if the price of wine lies between 8/9 cloth and 12/10 cloth, both countries can gain from trade, and thus, trade will take place (Sodersten, 1971). However, this is only half the picture, for it ignores the importance of consumer tastes and preferences and the distribution of income, which have an important effect on the pattern of trade. According to Ohlin (1935), it is the price-mechanism, resting on the demand and supply conditions, that determines trade amongst nations. Representing the demand for two goods in one country diagrammatically, we can clearly see that trade leaves us at least as well off as autarky.

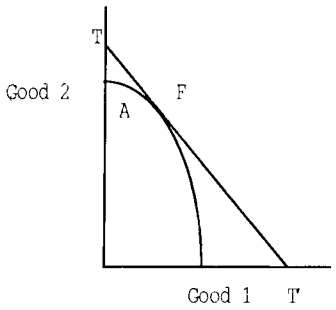

Figure 1

Before trade is opened, production and consumption take place at A. When trade is opened at a lower world price, given by the slope of the line TT', production moves to F. Consumption is now free to move anywhere along the line TT'; the imports in one good being paid for by an equal and opposite movement in the exports of the other good. Clearly, assuming the consumers' indifference curves are well-behaved,

the nation will end up at a higher level of utility (Kenen, 1989). Finally, it is of some interest to see that this example can be extended to an economy with a continuum of goods (Dornbusch et al, 1967); each country will efficiently produce all those commodities for which domestic unit labour costs are less than or equal to foreign unit labour costs. Of obvious concern to our factory worker is the fate of the workers in those industries which *did not* enjoy a comparative advantage; how were they compensated for their loss of job? We shall turn to this question in due course; for the moment, we recall the second, more likely, cause of redundancy for our worker; namely, intra-industry specialisation.

Intra-Industry Specialisation

We distinguish between two kinds of trade: inter-industry trade based on comparative advantage, and intra-industry trade based on economies of scale. Krugman (1983) explains intra-industry specialisation thus:

"The industrial structure of a country's production will be determined by its factor endowments. Within each industry, however, there is assumed to be a wide range of potential products, each produced under conditions of increasing returns. Because of these scale economies, each country will produce only a limited subset of the products in each industry, with the pattern of intra-industrial specialisation - which country produces what - essentially arbitrary".

When we relax the rather limiting and unrealistic assumptions of constant returns to scale and perfect competition, essential characteristics of the Heckscher-Ohlin model, we find increasing returns to scale as an alternative, and often more important, explanation of trade than the older model of comparative advantage. (The US exports about $1 billion of automotive engines and imports almost $3 billion; it imports and exports approximately the same amount of batteries, and so on (Kenen, 1989). The rationale is simple; in an industry with substantial economies of scale, it is inefficient for one enterprise to produce the entire range of varieties, as by doing so it would deprive itself of the benefits of these scale economies. In industries where scale economies are very large, such as automobiles, where no one country can produce all varieties, each specialises in certain ones, and trades, so each reaps the benefits of the economies of scale, and consequently, each country is better off. What will happen to our worker under this scenario?

While the worker may find the gains from trade to his nation as a whole academically interesting, his primary concern will obviously be the repercussions for himself: does he gain or lose? The answer to this question depends on several factors: whether his job loss was the result of a growth in inter- or intra-industry trade; and the type of economy are we dealing with - a market driven one, or one more heavily geared toward welfare. I shall deal with each of these possibilities in turn.

If the worker was made redundant due to intra-industry trade, the implications for his income and

future prospects are not so gloomy. If trade liberalisation takes place between two countries with similar relative factor endowments, where scale economies play a large role, all factors can gain from trade. Labour as a factor of production will still be in demand; its price will not fall. Meanwhile, the worker who lost his job in one area of clothing will pick up employment in another, as he already has the necessary skills for the occupation, and thus, will not need much re-training. If we assume, however, that the worker lost his job due to inter-industry trade, that is, because he is living in the capital-abundant country and was made redundant by the cheaper import of the goods he once produced, then according to the Stolper-Samuelson theorem, the price of labour will fall. This is because trade raises the relative price of the export good (as we have seen in the Ricardian example) and reduces the relative price of the import good and has the same effects on the prices of the factors of production going into them. So, assuming he finds a new job, he will be paid less than he was getting before trade took place. We must also keep in mind that finding a new job may not be easy; since the clothing industry, in which he was employed, no longer exists close to home, he may have to re-train in a very different industry, which, depending on his age and mobility will be a more or less difficult task.

If, as under this scenario, the worker is actually made worse off by trade then, why did he agree to it in the first place? Because, according to Samuelson (1962), 'trade lovers' are theoretically able to compensate 'trade haters' for the harm done to them.

It can be proven that trade lovers can theoretically compensate trade haters - theoretically being the operative word. The proof hinges crucially on the assumptions of the feasibility of ideal lump-sum reallocations of income and on society's wanting to reallocate in an equitable manner: "There is no guarantee that every consumer will be better off under free trade than under no trade, even though the country as a whole will be better off. Only if a policy of redistribution is pursued can free trade guarantee such an outcome." (Sodersten, 1971).

Conclusion

So, my answer to our unfortunate worker is this; indubitably, his nation in the aggregate is better off because of free trade. Depending on whether he was working in a firm that went out of business due to inter or intra-industry trade, he will have a greater or lesser chance of finding new work, respectively. Whether he will be compensated for his job loss will obviously depend on whether he finds work, but also on society's efforts to redistribute the post-trade wealth increase. Krueger (1991) has some good insights and ideas into this problem; she suggests providing short-run adjustment measures for workers and employees affected by changes in trade patterns, but "in the longer term, however, it is difficult to understand why those affected by foreign competition should be treated any differently that those affected by

technological change, changing tastes, or other variables. Policy should therefore be part of overall social policy." The best hope for our worker is economic growth, so that demand for all factors of production will rise, and for an 'ideal' policy of redistribution; under these limiting circumstances, the worker will be as well off as, or better off than he was before import competition made him redundant.

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Kindred Economies? Poverty in Costa Rica and the Irish Example

Paul P. Ryan

Bananas don't necessarily conjure up images of advanced technology or qualitative research and design. Indeed, the association is more with Harry Belafonte than the Finance Minister of a nation's government. Yet, if per chance you were to come upon the Costa Rican Finance Minister, bananas would most definitely be the order of conversation of the day.

Bananas are the main exporting product of Costa Rica, and therefore are pivotal to its overall economy, together with coffee, in much the same way as beef and butter were to Ireland in the 1950's. The commodity prices paid for bananas, coffee, beef or butter are relatively low when compared to the prices paid for electronic equipment, the main export products of a country such as Japan. Possibilities for technological advance in the case of the former are conspicuously fewer than those of the latter, and therefore opportunities for product diversification are significantly higher for Japan than they are for Costa Rica. In fact, Costa Rica relies so heavily on such a small base of commodity-type products that it is described quite aptly, as a 'banana republic'. Consequently, Costa Rica and poverty are highly associated.

How then did Ireland move from a relatively undeveloped economy, also reliant on a small base of commodity products, to the position it now enjoys as a constituent member of one the world's largest trading blocs? The overall objective of this paper is to discover why poverty exists in Costa Rica, and by employing the example of Ireland's rapid economic growth during the 1960's, to outline possible ways in which this poverty might be eased.

In order to make use of the Irish example, some fundamental assumptions must first be made, with regard to the analysis of the following sections. Firstly, it is assumed that the attainment of economic growth will go at least some way toward the alleviation of poverty, and that, coupled with improved income distribution, economic prosperity is a possibility. This cannot be taken as implicit, as much of the literature on development economics expresses conflicting theories as to the specifics of the effects of growth on income distribution and poverty eradication. Secondly, the analysis will only focus on economic aspects of poverty; social factors shall be overlooked in this paper.

Costa Rica as a small open economy

According to Nolan's (1987) definition of a small open economy,

theoretical 'smallness' is identified by the lack of any effects of shifts in domestic demand or supply schedules on international markets. In addition, the domestic producers of traded goods should face no constraints to demand; and a 'small' economy should not be able to influence the prices it pays for internationally traded products.

The application of these criteria to Costa Rica indicates that, theoretically, it is a small economy, qualifications to this being that with regard to bananas, in which it produced 16.7% of world exports in 1986, and to a lesser extent, coffee, Costa Rica is not 'small'.

The extent to which Costa Rica is 'open' is determined by the existence of a series of 'linkages' to the international economy. The integration of Costa Rica's traded goods sector can be gauged by analysing the ratio of exports and imports, in turn, to the overall level of GNP. In 1989, these were 28.3% and 36% respectively. The equivalent figures during the period 1961-68, for the Irish economy were 44% and 47% respectively. While the levels differ considerably between the two economies, the trend in the Irish figures is significant, as by 1989 they had grown to 67.9% for exports, and 57% for imports. This constitutes enormous growth in Ireland's traded sector in the intervening twenty year period, and implies that there was a reversal in the structure of the growth in the Irish traded sector, a point which will be discussed later. Costa Rican integration is further underlined by high labour market integration, as evidenced by large scale emigration to the United States. The high level of foreign debt highlights the interconnections with the international financial markets, and the operation of multinationals gives further testimony to the 'openness' of the Costa Rican economy.

The conclusion to be reached, therefore, is that Costa Rica is an SOE, facilitating the use of SOE constructs in attempting to model and explain its growth processes. Nolan delineates two distinct categories in this growth process. Firstly, there are those factors which influence the growth of the international system (of which the SOE is part) and secondly, there are those factors which alter the position of the SOE within the international climate. It is assumed herein that Ireland and Costa Rica are both small open economies (the purpose of this paper is not to prove this - it shall be taken as given) and this result allows parallels between the Irish and Costa Rican economies to be made. We may therefore ask if the 'prescriptions' of the Irish SOE construct are suitable for application in a Costa Rican context.

Irish growth and its implications

Kennedy and Dowling (1975) concluded that the marked rise in the level of Irish economic growth between 1961-68 did not take place in the context of an overall rise in growth or trade levels of the OECD countries. The implication of this, then, is that Ireland's growth can be attributed to the second category of the growth process above, the factors influencing the change in the position of the SOE within the international climate. The Irish growth experience involved a rise in the level of exports (at current market prices) of

9.2%, and a growth in overall output of 4.1% per annum (the highest level of any period since the second World War). Most significant, however, was the growth in the industrial sector, which increased at a faster rate than any other sector. This, in effect, answers the question of why this rapid growth in the total economy occurred. As mentioned, the traded sector, as a sub-component of the industrial sector, grew rapidly, with the increase in exports (and imports, which were a result of growth rather than a cause), driving and fuelling the economy. The most important of the factors responsible for this boom was the reversal of Ireland's inward looking protectionist policies, and a new focus upon the attainment of industrial growth, which was aided by the influx of multinationals whose intent was to use Ireland as a gateway to Europe. That Ireland was able to attract these multinationals can be attributed to the improvement in the infrastructure, the introduction of financial attractions (such as tax incentives), and the abolition of any discriminatory policies.

The implication of the aforementioned points is that Ireland's rising economic prospects were, in the main, the result of an increase in the performance of and volume of the industrial sector, driven by the traded goods sector. It is with this then that attention is now focussed upon the situation of Costa Rica.

Poverty in Costa Rica

The analysis of the preceeding section has enabled us to identify those factors which contributed to Ireland's advancement in the international economy to the status of an industrialised nation, albeit on a more peripheral level than the central regions of Europe. This section will entail a discussion of the current state of the Costa Rican economy, and an analysis of why advancement will prove more difficult than in Ireland's case, and why the term 'poverty' is thus so closely associated with Costa Rica.

Any discussion of the causal factors of poverty in Costa Rica must begin with reference to the relatively low level of growth experienced by the domestic economy. Indeed, the industrial base (which played a vital role in the rising fortunes of the Irish economy in the 1960's), upon which Costa Rica can hope to develop, is insufficiently large, thus even though growth rates may in fact be on a par with some of the more developed economies, the divergence between the economies remains somewhat marked. Thus it is this which lies at the crux of Costa Rica's economic 'growth' problem. In contrast to the Irish agricultural sector the percentage contribution to GDP of agriculture in Costa Rica has remained constant, and agriculture is still looked towards to provide some impetus to economic growth. However, the downward spiralling of commodity prices on international markets has caused a corresponding downward spiral in economic growth.

Another contributory factor to the persistence of poverty in Costa Rica is the relatively low level of factor incomes, as evidenced by the figure for GNP per capita, which in 1990 was

US$1,690, or approximately one fifth the level of Ireland's equivalent figure. Compounding this is the low level of GNP growth per capita which stands at 1.4% compared to Ireland's 2%. Add to this the high levels of inflation that exist in Costa Rica (as high as 25% during the 1980's) and the reasons for the existence of poverty become more clear. As if this weren't enough, the distribution of these relatively low income levels causes a polarisation in the economy, where the lowest 20% of the population earn just 3.3% of the income, while the highest 20% earn 55%.

Table 1 illustrates the trend in income distribution for the thirteen year period between 1973-86. As can be seen, the position of the lowest 40% in society has disimproved in this period, and relative to the figures of the other nations in the comparison, the level of income this lowest group holds is still significantly small. Marginal transference of income holdings was achieved in the highest income quintile, but this has merely passed to the middle income groups. Accordingly then, it can be deduced that without more equitable levels of distribution, any increase in the level of economic growth will give only marginal relief to the poorer sections of Costa Rican society. It is at this juncture however, that economic factors become influenced by politics. Any fiscal measures implemented to increase distribution of income, such as increased transfer payments, will have to be financed by increases in taxation. Obviously this will prove unpopular among the more influential income groups and the private sector. For any government to introduce these policy measures, there will obviously be a need for unilateral agreement (on much the same lines as the PESP 1990). This type of approach has its problem areas of course, and these include the disincentives to investment of higher taxation. Certain exemptions will be required with regard to foreign investment in order to maintain Costa Rica's attractiveness as a location for industry; however, it is here that a lesson can be taken from the Irish experience, namely to build into the system of foreign investment certain specifications for increased involvement in the domestic economy. Put more bluntly, it must be ensured that benefits accrue to the indigenous economy as a result of direct foreign involvement, whether by minimum levels of profit retention or by more direct spending in Costa Rican markets. Further, guarantees of more labour intensive methods of production must be sought in order to utilise the one factor of production Costa Rica has in abundance.

In conjunction with industrial growth and employment creation, efforts needs to be directed towards the support of the agricultural sector. In order for industrial growth to achieve any significant effects on economic growth and employment, the agricultural level of employment must at least remain constant. Otherwise, unemployment will merely shift to urban centres

Conclusion

If it is assumed that economic growth will go some way towards the

Income Distribution: International Comparison

Country,	Year	Lowest 40%	Middle 20%	Highest 20%
Costa Rica	1973	13	12	60
Japan	1979	21.9	17.5	37.5
Israel	1979	18.1	17.8	39.6
U.S.A.	1985	15.7	17.4	41.9
Costa Rica	1986	11.6	13.2	54.5

Source : Adapted from World Development Report 1990

Table 1

easing of poverty, then as has been emphasised in this paper, increased distribution of income is imperative, for one without the other is a zero sum gain. Also highlighted were some of the ways in which economic growth might be achieved in Costa Rica, by relying on the experience of the Irish economy during the 1960's.

The implication of this analysis is that a transfer of emphasis from the agricultural sector to industry is necessary in order to diversify production and achieve higher levels of factor income through an expanded traded goods sector. International trade theory, macroeconomic theory or balance of payments theory based on large countries and their interactions cannot simply be applied to small economic entities. Indeed, macroeconomic theory becomes trivial in the light of the appropriateness of the SOE construct to Costa Rican circumstances. The assumptions of traded goods sector integration and smallness are not significantly violated by conditions in the Costa Rican economy. This paper has outlined some ways in which the domestic economy can move forward in the absence of any direct foreign aid and, therefore lessen the burden of poverty.

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Myths and Motives of Irish Economic History

Rory Carroll

The purpose of this essay is to provide an introductory account of the issues and relevance of Irish economic history of the eighteenth and nineteenth centuries. As such, the two themes of the link with Britain and income distribution shall provide our focus. The extent and emotive nature of their impact on Ireland's economic evolution are such that they provide ample scope for academic interpretation whilst retaining a practical relevance suitable for contemporary applications. The familiar ritual - justifying the exercise- shall form the conclusion.

The Link with Britain

To understand the nature of Ireland's economic evolution, it is imperative to establish the political economic framework that fashioned the environment. That is not to say that the link with Britain can in each and every case be identified as the ultimate causal agent. I contend that the economic dynamic was fundamentally apolitical in its origins. Yet the transmission of such forces were distorted by the British link, politicising an economic dynamic. In this sense, I propose that it is impossible to reconcile the classical economic approach with the nationalist one. To hijack a metaphor - I am not sitting on the fence; rather I am opening it to enable passage between what are two essentially compatible interpretations.

Firstly, the acts of 1667 and 1669 (whose effects carried over into the next century) were fundamentally economic. Falling prices in Europe resulted in English west-county interests lobbying Westminster into a protectionist backlash. The banning of Irish livestock and wool exports necessitated a painful restructuring of Irish agriculture. Nationalists correctly identify this as a crucial blow, given that Ireland had been well placed to exploit its competitive advantage. Yet the source of this profound and adverse shock was essentially economic, despite the political transmission and appearance.

Chronology favours the nationalists, however, for in 1801 the Act of Union was passed, introducing an era of free trade. Economic collapse soon followed as the banking system disintegrated and the cottage industries folded in the face of cheaper British imports. A neat conspiracy theory can be formulated on the basis of such a sequence - namely a politically motivated Britain manipulating trade links to destroy the Irish economy and secure its own political - economic dominance, culminating in the cataclysmic 1840's famine. Yet as

Cullen (1972) notes, the economic crisis had its roots in the structural weakness of the Irish economy apparent in the eighteenth century. It would appear that the structural unsoundness of the economy (albeit partially engendered by the 1660's acts) accounted for its collapse around the early nineteenth century. It is worth noting that Scotland, having endured a similar experience, successfully replaced its cottage industries in the face of English competition. This case is instructive as it shows how great the potential benefits were of lying adjacent to the world's economic core - if only the opportunity could be acted upon. Lack of national sovereignty can only partially account for the failure to act - a failure that was essentially economic. Note a qualification - we cannot glibly dismiss the political element. The politicisation of the economic transmission (as opposed to the economic formation) entangled the two, thereby necessitating this fragile reconciliation of two contrasting interpretations.

Distribution

The key characteristic, that of skewed income distribution, does not allow a resolution of contrasting interpretations as neatly as that of the link with Britain - hence its greater interest. Essentially, the period under review witnessed vast income disparities between landlords (who tended to be Protestant) and the rural proletariat (who tended to be Catholic). At this point the landlord class accompanied the landless labourer into oblivion - being replaced by tenant owners with small holdings and an urbanising middle and working class.

The nationalist interpretation has emphasised the restrictions placed on Catholics as the reason for the huge dichotomy in incomes. Dating from the plantations through the penal laws onwards, Catholics were actively discriminated against. Thus, those most tangible of legacies - the impressive eighteenth century architectural monuments, have been cited as manifestations of exploitation. Given that they were largely financed by 'surplus' product from the rural proletariat, such an interpretation is credible. Yet this approach is totally inadequate in explaining the persistence, and indeed widening of income disparities, particularly when one considers the encroaching Catholic autonomy. To correlate unequal income distribution with British rule is not merely simplistic - it is incorrect.

A far more thorough and convincing explanation is contained within the Marxist school of thought. Its explicitly class-based approach is far more in accord with the evidence than the nationalist one. Thus, the rural unrest involved a disaffected rural proletariat clashing with the dominant landowning class. We are not dismissing religion and nationalist differences as incidental; rather we are transferring this significance to a point where they reinforce an extant class conflict which centered on distribution and ownership of the means of production - land. Population pressure exacerbated the commercial classes' failure to secure a dynamic industrial base - hence the mass poverty and

emigration of the rural proletariat.

Attempts have been made to reconcile these interpretations, and a case can be made that there exists a substantial overlap between them. Yet alas the similarities are more apparent than real. Marxist rhetoric regarding British Imperialism etc. evokes encouraging nods from nationalists who, eying up a potential bedfellow, discount the more incompatible traits - such as the embourgeoisement of the indigenous rural tenant owners at the expense of the landless labourer. Thus, it is futile to attempt to reconcile these two interpretations.

Why bother?

The last point nicely broaches the question - what's the point of trawling through a distant and remote past? Unlike some historians who spend much of their career justifying their professional existence, we can afford to be more assertive. The first and most frequently cited riposte is that the period 1690-1921 has useful policy applications. The relative merits of free trade and protectionism, for example, can be debated with reference to extant data, though naturally the relevant variables would have altered drastically - thereby complicating the quest for precedents. Similarly, the lengthy time-span offers that rare occurrence - a long run insight, whereby policy makers could place economic cycles in their proper perspective and perhaps learn more about their autonomy. Although these arguments are not fundamentally false, their significance has been much exaggerated. The relevant variables and the manner in which they interact have changed to a degree that renders the 'lessons' ambiguous. Consider the adverse shocks precipitated by the 1667 and 1669 Acts: do we conclude that we should avoid dependence on particular markets and products; or maybe we should pursue a self-sufficient economy, thereby avoiding the vagaries of trade; or even that the experience has no contemporary value and should be ignored ?

Conclusion

Given my qualifications about policy relevance, I feel the somewhat more amorphous issue of identity provides the key rationale. Economic history contributes to our collective and individual world views, and hence shapes the nature of our responses to external forces. When confronted with a choice we automatically (if somewhat erratically and subconsciously) draw on inherited knowledge. The deliberate study of economic history makes this inherent process more explicit and coherent than it would otherwise be, thereby increasing our chances of making the right decision .

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Progress Delayed: Ireland's 'Industrial Revolution'

Gareth Davis [1]

Introduction

The key failure of Ireland's economic experiences during the industrial revolution can, in large part, be attributed to the failure of Ireland during the 19th century to create an industrial base large enough to sustain population growth. This failure marked Ireland out as distinct from all other European nations. During this age of industrial revolution every other country in northern Europe was able to maintain increased population levels at much higher living standards. In Ireland the century closed with a lower population than that which existed at the start of the century.

In this paper I shall analyse this industrial failure and, more importantly, analyse the factors which lay behind it. I will then show why the nationalist myth which laid the blame for this economic failure on British rule is a misconception which, if followed to its logical conclusion, can be a very dangerous one. Having completed these tasks I will then outline why an understanding of the economic history of this time is vital for anyone attempting an analysis of our current economic position.

Industrial failure and rationale

It is important to realise that from 1690 until the early 1800's, Irish economic progress did not differ significantly from the general European pattern. Haughton (1991) notes that Irish manufacturing was relatively well developed by the early 1800's. He also points out that over this period Irish population growth was actually higher than the northern European norm. Indeed he states that "It is important to realise that the industrial revolution did in fact come to Ireland initially."

In contrast to this, a summary of Irish industrial progress during the 1800's makes dismal reading. Daly (1981) notes how manufacturing employment fell in relative and absolute terms during this century. This trend was diametrically opposed to that happening in Europe. Consumer industries and the textile industry (except for linen) suffered major declines during this period. There were

1 The author would like to thank Fidelma Hegarty for her valuable time and patience.

notable exceptions to this rule and I shall discuss them later in this essay.

This industrial failure had implications right across the whole spectrum of Irish society. Haughton quotes Mokyr as stating that the Irish famine represented "the cost of failing to industrialise." It is worth noting that the class which suffered most in the famine was the agricultural labouring class. However, in Ireland during the 19th century, not enough employment could be created in industry to absorb this class. The result of this was a large scale income crisis for this group when the potato blight removed their farm-based sources of employment. This income crisis resulted in famine.

Cullen (1972) argues that even if the famine had not occurred Ireland would have suffered population loss during this period anyway. This was due to the fact that insufficient growth occurred to sustain population levels. Europe-wide the trend saw a decline in the numbers the land could provide a living for. However, in Ireland this decline was not balanced by a growth in economic employment. The result of this was a fall in the numbers which Ireland's economy could support and hence emigration and population decline occured.

Having established that industrial failure is the key to understanding Ireland's economic progress (or rather lack of) during this period, I shall now examine the rationale which lay behind it.

The significant change which happened in the early 1800's was the opening up of markets *vis-a-vis* Britain. Daly (1981) records how a single British Isles market was created by two forces. Firstly, the 1801 Act of Union created free trade between the two nations. This free trade came into force in 1824. Secondly, technological changes in transport, especially with the advent of steam-ships and railways, made the shipment of goods between the two countries easier, cheaper and quicker.

One factor to bear in mind is that this single market was not just a political creation of the British establishment as nationalists would contend. Daly notes that technological as well as political factors were behind the creation of this single market, (ie. improved transport was responsible for its creation as much as the Act of Union). Nor was it certain that the creation of a single market would result in economic disaster for Ireland The law of international comparative advantage dictates that when the single market came into being those Irish industries inefficient by British standards would be wiped out by their more efficient British counterparts. However those industries in which Ireland was relatively more efficient would prosper. They would have access to one of the world's largest and wealthiest markets. Because only relatively efficient industries could survive in this single market, the economic welfare of Ireland and Britain would thus be maximised. Each country, because of the single market, could devote all of its attention and resources to performing those economic activities in which it excelled.

It must be remembered that this process did occur to some degree in Ireland. Daly notes that at the end of the 19th century, Irish industry was

concentrated in a few major sectors. Within these sectors, Irish industry was among the best in the world. Harland and Wolfe shipbuilders in Belfast were world leaders in their field. Guinness in Dublin operated, at St. James' Gate, Europe's largest brewery. The linen industries of north-east Ulster were famous world-wide, and feared little from competition. Belfast possessed the world's largest rope factory. However the development of these world class industries did not offset the decline in industrial employment caused by the collapse of relatively inefficient industries in the face of British competition. The question then is why did more of these world class giants not develop? I shall argue that this lack of numbers was not due to political factors, as nationalists would argue, but rather due to economic factors. Caused by Act of Union

Why the lack of development?

It is more instructive to examine the economic development of the British Isles in regional terms rather than in national terms. Firstly, it is notable that those regions which prospered during the industrial revolution were not necessarily those associated with the British political establishment. For instance, central Scotland, southern Wales and parts of northern England were more heavily industrialised than the regions surrounding London.

Secondly, the failure of Ireland to industrialise was not unique in the British Isles. Daly points out that East Anglia also experienced industrial underdevelopment and population loss. She also notes that during the 19th century, most British government investment in Ireland was not concentrated in Loyalist Ulster (which would have been the case had the nationalist conspiracy theory been valid), but rather in Catholic southern Ireland in the form of Land Purchase Bills and light railway networks.

We need, therefore, to turn to factors which are internal to Ireland and are of an economic nature to explain Ireland's relative economic failure. I believe that evidence I have used above casts great doubt on the nationalist thesis that Ireland failed industrially during this period because of a conspiracy drawn up by the British political elite who used their political hegemony over Ireland to keep her economically underdeveloped. The location of industrial growth within the British Isles does not coincide with those areas in which the British political elite would have wanted growth to occur.

Thus it appears that an examination of factors indigenous to Ireland will, in time, reveal a satisfactory explanation for our relativley poor performance. Such an explanation may be derived from studying the factors which were present in north-east Ulster and which made her succeed industrially. If northern Ireland industrialised then why did the South largely fail? A study of the differences between the two regions may in time reveal those factors which hindered economic progress in the south.

Haughton (1991) lists numerous factors which may have stunted

economic growth. These include the land tenure system, lack of natural resources, lack of capital and human resource problems. None of these factors considered in isolation seem able to satisfactorily explain economic downfall. Reform of the land tenure system in the late 19th century did not stimulate economic growth. Lack of coal did not hinder Belfast's success. In any case, for most light industries fuel costs were relatively unimportant and would have been balanced by lower wage costs. Capital does not seem to have been scarce. Daly (1981) records how in 1922 Irish residents held £106 million of British government securities. But revealingly only £9 million was held by Ulster residents. This reveals that part of the problem may have been a reluctance for southern Irish holders of capital to invest in industry and instead to prefer the security and prestige that ownership of bonds and land may have bestowed.

Human resource problems remain a controversial topic. Some feel that emigration stripped Ireland of her most enterprising and most talented sons and daughters. However, figures reveal that those who emigrated were slightly less literate and poorer than the norm (Haughton 1991). In any case I feel that emigration was a result of industrial failure rather than a cause of it. The debate over the relative importance of all these factors remains an inconclusive one.

At this juncture it is instructive to reflect on why a sound understanding of economic history is extremely useful for anyone trying to wrestle with our current economic questions.

So what?

On a general level Solow (1986) makes the point that economics is not simply a type of "social Physics" governed by rigid laws, but rather a social science in which processes are often influenced by social, cultural and sometimes political factors. To have a grasp of these influences and their implications for policy-making, I believe that it is necessary to have a thorough understanding of the long term economic understanding of the nation in which you are interested. Hence, to understand the Irish economy today it is necessary to understand economic history.

On a more particular level, I believe that economic history can instruct policy-makers; Haughton makes this point. Because history is capable of holding lessons for policy makers it is very important that we have a valid and not a false understanding of the past. To ensure that our view of the past is in fact valid it is necessary that our history should constantly be re-examined and revised (otherwise our policy makers may proceed on a course of action based on assumptions about the past which are in fact incorrect).

One short example shall demonstrate the relevance of economic history. An analogy can be drawn today between the Ireland of 1992 and the Ireland of 1800. Both are about to enter into a single economic market. In 1800 Ireland was about to tear down its fiscal, tariff and customs barriers with Britain. In 1992 we are about to enter a single European economic and monetary

union. We may even subscribe to a political union.

Conclusion

To follow the nationalist interpretation to its logical conclusion would be to view Ireland's involvement in free trade as something which will damage our industrial prospects. This view is mistaken. A more correct analysis of history, I believe, is to view the creation of the single British Isles market of the 19th century as not a harmful thing in itself for Ireland's economy, but rather that the single market should be viewed as an opportunity that was not grasped. Today I look upon the single European market as an opportunity for Ireland to utilise as far as possible its comparative advantage.

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(ii)

Today

Solving the Irish Unemployment Problem

Alan White

Introduction

In Ireland, it seems less attention is focussed on the chronically high unemployment rate than the gravity of the problem merits. Indeed the reason it is more or less tacitly tolerated may be its permanent character - it is very much an inherent feature of the Irish economy. It has been seen that in Irish conditions, there is no necessary connection between increases in employment and decline in unemployment at the rates of economic expansion prevailing in recent years. As a consequence it would appear that to cope with the problem of high unemployment, more must be done than just expanding the economy. Heaney h aving already examined (in this volume) the concept of full employment within an Irish framework, it is instructive at this juncture to suggest possible cures to the unemployment problem. Unemployment may be regarded as a social as well as an economic problem. Employment and unemployment are not one problem but two. This paper shall probe possible solutions to the problem. However the present situation cannot be taken in isolation from its historic context, and the factors determining unemployment in the '60's are still present today.

Outlining the problem

In the light of the current unemployment situation, the '60's and '70's are crucial foundation years in the core of our current problem. Ireland's population has grown at a steady rate in this period, and it is a fact that growth in job opportunities has not been able to soak up the natural increase in the population (consider the high proportion in the 10-30 age bracket). This effect has acted in conjunction with changes in employment to exacerbate the high levels of unemployed persons. Agriculture declined in relative importance, while industry actively grew, albeit at an insufficient rate to stem the flow of job losses from the agricultural sector. Unemployment would have been worse were it not for the effects of emigration which acted as a 'safety-valve' - releasing to some extent the pressures on the Irish economy. Although an attractive proposition in the '60's, the worsening world recession is likely to see unemployment hit an all time high. This will lead to an increase in unemployment not associated with a lack of job opportunities. Participation rates help to explain why there is no one-to-one correspondence between employment and unemployment - increased rates (especially among

women) made unemployment worse than appeared at first sight. Whatever about the rights and wrongs of same, it has contributed to unemployment.

Theoretical framework

It is time to consider the economic issues in a theoretical framework. Much work has been done on what the problem is not as opposed to what it is. Walsh (1974) found little conclusive evidence that the problem of unemployment was structurally based, although he conceded that this was a generalisation, and hence policies aimed at certain regions would not be viable operations if worked in isolation. An incorrect corollary would be the implementation of demand management policies as a means to an end, since demand for Irish goods is exogenously determined. Energies must be devoted to the supply side. Workers are hired up to the point where MRP equals the real wage, and it is the latter over which we can exert discretion. Our small open economy construct immediately undermines this, as prices are given and hence wages do not matter; however prices affect profitability, a concept intimately linked with employment.

A cursory glance would indicate that Ireland and the UK form a common labour market, and thus our smallness and openess result in wages being exogenously determined. Consequently, unemployment will co-exist with rising money and real wages, irrespective of labour demand conditions, since demand for labour in Ireland is not an important factor in determining the wage rate. If we take it that there is no means by which we can influence the factors determining wage increases then the Irish unemployment problem boils down to one dependent on the supply of new jobs from new investment. This is so because, given that demand is to a great degree exogenous, and the wage rate is independent of the supply of labour, the only factor remaining by which we can control unemployment is investment. The above statement therefore implies that supply factors are chiefly responsible for our unemployment problem. This, by itself is no great statement i.e. that the supply of jobs is inadequate, but has major policy implications when the constraints under which we work are considered.

Before I proceed, I must qualify further the assumption of exogenously determined demand, which admittedly appears extreme. Government expenditure, which is high in Ireland, forms a crucial subcomponent of internal demand, although much of it entails a transfer of resources which has no effect on employment. The main expansionary effect comes from expenditure of tax revenue on investment but this has tended to act in a pro-cyclical fashion, thus worsening domestic demand when it should have improved.

Consideration of policy

The above analysis points at three factors with relevance for policy:

(i) labour costs
(ii) emigration

(iii) investment

These shall be evaluated in the light of our model.

We have seen that the demand for labour in Ireland plays a passive role in the determination of the domestic wage rate, and the wages-profitability-employment relationship has been stressed. In the absence of emigration and investment there is no controllable mechanism in the supply and demand for labour. It would perhaps be desirable if existing levels of unemployment became important factors in determining future wage charges. There seems little to be gained from fantasising on the outcomes of wage restraint. The Programme for Economic and Social Progress, with all its good intentions for job creation, has suppressed the idea of wage restraint; the latter is unacceptable (socially and otherwise).

The most effective and quickest way to reduce unemployment is through emigration. Labour mobility is an integral feature of the Irish labour market, particularly in relation to the UK, and to a lesser extent the continent. Wage differentials, relative unemployment rates and costs of migration are prime determinants of emigration to the UK. We have failed consistently to produce jobs to reverse that flow, otherwise there would not be such massive emigration. Currently the push factor is outweighing the pull factor due to declining international prospects. It is agreed that many emigrate voluntarily; however the distinction between this group and those who are forced out is important; if it is possible to identify the latter should we not financially support them and encourage them in foreign job search? One wonders if Mr. Ahern is praying for emigration for fear his budget arithmetic may prove incorrect as world recession escalates.

To judge from statements by politicians and trade unionists, the most socially acceptable means for reducing unemployment is through increased investment. I consider investment from two angles; (a) private investment, and (b) public investment and its influence on private investment.

Private investment depends on the level of profitability and the price of capital. We have seen that wages are exogenously determined and that wage restraint is not a viable means of increasing profitability and investment. The profitability of firms depends mainly on demand conditions in the product market, although a major part of this is again exogenously determined. As the price of capital is given, we reach the conclusion that unless the public authorities intervene, increased employment from increased investment in the private sector will depend on the growth in international demand. Although I do not know the strength of the relationship between growth in world trade and growth in domestic investment and employment, I suggest that as in the past, future growth in world demand is unlikely to solve our unemployment problem, although it may well have an appreciable effect on the level of unemployment.

Next I will consider public investment (direct and indirect). The indirect thrust is provided by such bodies as the Industrial Development

Authority which influences investment by way of grants and reliefs. The Strategy for Industrial Development (NESC 1986) has been insufficient to match the needs of the economy and in all probability it seems that the IDA has been given all the money it needs. The recessions '73 -'74 and '79 are too convenient as excuses, and it appears that capital may have been too cheap relative to labour. Grants may have been too generous, although the IDA is effectively in competition with other economies in promoting Ireland as an attractive location for industrial endeavours. There is insufficient evidence as to whether labour subsidises would work.

Direct investment in housing, schooling, hospitals, etc. generates a return to society in excess of the financial cost to the state (in terms of interest payments and other costs). Such expenditure does not lead to adequate returns, and recourse to foreign borrowing has proven most dangerous. Money pumped into the system simply leaks out and cutbacks will be on the cards if the attainment of a reduction in the national debt remains an absolute priority. The net effect on long term unemployment will not be realised.

Conclusion

It seems, therefore, that unless we are willing to pay more taxes (and we are not) to increase state investment in building/construction and other areas such as improving social amenities and hence increase employment in the public sector, under present arrangements there is little scope for government action to lower unemployment - perhaps "governments are not here to create jobs"[1]. As we are not prepared to pay for job creation, a thorough re-evaluation of expenditure is required. Lack of commitment to the unemployed leads me to the conclusion that emigration will be our primary solution. With the unemployment rate perhaps close to its natural rate in Ireland, the problem has become the ticking time-bomb of our economy - we are not willing to pay the cost of creating jobs by any means.

[1] Infamous words of Albert Reynolds during his 1991 budget speech.

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(iii)

Tomorrow

CAP Reform: The Effects on Irish Farmers and Food Processors

Sandra McNally

Introduction

The main problem with the Common Agricultural Policy (CAP) is that it has resulted in an increase in agricultural production disproportionate to the rate of consumption in the EC. As a result, farmers and food processors have become increasingly dependent on intervention agencies as markets for their produce. This has made both farmers and food processors very vulnerable to any new reforms that may be introduced.

The EC Agriculture Commissioner, Mr. Ray MacSharry, has recently put forward proposals for the reform of the CAP. The aim of this paper is to discuss the possible impacts which such a reform package could have on Irish farmers and food processors if implemented.

Impact of reform on farmers

The main aim of Mr. MacSharry's proposals is to substantially reduce support prices for agricultural produce. Support prices for cereals, beef and milk will be most affected, falling by 35%, 15% and 10% respectively.

Compensation for the fall in support prices will be directed towards the small and medium sized producers. Since the majority of Irish producers fall into this category, Ireland should fare less badly than other EC countries such as France, where large producers dominate. It has been argued that the larger, more efficient producer will be penalised in Mr. MacSharry's plans. This contrasts with current CAP policy, where 80% of support goes to the largest 20% of producers. The reform proposals will subject them to a more market-based regime. At the same time, a complete market economy with no supports would virtually eliminate the small producer, and would have serious consequences for rural society which is already under threat. Mr. MacSharry's proposals envisage a more equitable distribution of funds where each producer receives a fair income.

Large producers will have to abide by compulsory set-aside requirements before they become eligible for compensation. Given that 5% of Irish producers account for 40% of our cereal production, this could have a significant impact on cereal output.

It is expected that the fall in cereal prices will reduce the price of inputs for producers in the dairy and beef sectors. However, because livestock production in Ireland is

predominantly grass-based, the reduction in input prices would be smaller than for producers in those countries in which production is grain based. This may erode the price advantage enjoyed hitherto by Irish grass-based producers. It may also encourage more intensive farming. This would conflict with Mr. MacSharry's proposals for the environment. However, the fact that compensation will be conditional on a certain level of stocking density should curtail such a development.

The Economic and Social Research Institute (Fitzgerald and O'Connor 1991) forecast a fall in the value of gross agricultural output of almost 17% as a result of these price cuts. They also predict that the level of farm incomes will be 11.5% below that which they would be in an unreformed regime. A loss in farm employment and a decrease in the value of agricultural land are also plausible outcomes. The extent of these losses will be determined by the extent to which alternative uses can be found for land and farm labour. Given the rising demand for wood products, forestry is an area into which farmers may diversify. Increased incentives for the afforestation of agricultural land have been proposed in Mr. MacSharry's reform package.

Whatever reforms are finally implemented, their impact will be crucially dependent on how farmers react to the need to develop a more competitive approach. Thus, there is a need for research, innovation, education, grading and a programme to tackle the structural constraints in Irish agriculture. If Irish farmers prove more competitive than the average, output may increase, with consequential benefits for the food processing sector.

Impact of reform on food processors

The effect of lower support prices will be to reduce the volume of agricultural output. This will reduce the turnover of the food processing sector. The ESRI estimates that output from the food sector will fall by 4% in the medium term and by 7% when the full impact of the changes take effect. Some of the benefits of the CAP have been captured by the food processing sector in the past in the form of higher prices and higher margins. The fall in support prices will lead to a fall in profits and this in turn will lead to job losses.

However, the effect of CAP reforms depends largely on how food processors respond to the need to become more competitive in a changing environment. If Irish firms become more competitive than those in Europe, contraction may occur elsewhere.

Irish food processors are often criticised for their over-reliance on intervention agencies for their produce. For example, intervention purchases amounted to nearly 70% of total beef slaughterings for Irish industry in 1990. On the other hand, EC markets only account for 16% of total Irish beef markets. This situation is explained by the fact that higher returns are often available from intervention than from marketing products commercially. CAP reform will mean that this trend will have to be reversed, with Irish food

processors becoming more market orientated, rather than production orientated.

In order to achieve this, processors will have to pay more attention to such factors as 'value added', convenience and product development. In terms of 'value added', Irish performance is relatively poor compared to major competitive countries such as Denmark and the Netherlands. However, there have been some efforts to ameliorate this situation. For example the CBF has recently introduced a new quality scheme aimed at increasing the penetration of Irish beef in European markets.

Food processors who orientate their production towards retail outlets will be less affected by CAP reform than those reliant on intervention agencies. At present it is impossible for the food processing industry to be totally market driven. For example, the beef processing industry is independent, to a certain extent, of commodity markets because of the seasonality of supplies and the low proportion of domestic consumption (20% of annual cattle slaughter).

Among the recommendations of the Industrial Policy Review Group is that problems such as seasonality should be tackled under a national plan for the food industry. Such a plan should also identify niches and segments where Irish food processors can develop competitive advantage. The Review also recommends that responsibility for the Irish food industry be allocated to one government department, and that efforts should be made to encourage more foreign investment in the food sector. The British market has been recommended as the 'key export opportunity' for the Irish food industry.

It is important to point out that some Irish food processors have been very successful in meeting these new challenges. For example, the Kerry Group has long pursued a strategy of developing strongly branded products for retail outlets in the UK. They have made at least five acquisitions relating to their meat operations in Britain since 1988. Because their operations relate to a number of activities which are spread over a broad geographical area, the Kerry Group is insulated to a large extent from the effects of the CAP reform.

Conclusion

Mr. MacSharry's proposals will involve some contraction of the agriculture sector, but exactly where this contraction occurs will depend on how competitiveness varies across Europe's regions. Therefore, the impact of CAP reform will be determined by whether the appropriate strategic response is taken by Irish farmers and food processors.

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The Future of Dublin Zoo

Eddie Dowse

Introduction

Having studied closely the numerous and extensive references to Dublin Zoo, I would like to put forward my own solutions to its predicament. This solution rests on the assumption that the Zoo is a pure public good.

Classification of Dublin Zoo as a pure public good allows the construction of a model. This model will highlight the extent to which it is, at present, underfunded by the private sector, and will outline some more cost-efficient and equitable ways to finance it, rather than the current policies of throwing the money to the lions. At the moment, the Zoo is financed by the Royal Zoological Society, a non-profit organisation. They shall be treated as one individual in this model to avoid unnecessary complications. There will be no charge for use of the Zoo in this model, and use is restricted to the population of Dublin which stands at one million.

Dublin Zoo has the characteristics of a pure public good in the sense that its use is non-exclusive, because, if it is available to one person, it is available to all. In addition, one individual's consumption does not reduce the amount that is available for others to consume. The extra or marginal cost of providing the Zoo to another person is zero because, for example, it is equally costly to provide twenty penguins for one person as it is for two or more.

The model

With this in mind, how much, if any of the Zoo should be provided? Assume in this model that there are two goods Y_i, which constitutes all private goods, and Z, which constitutes the Zoo. The productive sector can transform units of Y to Z at a ratio of one to one i.e. the marginal rate of transformation (MRT) equals one, that is to say, we must give up one unit of Y to obtain one extra unit of Z.

Ivor Blogg is a typical Dubliner, who is also known to his friends as i, and has a utility function that can be written $U_i=V_i(Z)+Y_i$. The absence of an index on Z captures the fact that Z is a public good. Ivor's utility from Z depends on the sum of the function V_i. This function is separate between private and Zoo consumption. V_i is a well behaved function that is smooth, continuous and concave.

The marginal utility (MU) for i from a one unit increase in the Zoo is the slope of $V_i(Z)$. It is also equal to the marginal rate of substitution (MRS). This measures how much of Y Ivor is prepared to give up for one extra unit (another trip) of the Zoo.

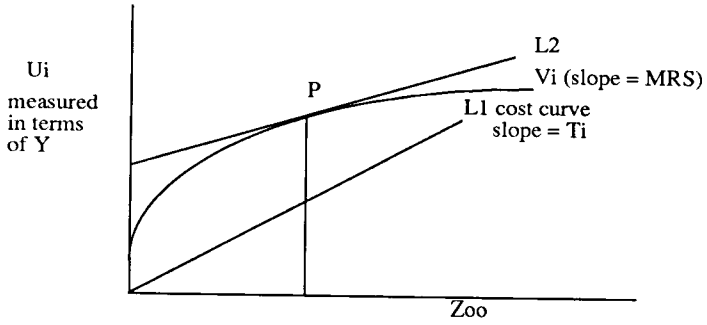

Figure 1

W_i represents Ivor's initial quantity of Y. For the population of Dublin

$Z+\Sigma Y_i=\Sigma W_i$ for all i (1)

must hold for the model to be feasible. The total benefit of the Zoo to Dublin is

$V_1(Z)+V_2(Z)....V_n(x)$, n = 1m (2)

The total cost is Z and the net benefit (B) is equal to

$V_1(Z)+V_2(Z).....V_n(Z)-Z$ (3)

To maximise net benefit we differentiate (3) with respect to Z to get

MRS_1+MRS_2 $MRS_n-MRT=0$ (4)

As the marginal rate of transformation equals one we have

$\Sigma MRS_i=MRT=1$ (5)

This is known as the Samuelson Optimality Condition for public goods and it must satisfy Pareto optimality conditions.

Figure 2 shows what happens if one individual wants to provide/purchase a Zoo. The total costs outweigh the benefits to the individual and the Zoo will not be provided/purchased. If however, as is the case with the Royal Zoological Society (ZS), some like-minded individuals get together, we get the provision of the Zoo as shown in figure 3. The Zoological Society wish to maximise $U_{zs}=V_{zs}(Z)+Y_{zs}$ subject to the budget constraint $Z+Y_{zs}=W_{zs}$. Thus the Zoological Society wish to maximize $V_{zs}(Z)-Z$. At Z^*_{zs} the vertical distance between the two curves is at a maximum as the slopes are equal, i.e. $MRS_{zs}=MRT_{zs}=1$.

But what will the other 999,999 users of the Zoo do? Z^*_{zs} is the amount of the public good that Ivor Bloggs is getting free, therefore Ivor will not provide any more units of the zoo unless

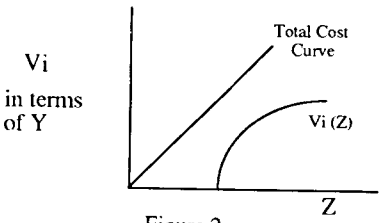

Figure 2

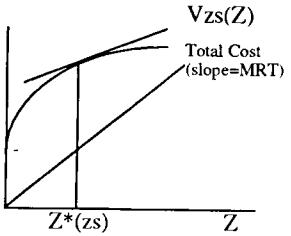

Figure 3

it will increase his benefit. If $V_i(Z_{zs})<1$, the marginal utility to Ivor will be less than the cost, and if he increased his consumption of Z, he would be worse off. This means that he will free ride at the Society's expense. The final equilibrium will be characterised by the following:

1. For at least one individual (the Zoological Society), $V_{zs}(Z)=1$.
2. For all i, the slope of $V_i(x)<1$
3. The amount paid by all depends on the amount paid by the society.

With public goods, the private costs exceed the private benefits as shown in figure 2. People will only look at the private benefits they receive personally, not the aggregate or social benefits which are shown by ΣMRS_i.

Assume that $MRS_i=0.5$ for all i, and that the $MRS_i<MRS_{zs}=1$. There is no incentive for Ivor to buy any more Zoo beyond that which is already being provided, and he will free ride. However, with a population of n=1,000,000, ΣMRS_i is far greater than MRT_{zs} (which equals unity). This proves a gross under-provision of Zoo facilities if left to the market system. Z^*_{zs} is far from optimal and we must look at other ways of financing the Zoo, namely public financing and fixed tax shares.

Financing the Zoo - an alternative

We know through diverse means such as polls, media interest and public comment that most people desire the provision of Zoo facilities. The proposals for funding this, however, remain vague. What could be done is to decide the level of provision by fixing everybody's tax share and then letting people decide upon the output by majority voting.

T_i-i's individual tax share is equal to 1/1,000,000 and each individual wishes to maximise $V_i=V_i(Z)+Y_i$ subject to $Y_i+T_iZ=W_i$. That is, Joe wants to maximise $V_i(Z)-T_iZ$ which is the vertical distance between his benefit and cost curves.

The cost curve may be the same for all individuals but the benifit curves differ. The government may carry out a series of elections to decide by majority voting on the level of Zoo facilities to be provided. Under fixed tax shares and majority voting, the level desired by the median voter always wins. This scheme has the advantages of being simple, comprehensive and some level of Zoo facilities will be provided, and unlike other schemes such as the Wicksell-Lindahl one, the incentives for cheating are not as pronounced. Unfortunately the tax paid is not always related to the benefit received and it may be the case that $V_i(Z)$ is not equal to T_i. This means that Pareto-optimality may only be achieved by random chance. In general, it fails the Samuelson test.

Conclusion

In this model I have defined Dublin Zoo as a public good and have shown that the present provision under the free market system is below what the public as a whole would wish it to be. This highlights the need for government intervention to finance it using the scheme outlined. Although

not providing a Pareto-optimal outcome it would ensure a much greater provision than at present, and could salvage to an extent the future of Dublin Zoo.

Full Employment for Ireland

Deborah Heaney

Introduction

Optimal allocation of economic resources at a point in time would appear desirable under the weak condition of Pareto-efficiency. If it is assumed that the aim of policy-makers is the maximisation of social welfare (and not political gain), and that this depends on the aggregation of welfare of individuals from their consumption of goods and services, then this dictates that policy-makers (and in particular the Irish government) should maximise use of resources for production - one such resource being labour. Maximum utilisation of labour is full employment. Definitional difficulties with this concept are compounded by theories which show that the stable rate of unemployment may consistently diverge from full employment. Thus, if it cannot be defined, it must follow as an immediate corollary that measurements of the latter can at best be indicators. However theoretically desirable for efficiency, if attaining full employment is not viewed as a feasible ideal, or if the costs of reaching it in terms of other objectives are too great, its desirability and the political commitment to it may waver.

Definitional difficulties

Full employment is, in essence the full utilisation of all labour resources. A definition with a more empirical content is that it is a level consistent with zero involuntary unemployment.

Unemployment is measured as:

$$\frac{\text{unemployed}}{\text{unemployed+employed}}$$

In an Irish context, categorisation problems immediately arise. When is a person employed? Does job sharing, for example, constitute the employment of two persons? Can the underemployment of Irish actors (say) be viewed as equivalent to unemployment? Problems are compounded by the presence of emigration. It is likely that emigration will reduce the numbers of unemployed, though it is often the case that emigrants form part of the employed. Indeed such is the stigma associated with unemployment that registration may be curbed.

With regard to the definition of full employment, one proposition can be made with definitive certainty: full employment is not synonymous with zero unemployment for three primary reasons:

1) frictional unemployment
2) seasonal unemployment
3) voluntary unemployment

Thus the full employment rate in any economy depends on the matching of

skills with available jobs, the degree of mobility - geographical (this is high, given our small open economy construct) and occupational, and the ready availability of information. Furthermore, certain dimensions of economic policy may result in high levels of voluntary unemployment, such as for example, the high Irish replacement ratio. In Ireland, thus, the full employment rate may be pitched at a high rate (relative to our E.C. neighbours). Identified as 2% in the 1960's its revision has consistently been in an upward direction.

Granted that full employment cannot be defined as a tangible target, the target is certain to be lower than the existent one. Available measures can be used as useful proxies in the quest for full employment. In Ireland, data is acquired from three sources: social insurance records, the labour force survey and the census of population. The rate given by each is non-homogenous due to varying mensuration techniques. Thus, not only is specification of a full employment rate difficult but, subject to a suitable choice of measure we may or may not be close to attaining the 'desirable rate'.

Desirability

There is much consensus, professional and otherwise, that unemployment is undesirable and thus full employment is adopted as a policy objective. However, New Classical economists deny Keynesian (demand deficient) unemployment exists, and argue that wages and prices should adjust instantaneously so that all unemployment may be seen as unnecessary. Problems impinge when the full employment rate is high, due to structural constraints such as skills matching to jobs. Thus it is perhaps more suitable to target policies at reducing the natural rate of unemployment and increase potential output.

Desirability also depends on the costs of living with unemployment. In Ireland unemployment benefits cost the government £3m for every 1,000 extra persons on the Live Register (*Irish Times* Feb 8, 1992), which compounds problems with the National Debt. There are also associated income and output losses. The objective of full employment needs further qualification in the context of the Irish unemployment scene. The enormity of the unemployment problem and high level of unemployment has resulted in aims to 'bring down the level of unemployment'. This aim is a recognition of the fact that reductions in unemployment levels will come long before any attainment of full employment. Although often not explicitly stated, full employment is implicit in this aim as it is the ultimate objective of the Irish government, and the ensuing eradication of unemployment and its associated costs can only be seen as desirable. The dedication and commitment to full employment depends on the costs of unemployment relative to the costs of trying to achieve it. Full employment at any cost should not be regarded as an objective of government policy.

Conflicts

The costs outlined of living with

full employment can be compared with the costs of achieving it. Full employment inherently requires inequalities of income as supply of and demand for skills are equated in each sector. Expenditure to alleviate demand deficient unemployment necessitates a higher percentage increase in expenditure than the corresponding increase in employment (Begg et al, 1987). Furthermore, expansionary policies requiring financing, for example by taxes, may distort work patterns. Growth is seen as a necessary condition for increased employment, but if specifically channelled towards labour intensive as opposed to capital intensive growth, it is doubtful if Ireland would have attracted high-tech multi-national companies. Economic growth and labour force turnover are positively correlated, and thus growth will entail an increase in the full employment rate. If growth is achieved via fiscal expansion, it may be inflationary, thus lessening the commitment to full employment.

Conclusion

In an Irish context I believe that full employment has limited applicability as a proximate objective because correcting demand deficient unemployment is not a viable policy option, given the state of the public finances. The potential to move towards full employment is constrained further by an integrated labour market with the U.K. It is more constructive to speak of reducing the full employment rate, at which only voluntary/frictional unemployment exists, via tax reform, training to provide a better matching of skills to jobs and other supply-side policies. This essay is not, however concerned with policy prescriptions; I simply suggest that the degree of integration of our labour market and the numbers of Irish emigrants, as well as a large potential labour force of married women, tends to mean that job creation may increase the labour force as it increases employment - and the divergence from full employment widens.

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