Death on the Track, the Econometrics Behind Formula 1

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Econometric techniques need not be constrained to economic theory and models. Jane Lee examines the incidence of death in Formula 1 racing since its beginging in 1950, with various factors concerning the circuits that have been used

Introduction

In 1950 the first Formula One Grand Prix was held. Since its creation, the World Championship has undergone numerous regulation changes. For reasons of safety, the governing body has sought to channel the ingenuity of the engineers, whose prime objective is always to improve the performance of their machine. In just over twenty pages, the championships regulations clearly set out the limits in which the engineers can work. These are very important, considering the lengths to which Formula One teams will go to gain that all important extra one hundredth of a second.

It is the area of safety that my project is concerned. My hypothesis is that the deaths of drivers during the history of Formula One can be explained by the characteristics of the circuits on which the deaths occurred.

The Dependent Variable

My Y variable concerns the number of deaths that have occurred on a particular track from a sample of 17 tracks that have been used. This variable has been chosen for a number of reasons, mainly due to data collection problems. Originally time-series data concerning the number of deaths per year was to be used. This didn't vary much from year to year, and in some cases the number was zero. This would make it very difficult to find any correlation with other independent variables. The next approach was to consider including serious accidents for each year. Two problems emerged. Firstly, although the data was available, the sheer volume would have prompted a tedious task as well as the potential problem in inconsistency. Secondly, there was the problem of defining what was meant by a "serious accident." Analyzing the data in a cross-sectional format seemed to be the option that would avoid these problems and would also allow for a larger number of possible X variables.

The Data

The data was taken from two books and the Internet. The Deaths have been recorded since the start of Formula 1. As can be seen from the diagram below, quite a large number of these have occurred on the old Nurburing. In fact all of the numerical data that was observed on this circuit outweighed the others by a

significant amount. A test for stability could be carried by running two separate regressions using the same data. This would show whether this observation is influencing the calculated R-squared values.

It must also be noted that cars and tracks change every season and that this factor would have to be taken account of. Perhaps then, the model is not as sound as initially believed, as the need for constancy is necessary in such a model.

This is the list of tracks used, where they are and the number of deaths that occurred on them:

TRACK	DEATHS
Old Nurburing (Germany)	6
New Nurburing (Germany)	1
Magny-Cours (France)	1
Spa Francorchamps (Belgium)	3
Monza (Italy)	4
Monte Carlo (Monaco)	2
Kyalami (South Africa)	2
Gilles Villeneuve (Canada)	2
Imola (San Marino)	3
Interlagos (Brazil)	1
Silverstone (Britain)	1
Catalunya (Spain)	1
Hungaroring (Hungary)	1
Suzuka (Japan)	1
Adelaide (Austrailia)	1
Estoril (Portugal)	1
Oscar Alfredo Galvez (Argentina)	1

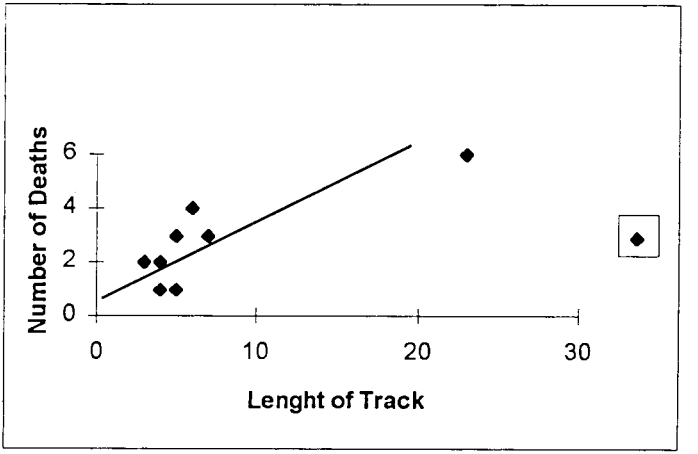
The Independent Variables

Much of Formula One is concerned with the design, speed and safety of the car itself. With top speeds of 340km per hour, and using up to 100 litres of fuel per 100km at top speed, the strict safety standards are well justified. Some of the commentary during a race will be concerned with the circuit that is being used, often with safety in mind. Some circuits are known to be more dangerous than others. My independent variables are concerned with different aspects of the track that could be potentially dangerous, and hence may explain the differences in deaths across different circuits.

Variable One (X_1)

The first variable in this test is the length of each track in kilometers. Any driver must devote a good proportion of his time to learning the layout of the track and the different maneuvers needed to negotiate its shape. A corner or turn can often be misjudged by a matter of a one hundredth of a second, resulting in a crash that can be fatal for both driver and spectators. A longer track is hypothesized to be more difficult to learn, increasing the likelihood of error.

Y regressed on X_1



As can be seen from this scatter diagram there is a positive relationship between the two variables. (The difference in the values for the Old Nurburing are reflected in the point that is plotted on it own in the top right hand corner of the graph). This relationship can be seen more clearly by examining the regression that has been done:

Multiple R	.80401	Adjusted R Square	.62286
R Square	.64643	Standard Error	.86530

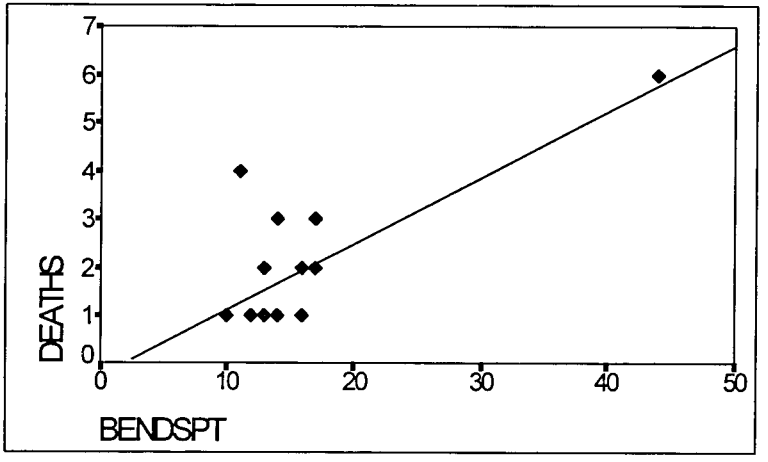
Variable	B	SE B	Beta	T	Sig T
Length	0.254	0.0485	0.804	5.237	0.0001
(Constant)	0.421	0.3491		1.206	0.2464

The R squared value of 0.646 tells that over 64% of the changes in Y can be explained by the changes in X_1. The regression line can be plotted by substituting our results into the following line: $Yi = \alpha + \beta Xi$

The line can then be estimated as follows : $Y_1 = 0.421 + 0.804\ (X_1)$
The t-value is significant for a probability of less then 0.001 which indicates that the model is significant.

Variable Two (X_2)
The second variable examines the number of bends and corners that are incorporated in a circuit's design. The reasons for this variable are similar to the reasons for my first variable. The relationship is again believed to be positive. The greater the number of corners and bends, the greater the chance of driver error. Sharp corners often mean that bottlenecks are created. These are potentially dangerous as the cumulation of cars slowing down and then accelerating could easily hit one another and cause a serious accident.

Y regressed on X_2



Multiple R	.74229	Adjusted R Square	.52105
R Square	.55099	Standard Error	.97512

Variable	B	SE B	Beta	T	Sig T
Length	0.137	0.032	0.742	4.29	0.0006
(Constant)	-0.262	0.553		-o.475	0.6414

By looking at the regression that was performed it is clear that there is a positive relationship between these two variables. The R squared illustrates that about

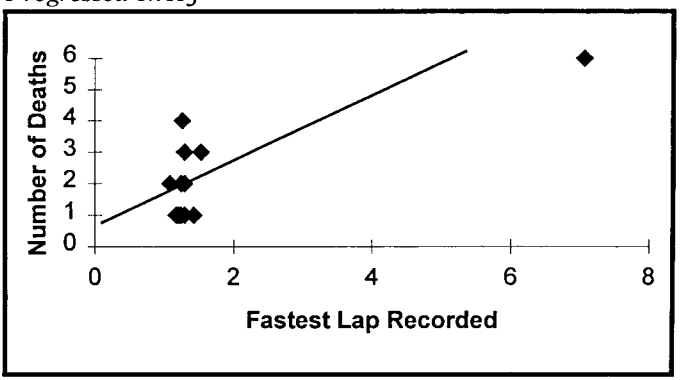
55% of the changes in Y can be explained by the changes in X_2. This result is also significant with a probability consistent with X_1.

Our line can be estimated as follows: $Y_2 = -0.26289 + 0.742285(X_2)$

Variable Three (X_3)

The third and final variable that has been used in this analysis concerns the speed of the race. The figures used are the fastest ever lap times that have been recorded on each circuit during qualifying. Fast and slow circuits are quite a common description in Formula One. The speed can depend on a number of factors such as the angle between corners, how close they are together and the number of straight stretches in the track. This suggests a negative relationship between the number of deaths and the shortest time needed to complete a lap. The quicker the lap, the greater the potential seriousness of any accident.

Y regressed on X_3



Multiple R	.76513	Adjusted R Square	.55778
R Square	.58542	Standard Error	.93698

Variable	B	SE B	Beta	T	Sig T
FastestLap	0.764	0.166	0.765	4.602	0.0003
(Constant)	0.659	0.349		1.886	0.0788

R2 is high, but the hypothesis must be rejected as the relationship has proved positive. This indicates that the changes in Deaths are not explained by a quicker lap time.

Our line can be estimated as follows: $Y_3 = .659448 + .76513(X_3)$

Multiple Regression on all Three Variables:
The following is the multiple regression on all three variable simultaneously.

Multiple R	.85623	Adjusted R Square	.67155
R Square	.73313	Standard Error	.80751

Variable	B	SE B	Beta	T	Sig T
Fastest lap	-3.119	1.522	-3.122	-2.049	0.0612
Lengthot	0.959	0.358	3.034	2.679	0.0189
Bendspt	0.170	0.116	0.918	1.474	0.1643
(Constant)	-1.299	1.048		-1.283	0.2376

The estimated R square is quite a strong result when multiple regression has been performed on the three variables. The line can be estimated as follows:

$$Y = -1.298565 + (-)3.122281(X_1) + 3.034716(X_2) + .918981(X_3)$$

Problems with the Variables and Data:
There are many problems with the variables due to the nature of the data and experiment. It is common practice for circuits to have their layout redesigned from year to year. A particular bend may be taken out and replaced by another. Data describing these changes was unavailable, and would have made this project impossible to estimate. The layouts that have been used are those that were used in the 1996 Championship. In some cases tracks are completely redesigned. Some data was available, (i.e. The old and the new Nurburing.) but much of it was not. This could seriously affect the consistency of the test, probably changing some of the properties of the model.

The data came from books and Internet pages (see bibliography). There were small problems with both of these sources. Information had slight variations, and some of the sources were more up to date than others. This meant that the information had to be clarified on another website to check its accuracy.

Another likely problem is the possible relationship between the X Variables. This may result in multicollinearity. In the multiple regression we can see that X3, the fastest lap, has become negative. This result could rest in the theory that the fastest lap is likely to be a function of the length and the bends on the track. However, this will not affect multiple regression

Conclusion:
From the regression analysis that has been conducted it is easy to see that there is a significant relationship between the dependent variable and the independent

variables. The estimates suggest that my hypothesis should be accepted. But the story does not end there. The problems with the variables and the nature of the data are too large to ignore, and must be addressed in full to gain any worthwhile conclusion to this model.

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Airline Seats: An Econometric Investigation of Factors Affecting Their Supply

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Aviation is a quickly changing industry, with an unusual combination of fierce competition and cartel-like collusive agreements operating on similar routes. Donal Kane constructs a simple model for the supply of airline seats between different pairs of cities.

Introduction

The international air transport market is usually viewed as a coherent whole on a world or regional level; however, it is often more instructive and more analytically valuable to view it as a series of small interconnected markets between various city-pairs. While it can be said that the US market is buoyant, or that growth of the European market is expected with the recent full liberalisation, this is of little importance to detailed business planning. An airline is only peripherally interested in the market-wide demand; of far more significance is the level of demand on the individual airline's routes.

Detailed analyses of supply and demand for airline seats on individual routes are carried out by airlines on a frequent basis, as it is clearly a vital part of their business planning for new routes or schedule adjustments on existing routes. The model developed below is designed to provide an indication of the level of demand for air transport between two airports in relation to the size of the populations served, and the importance of the airports in the air transport network.

There are fairly well established relationships between various economic variables, and variables concerned with the aggregate air transport market. There is a positive correlation between GDP and the number of seat kilometres travelled. This declines in significance as the market reaches saturation. There is also a positive correlation between income per capita and propensity to fly. At the microeconomic level of individual routes, many other factors come into play which make the relationships much more confused and difficult to model, such as government regulation, competition, historical and linguistic links and subsidies.

Is it possible to establish a relationship between the size of an individual route and known factors about the route? For example, what are the effects of competition, city size, distance and price on a route? The model developed will attempt to address these issues.

Specification

Dependent Y-variable

Available Seat Miles (ASM) per week (000s): The Y-variable eventually chosen (ASM) was selected because it measured both the capacity and distance of the route. ASM was chosen over seats available for this reason, and also because all aviation analysis uses seat miles or seat kilometres as an important measure. ASM is obtained by multiplying the number of seats available by the length of the route. Thus, a 10 seat plane flying a 1,000 mile route and a 100 seat plane flying a 100 mile route would each generate 10,000 seat miles. ASM is a supply rather than a demand variable as the number of available seat miles is being considered rather than seat miles actually travelled. However, the two are likely to be strongly correlated, since the airline market is increasingly competitive and it can be safely asserted that the airlines would not supply the seats unless there is a reasonable prospect of enough of them being filled to generate a profit.

X-variables

Product of available connections: The X_1 variable is obtained by multiplying the number of destinations (not including the other airport in the pair), served by one airport in the city pair by the number of destinations served by the other. The use of the product of the connections rather than the sum of the connections is more realistic since it gives an indication of the maximum theoretical number of city pairs connected by the route in question. This is intended to provide a measure of both competition, since the larger the "hub" airports at the each end of the route the greater the number of airlines serving the route, and of the importance of the airports within the air transport network. The intention is to provide a measure of air travel demand by passengers, both those who have originated from one of the cities in the city-pair and those who are using both cities as a connection point on the route to some other destination. The variable is flawed as it does not distinguish between plausible and implausible connections. For instance it would count Philadelphia to Boston by way of London and New York as a plausible connection. Nor does it make any attempt to account for the frequency of connections, a route with one flight a week carries the same weight as a route with 30 flights a day.

Sum of Spending Power/Wealth (000,000s): The X_2 variable used in the model is an estimate of the combined GDP for the two cities which is found by multiplying each city's population by its GDP per capita. This is intended to provide a measure of the demand for air travel originating in the two cities. Where possible, the variable uses population figures for entire urban agglomerations. It would have been preferable to have figures for the population living within a set radius of the airport; however, such figures are not generally available. The GDP per capita is crudely calculated by multiplying the most recent national GDP per

capita figure by the long term trend growth rate, to arrive at a figure for 1996. No allowance is made for GDP variations within the country.

Rejected X-variables:
It would be ideal to have been able to include data on prices. However, these data are impossible to obtain due to the exceptionally complicated fare system on many routes, for instance, on the London-New York route, there are several hundred different fares, only a small portion of which bear any relationship to the published IATA fares. Data on the number of airlines serving each route are possible to obtain; however, it was rejected as an X-variable in favour of the more illustrative X_1 variable concerning connections. The X_1 variable can, in some sense, be regarded as a proxy for price since competition is generally greater on larger routes between more important points on the global transport network. Trade data would have been a good indicator of the propensity for travel between two countries but it was rejected in favour of the X_2 variable due to severe difficulties in data collection and comparison.

Data
A representative sample of 30 international air routes was chosen to provide data for the model. The routes were chosen to provide contrasting levels of wealth, airport size, geographical spread and distance.

Data for the Y-variable were collected for a specific point in time - the first week of September 1996. The OAG/ABC World Airline Guide, listing all scheduled airline flights, was used to obtain these data. City to city schedules in the guide were used to obtain the number of weekly flights on various airlines and aircraft. Many airlines publish configuration plans for their aircraft, so the number of seats on various aircraft is easy to obtain. The OAG/ABC guide contains ticketed point mileage tables. With all this information it is a simple task to derive a Y value for each route.

The X_1 variable data are simply obtained from the ABC/OAG by counting the number of destinations served by each city.

Population and GDP statistics were obtained from the Philips Geographical Digest and were cross checked with figures in the UN statistical handbook and other publications.

Evaluation
Model: The model developed was a simple linear 3 variable regression model taking the form

$$Y_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + U_i$$

The aim of the evaluation is to produce numerical values for the parameters β_0, β_1 and β_2, and to establish the degree of statistical significance of the result.

Regression: OLS Regression analysis was carried out on the data using HUMMER and EXCEL software packages to evaluate the parameters for the model.

Initially, single regressions were carried out to evaluate the relationship between Y and X_1, and Y and X_2. To investigate whether the model contained significant problems of multicollinearity by calculating the correlation between X_1 and X_2 was calculated.

The regression of X_1 on X_2 indicated a satisfactory low degree of mulitcollinearity in the model, yielding an R-squared value of just 0.197, meaning that only 19.7% of the variations in X_1 are statistically explained by the variations in X_2. This is a satisfactory result.

The regression of Y on X_1 yielded a positive relationship with a high R-squared value, as expected.

$Y = -2694.04 + 1.872X_1$ R-squared = 0.544

The regression of Y on X_2 yielded a positive relationship between the two variables with a moderate R-squared value.

$Y = 6784.476 + 0.066X_2$ R-squared = 0.457

The multiple regression of Y on X_1 and X_2 was carried out and yielded a high R-squared value, whose validity is supported by the low degree of multicollinearity as discussed above.

$Y = -7707.12 + 1.383299X_1 + 0.042238X_2$ R-squared = 0.695071

Conclusions

The model would appear to have a high degree of explanatory power. The relationship between Y and both X variables is positive in both the single and multiple regression cases, and of similar magnitude. Clearly the model does have some value in explaining the relationship between the supply of air travel and the factors influencing its demand at the level of individual routes. However, its uses would be extremely limited. By taking a cross section at a particular point in time rather than a time series, all effects of seasonality have been ignored so as to render it quite useless for serious business planning. It is imperfect as it does not

allow for the possibility that the demand for travel between two cities may be met by means other than scheduled airline transport. This distortionary effect would be significant on short routes where surface transportation is a viable alternative, or on routes with a high degree of non-scheduled, charter, air traffic.

The use of such a simple model for airlines predicting demand for an individual route would be implausible. While concentrating on two very fundamental variables affecting route size, the model completely ignores the effect of so many other smaller variables which may cumulatively have a far greater effect on the airline's decision to enter a particular market. The effects of marketing, the price level, the first/business/economy mix, all so crucial to an airline's profitability, are all ignored in this model along with countless other variables.

The model is useful for gauging the approximate level of overall supply for a route, and may usefully tell us if a route is saturated or not, or if there could be space for extra capacity. However, it cannot be said to be a useful guide for an airline to evaluate entry on to a particular route - such a simple model has to leave so much out.

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The Implication of the BSE Crisis on the Demand for Beef in Ireland: An Econometric Investigation

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Since the spring of last year the media has been dominated by each new development on BSE. Consumers across Europe have stopped buying what had once been one of their staple foods and, consequently, the industry has been thrown into turmoil. Here, Suzaane O'Neill presents a model of the determinants of the change in demand for beef in Ireland.

Introduction

BSE in cattle was first confirmed in Ireland in 1989. At that time the Food Safety Advisory Committee reported that there was *"no evidence to suggest that BSE or Scrapie is transmissible to humans"* (FSAC, 1989). Today, despite not having conclusive scientific proof of human infection arising from the consumption of infected beef, the WHO has stated that *"the most likely hypothesis for V-CJD*[1] *is the exposure ... to BSE"* (Economic & Social Committee, 1996; Food Safety Advisory Board, 1996). It would appear that consumer confidence in the safety of beef has been damaged and that the consumption of beef has declined significantly (Burton & Young, 1996, Economic & Social Committee, 1996). This paper will analyse the impact of the BSE crisis on the demand for beef in Ireland.

The essay will focus on two main issues. Firstly, the paper concentrates on the retail market for beef and in particular focuses on the change in consumption of beef by Irish consumers. The evidence suggests that there has been a downward trend over time in consumption of beef and that the beef industry was in a state of turmoil before the BSE scare (Agra Europe, 1996). Hence the analysis will begin by examining the annual trend in the consumption of fresh meats including beef over a 16 year period, to determine whether this is the case in Ireland. The econometric techniques of ordinary least squares and error correction models are employed to demonstrate that the change in the consumption of beef can be attributed to price factors and the BSE crisis.

The second aspect of this paper is concerned with the way in which price signals are transmitted along the chain from farm to retail level. Starting from Marshall's hypothesis that retail prices fluctuate less than wholesale prices (Schein, 1996), the price of beef from the slaughter price to the average retail price will be traced to ascertain whether the well reported fall in beef prices (IFJ, 1996, E & S

[1] V-CJD is considered to be the human variant of BSE.

Committee, 1996) at the farm level are being passed on to the consumer. This will involve analysing price in the period prior to the BSE crisis and the period since the start of the crisis, to gauge the size of the farmers' and wholesalers' margins.

Section 1: Placing the BSE Crisis in Context

To begin, the paper outlines the sources of data used in the study and then proceeds to discuss the impact of BSE crisis on the market for beef in Ireland. Finally, this section concludes with an examination of the trends in the consumption of beef over the past fourteen years.

The Data

Data for this paper was collected from a number of sources, the primary source being the Central Statistics Office. The Consumer Price Index provided much of the retail price series. This data is collected quarterly and the intermediate time periods were estimated based on the average gross margins. The agricultural prices are a monthly series and were taken from the Statistical Abstract, while the annual meat consumption series was taken from Eurostat. The above data is as reliable as any government collected statistics can be. The retail sales of beef were provided on request by a leading national retail supermarket, the base period taken was November 1995, and a sales index was created based on the supermarkets estimated share of the beef market.

The BSE Crisis

BSE came to the fore in the late 1980s. The close proximity of Ireland to the UK and the easy accessibility to the UK media resulted in the Bristish BSE scare impacting on Irish beef sales. Every time the media reported a rise in the number of cases of BSE there was a consumer reaction causing sales of beef to decline temporarily, adding to the already falling trend in the consumption of beef. However, it was not untill March 1996 when the UK governement acknowledged that BSE was transmissible to humans through the food chain that a serious crisis in consumer confidence in beef occurred (Dept. Food and Agriculture, 1996).

The decline in the consumption of beef did not recover in the period after March 1996, and it began to appear as if the change in the tastes of consumers was becoming permanent. The effect on domestic beef sales depends primarily on two factors. The first is how consumers respond to government and producers assurances concerning the safety of beef, and on how successful producers are in differentiating beef produced from infected and unaffected herds (The Economist, 1996). It appears that the response of consumers to lower prices is less important in the case of beef. Moreover, it can be argued that consumers are, in fact, willing to pay more for a product if this reduces the risk of adverse effects. The amount consumers are willing to pay "*increases as the severity of the adverse health*

effects associated with the risk increases" (Henson, 1996: 418). To fully explore the impact of the BSE crisis on the demand for beef, the overall trend in the consumption of red meat needs to be addressed.

Consumption of Beef 1980 to 1994

For several years prior to the BSE scare the beef industry in Europe was in a state of turmoil (Agra Europe, 1996). Hence, I will begin by examining the trend in the consumption of fresh meat and beef over a 16 year period to determine whether this is the case in Ireland.

It is clear that per capita consumption of red meat, and in particular beef, has been declining over the past decade while poultry meat consumption has expanded. Consumption of poultry meat has risen steadily over the past decade from 14.4 kg/head in 1970 to 28 kg/head in 1994. Beef and veal consumption has fallen over the same period from 25.6 kg per head in 1970, to 16.0 kg per head in 1994. Both the consumption of sheepmeat and pig meat have remained fairly constant.

Although accepting the persistant decline in the annual consumption of beef, by examining in detail the months before and after the BSE crisis it is possible to guage the effect of the crisis. The rationale for this analysis is to determine if the change in the consumption of beef can be attributed to price factors alone or if the BSE crisis is impacting on the demand for beef in Ireland.

Section 2: The Econometric Investigation

The Choice of Variables

The dependent variable (Y) chosen is the retail sales of beef from November 1994 to October 1996. Table 2.1 below gives a sample of the beef sales and shows that sales of beef[2] have declined since the major BSE crisis in March 1996, although there is some evidence to suggest that sales have started to recover again.

Table 2.1, Beef Retail Sales

1995		1996							
Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug
113	123	120	103	80	87	91	92	97	130

Source: Power Supermarket Ltd.

Theory suggests that the demand for a food product is determined its own price, the price of substitutes, income and preferences (Tracy, 1993; Cortez & Senauer, 1996). Following on from this the choice of the independent X variables in this analysis includes the price of the meat in question, beef, and the price of other

[2] Index of retail sales. Base Month November 1994=100.

meat substitutes, namely sheep meat and pork. The independent X variables used in the model are given below:

- X_1 The retail price of beef
- X_2 The retail price of lamb
- X_3 The retail price of pork
- X_4 Dummy variable representing the BSE crisis

It appears that consumer attitudes and preference issues are of growing importance in the demand for beef (Bansback, 1995). To allow for this the model includes a dummy variable to represent taste changes arising from the BSE crisis. It is envisaged that the use of a discrete step nature dummy variable would capture the immediate effect of the July 1995[3] BSE crisis, and the long term change in preferences resulting from the March 1996 BSE crisis. Accepting that a dummy variable will not pick up the intensity of the impact of the BSE crisis on consumer taste for beef or the fact that the crisis has evolved over time, it does nevertheless provide the best means to capture taste changes.

Ideally, the use of household survey data would have had the advantage of allowing the influence of socio-economic factors in determining consumer preferences for beef to be measured (Burton et al, 1996). However, although both income and socio-economic factors are considered to be important determinants of meat consumption (Cortez & Senauer, 1996; Bansback, 1995), they have not been included in the model. The rationale for excluding these variables in the model is that as the analysis is using monthly data collected over a short period of time changes in income would not have been significant.

Specifying the Model

The testing of the model involved three stages. Given that in practice most time series data is non-stationary, the variables in the model were tested for non-stationarity. The rationale for this approach is that non-stationarity can lead to the production of spurious results (Lambert, 1995). The Dickey-Fuller test was applied to each of the variables in the model, and not surprisingly all the series were found to be non-stationary. However, the results of the Engle-Grainer test indicated that the estimated ε_1 was in fact stationary, and therefore the variables despite being individually non-stationary are co-integrated (Gujarati, 1995). The implication for the model is that in the long run there may exist a relationship between the variables, hence, two separate regression analyses were run.

[3] Although there were reports of BSE prior to July 1995, it was in this month that the first restrictions on the export of British beef were imposed by the European commission.

The regression technique of ordinary least squares was applied to give estimates of the unknown parameters and their significance in the explanation of the dependent variable. The model used takes the form below:

$$Y_t = \beta_0 + \beta_1 X_{1t} + \beta_2 X_{2t} + \beta_3 X_{3t} + \beta_4 X_{4t} + \varepsilon_1$$

where β_0 to β_4 represent the unknown parameters, and ε_1 is the error term. The results of the OLS regression give an indication of the long term relationship between the dependent variable and the independent variables. However, the results of the analysis need to be viewed with caution given the presence of non-stationary time series.

A second regression was undertaken using an Error Correction Model (ECM) and Engle-Granger methodology. The ECM takes the form:

$$\Delta Y_t = \alpha_0 + \alpha_1 \Delta X_{1t} + \alpha_2 \Delta X_{2t} + \alpha_3 \Delta X_{3t} + \alpha_4 \Delta X_{4t} + \alpha_5 \upsilon_{t-1} + \varepsilon_1$$

where Δ denotes first difference, υ_{t-1} the one period lagged value of the residual from the OLS regression above, and α_0 to α_5 represent the unknown parameters. The ECM is used to give an indication of the short run dynamics of the model.

The Central Findings

In an attempt to explain the change in the retail sales of beef a multiple regression analysis was undertaken. The hypothesis tested is that there is no relationship between the **X** and **Y** variables (H_0: $\beta_i = 0$). The estimation of the regression line and the correlation coefficients were obtained, and this yielded the line of best fit as follows:

$$\mathbf{Y = 265.53 - 49.24X_1 + 3.913X_2 - 12.27X_3 - 24.29X_4}$$

Table 2.2

Independent Variable		Parameter Estimate	t-Statistic
	Constant	265.53	
X_1	Beef Prices	-49.248	-6.978
X_2	Sheep Prices	3.913	.863
X_3	Pork Prices	-12.271	-2.416
X_4	BSE Dummy	-24.299	-5.946

$R^2 = 0.86533$ $F = 27.3074$

An estimate of a parameter is said to be statistically significant if the t-statistic associated with it, at a particular significance level, causes us to reject the null

hypothesis that β is equal to zero. The hypothesis was tested at the 5% significance level[4]. These results suggest $\mathbf{X}_1$ (the retail beef price) is
Table 2.2 below details the parameter estimates and the t-statistics: statistically significant in explaining the change in retail sales of beef since the t - statistic is -5.946. The negative sign of the parameter estimate for $\mathbf{X}_1$ suggests a negative relationship between the sales of beef and the price of beef.

One would expect the relationship between the sales of beef and the price of substitute meats to be positive, and this is the case for sheep meat. However, the price of sheep meat $\mathbf{X}_3$ is not statistically significant in explaining the change in retail sales of beef. It appears that pig meat is statistically significant in explaining the change in sales of beef. And even though the sign of the estimated coefficient for pig meat $\mathbf{X}_3$ is negative, this is not entirely unexpected. Evidence from studies by Burton & Young (1996) found that while most meats are found to be gross substitutes, not all were net substitutes. It does appear that $\mathbf{X}_4$, the dummy variable representing the BSE crisis, is highly significant in explaining the change in the retail sale of beef.

The correlation coefficient (R^2) implies that almost 87% of the variations in the Y variable (retail beef sales) are explained by the linear influence of the four X variables. The overall significance of the model was tested using the F - test and the results indicate that the model has significant explanatory power[5]. The variables in the model were all tested for the presence of collinearity using the variance-inflating factor (VIF) test, and were found not to be highly correlated[6].

However, given that this is a cointegrating regression, the results of the OLS regression have to be interpreted as long term relationships rather than as a model estimating the short term impact of the independent variables on the dependent variable. For this reason a second Error Correction Model (ECM) was used in an attempt to reconcile the short-run behaviour of the variables with their long-run behaviour. The ECM resulted in the estimation of the regression line and the correlation coefficients as detailed below. The line of best fit was estimated to be:

---

[4] Reject the null hypothesis $H_0=0$ if $|t| > t_{\alpha\ n-1}$. In this case the t-statistic $t_{.05\ 17} = 2.11$

[5] H_0: $\beta_2 = \beta_3 = \beta_4 = 0$. If $F > F_{\alpha}$ (k-1, n-k) then reject the null hypothesis. At a 5 percent significance level, the critical F value for 4 and 17 df, $F_{0.05}$ (4,17) is 2.96. Hence, H_0 is rejected.

[6] If the VIF of a variable exceeds 10 that variable is said to be highly collinear (Gujarati, 1995). All the variables in the model had VIF values of between 1.4 and 2.599.

$$\Delta Y_t = .036647 - 52.768\Delta X_{1t} + 5.412\,\Delta X_{2t} - 7.393\,\Delta X_{3t} - 23.126\Delta X_{4t} - 1.2692\,\upsilon_{t-1}$$

The parameter estimates and the t-statistics are detailed in Table 2.3.

Table 2.3

Independent Variable		Parameter Estimate	t-Statistic
	Constant	.036647	
ΔX_1	Beef Prices	-52.768	-3.685
ΔX_2	Sheep Prices	5.4124	.804
ΔX_3	Pork Prices	-7.3933	-.882
ΔX_4	BSE Dummy	-23.558	-7.794
υ_{t-1}	Error Correction Term	-1.2692	-4.767

R^2 = .88957 F = 24.166

The statisitical significance of the co-efficient of the error correction term υ_{t-1} implies that the υ_{t-1} term is capturing the adjustment toward long term equilibrium. The results of the ECM indicate that the short run changes in beef prices and the BSE dummy variable have a negative effect on the sales of beef (Y), and that about 1.2 of the discrepancy between the actual and long run value of beef sales is eliminated each month (Gujarati, 1995). The BSE variable is also highly statistically significant[7], with a t-statistic of -7.794. Neither the price of pig meat or sheep meat is significant at a 5% or 10% significance level. The F-statistic of 24.16 implies that the estimated regression has significant explanatory power[8]. The R^2 suggests that almost 89% of the variation in the sale of beef can be attributed to the explanatory X variables. As with the OLS model each of the variables in the ECM were checked for the presence of collinearity using Tolerance and VIF tests, and none of the variables were found to be collinear[9].

The Implications of the Findings

The econometric investigations strongly suggest that the BSE crisis has had an impact
on the sale of beef in Ireland. It appears that there has been a marked change in tastes

[7] Reject the null hypothesis $H_0=0$ if $|t| > t^{\alpha}_{n-1}$. In this case the t-statistic $t^{.05}_{15} = 2.571$

[8] At a 5 percent significance level, the critical F value for 5 and 15 df, $F_{0.05}(5,15)$ is 2.90.

[9] All the variables in the model had VIF values of between 1.05 and 2.18.

away from beef by consumers, and that this change has become permanent. Even if retail prices were to fall significantly it is questionable whether sales would increase. Farmers' groups have stated that price decreases are pointless without increased consumer confidence in beef (IFJ, 1996). Furthermore, studies have shown that consumers are willing to pay more to reduce the likelihood of infection from the consumption of contaminated food (Baker et al, 1994; Henson, 1996). The effect of aggressive beef advertising may not increase fresh beef consumption given that consumers are constantly reminded of the possible risks of BSE by the media (Fausti et al, 1995). Part of the notoriety of the BSE saga has been the conflicting information provided by the industry and the govenment regarding the safety of Irish beef. This raises questions about the ability of An Bord Bia, or the government, to influence the consumers perceptions of the quality of beef, and thereby increase demand for beef. It would seem that beef sales may never recover to the pre - BSE scare levels.

Section 3: Producer Margins and the BSE Crisis

In many countries meat is among the most important items in the consumers food budget, and increasing attention is being given to the spread between the price paid by the consumer and that received at other stages in the marketing chain (Hall et al, 1979). This section of the paper ascertains whether the well reported fall in beef prices at the farm level are being passed on to the consumer. This will be explored through analysis of the farm price of beef in the period prior to the major BSE scare in March 1996, and also in the period after the scare. However, to begin it is first necessary to detail the theoretical explanations available to explain the price transmission mechanism in food markets. Therefore, this section begins by reviewing the literature on price margins. The results of this study are then presented, and finally these results are discussed in relation to the theoretical explanations outlined earlier.

The Price Transmission Mechanism

Central to the study of food price determination is Alfred Marshall's hypothesis that retail prices fluctuate less than wholesale prices. As the consumer seldom has access vis-à-vis changes in wholesale prices they rarely expect price reductions, hence the retailer, unless for some special reason, is slow to pass on a fall in wholesale prices. Schein (1996) tested Marshal's hypothesis on a variety of products including meat and concluded that the evidence strongly supports Marshall's theory. The key implications of Schein's results are firstly that the retail price of many goods are sticky, in the sense that the retail prices do not immediately change in response to wholesale prices fluctuations. Secondly, it is not possible to make simple assumptions about future variations in consumer prices when wholesale prices change (Schein, 1996). The BSE crisis exemplifies such a 'special circumstance' resulting in the lowering of retail prices, despite

evidence that consumers do not expect retail prices to fall as a result of a decline in wholesale prices.

A further essential point in the study of price determination for the farm, wholesale and retail sector, is the belief that variations in consumer prices are caused by changes in prices at lower levels, such as a reduction of prices in the marketing chain. Palaskas (1995) examined the dynamic transmission of agricultural producer prices through the food marketing system in seven EU countries. Using monthly data the analysis looked at the price chain mechanism from heifer to beef. The estimates from the co-integrated systems approach indicated that in most cases the percentage change in the consumer price is greater than the percentage change in the producer price.

It was also noted that while farm-level prices exert an influence on the consumer price, the length of the transmission lag has a bearing on the rate of the price increase. The results of the empirical work suggest that the responsiveness of consumer price to shifts in producer prices is not instantaneous but instead distributed over a period of time. In addition to the speed of transmission, given that the difference between consumer and producer prices consists of the aggregate margins within processing and distribution, it is the behaviour of the processing and marketing sector that often are the crucial factor affecting the nature of the transmission. Palaskas (1995) asserts that as the cost of off-farm activity often accounts for approximately one half of the consumer price of food, the study of price transmission is of particular importance.

Other studies including that by Heien (1980) indicate that, given the presence of auction markets at farm level and price competition at retail levels, agricultural markets clear quickly. However, as the time periods under consideration become shorter, disequilibrium becomes more of a factor in these markets. The model presented by Heien relies on the notion that changes in prices at the retail level are caused by changes in prices at the wholesale level. This theory is centred around the notion that changes in retail food prices are caused by price variations at lower levels in the marketing chain. These cost changes are transmitted via mark-up-type pricing rules which are shown to be consistent with firm's optimisation behaviour under assumptions of constant returns to scale. Empirical tests undertaken by Heien show that *"unidirectional causality from wholesale to retail is the rule"* (Heien, 1980:16). Using these theoretical considerations as a framework the paper goes on to analyses the linkage between producer and retail prices.

Measuring the Change in Prices

While it is acknowledged that the price chain from farm to retail consists of a wholesale link this study concentrates on the gross margins, that is the difference

between the price farmers receive for beef at market, and the retail price paid by consumers.

The time frame for analysis is the period from January 1995 to April 1996. This time frame covers the two main BSE scares, the first in July 1995 and the second and more serious scare, in March 1996.

Statistics show that producer prices have fallen in the period of time after both of the BSE crises. Prices fell from approximately 56 pence per pound of beef in June 1995 to 50 pence in September of the same year. Although prices did increase again, the major BSE scare in March 1996 led to a marked decline in beef prices at the producer level. By July 1996 beef prices had fallen to 46 pence per pound of beef. The retail price of beef also fluctuated during the time of the BSE crisis. The retail price of beef continued to fall in the period after the initial BSE scare in July 1995. The price stabilised until the March 1996 BSE crisis when prices fell again from £2.81 per pound to £2.31 in July 1996. The retail price of beef in August at £2.58 seems to suggest that retail beef prices are starting to rise again, however, it is too early to say whether prices will return to their pre BSE scare level.

The analysis of prices indicates that retail prices are following the trend in producer prices. Although both producer and retail prices are changing as a result of the BSE crisis, the variance in the producer prices is less than the variance in consumer prices. These results are consistent with Palaskas (1995) findings that the percentage change in retail price is greater than the percentage change in producer prices.

When producer prices are compared to retail prices, it appears that farm prices in the period after the BSE crisis are continuing to fall, while the retail price is starting to recover. If this trend continues there are serious consequences for beef producers.

The Change in Producer Margins

By examining the change in the absolute size of producer margins, that is the difference between the producer price and the retail price, it can be seen that producer margins did fall significantly in the period after the March 1996 BSE crisis.

It is evident that producer margins have fallen due to the BSE crisis and this is most noticeable in the period June to August 1996. There is some indication that margins are increasing again.

In the period from May to June 1996 producer margins fell sharply this can be attributed to the impact of the March 1996 BSE crisis. However they subsequently recovered, with the increase in the period from June 1996 more than compensating for the fall in the previous three months. This increase can be linked to the increase in retail prices combining with the continual decrease in farmer prices. Thus, it seems possible that wholesalers and dominant retailers are gaining from the increased margins, while the producers and consumers are both losing out. This effect of the BSE crisis, although significant, is not focused on in detail in this paper. As indicated earlier there is possibly a time lag in the price transmission mechanism, and this would help to explain why the change in producer margins is not occurring in the month directly following the BSE crisis.

Comment on Results

There are several other possible explanations as to why margins change in the meat industry. The first is that when there is an outbreak of serious livestock disease such as BSE, the economic loss in output to the farmer is dependant not only on the forced slaughter of cattle, but also the effects at the market level (McInerney, 1996). In the case of BSE the number of cattle slaughtered for market was not only reduced, but the demand and price fell due to the decreased consumer confidence in the safety of beef.

The second possible reason is that the degree of uncertainty in the market enables the wholesalers and dominant retailers to exploit the position of farmers who may be heavily burdened with beef they cannot afford not to sell (Hall, 1979). In essence, there are two type of risk associated with the buying and selling of slaughtered cattle. Firstly, there is a general price risk inherent in a competitive market, and secondly an informational risk associated with the uncertainty over the quality of the saleable beef products from individual cattle. Risk aversion may explain why buyers offer lower prices when buying cattle (Fausti, 1995), and hence the dominant retailer can raise prices even when costs have not increased, thus achieving higher price cost margins without any beneficial price gain accruing to the consumer.

Finally, retail outlets in Ireland often practice price averaging and price levelling in the face of unbalanced demand for types of beef. This allows them to minimise the level of waste from each carcase (Meat Prices Advisory Board, 1974). The need to price average arises from the notion that individual parts of the beef carcase may have a significantly different price elasticity from the aggregate carcase, and so retailers are rational in operating differentiated pricing for cuts of beef (Brester, 1991). Hence, if there is a significant fall in the demand for certain poor quality cuts of beef the retailer will adjust the overall beef prices to minimise any loss.

In conclusion the data indicates that both consumers and producers are negatively affected by the price effects of the BSE crisis, while other players in the wholesale and retail sectors have maintained, and in some cases improved, their margins.

Conclusion

The anaysis presented in this paper concentrates on two aspects of the BSE crisis. Firstly, through the use of econometric techniques the link is confirmed between the BSE crisis and the decline in beef consumption. The results of the OLS regression indicate that, as expected, there exists a statistically significant relationship between the sale of beef and the price of beef. The BSE variable was also found to be highly significant. The short term analysis, confirmed by the ECM, shows that BSE is impacting on the retail sale of beef in Ireland. These results indicate the growing influence of tastes and preferences in determining consumer choice. So, although price factors remain important, consumers are more concerned with the safety and quality of Irish beef. Reducing beef prices at the retail level will not increase sales of beef unless the government and farm organisations can alter consumers negative perception of beef. Consumers need reliable information to assess the risks associated with the consumption of beef. This has been highlighted in other studies of food products with potiental ill health effects. Thus, the beef industry and govenment agencies need to carefully consider strategies, such as quality control, to counteract consumer exposure to negative information (Chang et al 1991).

Secondly, the paper examines the change in margins in the beef industry as a result of the BSE crisis. The data demonstates that both producer and retail prices decreased at the time of the crisis, however, only retail prices have recovered. The implication of this is that wholesale margins have grown as a result of the variations in producer and retail prices. It appears that dominant retailers and wholesalers are consolidating their profit margins at the expense of others in the beef industry. Further analysis of the marketing chain is required to confirm these initial findings.

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

Daniel Berman
Junior Sophister

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

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

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

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

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

[1] The author wishes to acknowledge the help of Dr. Mick O'Connell, of Trinity College, Dublin, and the help of the ESRC data archive at the University of Essex for providing data from the European Community Studies Cumulative file (ICPSR 9361). This survey was compiled by Ronald Inglehart, Karlheinz Reif and Anna Melich, and commissioned by the European Community. The responsibility for any errors in use or interpretation of data in this paper lies with the author.

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

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

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

Dependent Variable - Happiness

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Results

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

Dependent Variable: Is R Happy?
Independent variable: Income

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

Analysis of Variance
F = 0.15150 Signif F = 0.6972

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

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

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

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

Analysis of Variance
F = 30.58846 Signif F = .0000

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

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

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

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

Analysis of Variance
F = 15.62759 Signif F = .0000

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

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

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

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

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

Discussion

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

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

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

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

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

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

Conclusion

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

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

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

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An Empirical Investigation of the Arbitrage Pricing Theory in relation to the Irish Market

John Power
Senior Sophister

The growth of the world's financial markets, both in size and sophistication, has been matched by the growth of the literature which attempts to predict their future movements. John Power tests empirically whether the Arbitrage Pricing Theory - a model tailor made for the US - is relevant in the context of a small, peripheral market such as Ireland's.

Introduction

The last 40 years have witnessed an extraordinary amount of innovation and remarkable progress in the realm of asset pricing theory. Indeed the financial literature over the past 30 years seems to be dominated by the subject. However, research has invariably tended to focus on larger economies (most notably the United States) to the neglect of economies such as Ireland. This paper will make an attempt to remedy the situation by carrying out an empirical test on the applicability of the Arbitrage Pricing Theory (APT) to Irish securities. The broad aim of the project is both to test whether the generally accepted factors of APT given by U.S. researchers can adequately describe the Irish market, and to construct other factors that may be specifically applicable to Ireland.

APT - General Issues

By the mid 1970's, despite its apparent empirical success, the consensus amongst financial economists upon the easy testability of the Capital Asset Pricing Model (CAPM) began to breakdown. In particular Roll's critique (which proved that the methodology used in its empirical investigation was of very limited power), heralded a new era of reflection amongst financial economists. This reflection not only stimulated tighter methods in the empirical investigation of the CAPM, but also a new, more radical school of thought - the APT (Ross, 1977). In essence, Ross proposed that security returns were sensitive not to just one type of non-diversifiable risk, but to a variety of different types of risk inherent in the economy.[1]

Issues Associated with its Empirical Investigation

Unfortunately it is difficult to carry out empirical tests of the theory. The broadness of the theory (i.e. the existence of many determining factors rather than just one) is both its principle strength and weakness, as the authors make no mention as to the nature of these factors.

[1] See appendix 1 for a more rigorous definition of the APT

Statistical methods, known as factor analysis, involving the simultaneous numeric estimation of the loadings and sensitivities are quite often used, however this approach is intellectually unappealing as the actual nature of the factors is not specified.

The second approach is more intuitive, but is, however, rather ad hoc in nature. In this case, on the basis of economic theory, the "a priori" specification of the general factors (F's) is established. Since stock prices are merely expected discounted cash-flows/dividends, possible explanatory factors should affect either the expected cashflow of the firms, or the discount rate. In general only unanticipated deviations (innovations) serve as proper factors, as the forecastable element will have been previously built into prices.

For the purposes of my tests I shall follow the Fama/McBeth (1973) procedure of time series and cross-section regression to obtain the factor sensitivities and loadings. The factor sensitivities (bj's) are obtained through time series regression of a number of stock returns on the factors. The bj estimates are then used as the explanatory variables in a cross section regression on the returns, over a period of time (normally one month). This regression is repeated over several periods. The coefficients of the bjs in these cross-section regressions are estimates of the λi's, or risk premiums, associated with the factors. Whether these factors are priced can be examined by t-testing the means of the sample λi's.

What Factors Should be Used?

In their study Chen, Roll and Ross (1986), found that the risk of changes in the default premium (spread between the return on corporate bonds and the risk-free rate), risk of change in the term structure of interest rates (spread between the return on long term bonds and treasury bills), risk of unanticipated inflation, risk that the long run expected growth rate of profits for the economy will change (using changes in industrial production as proxy for this), are priced factors. Burmeister and McElroy (1988) introduce a residual market factor into their model, as a proxy for unobserved influences. This factor is measured as the residuals of a regression of the state variables against the excess return for the market index (Rm - Rf).[2] Finally, other commentators have used changes in unemployment as another measure of risk in the economy.

With regards to an Irish analysis, I will apply all of the above factors, nevertheless, following blindly the guidelines of American researchers would be foolhardy. The nature of the Irish economy warrants special attention.

[2] These residuals can be used directly as a factor, as it is assumed that the associated factor sensitivity with the market is 1.

Firstly, as a small open economy with a high propensity to trade, an "international" factor would seem appropriate. Risk of changes in the exchange rate could be used as one possible factor to model this. In order to resolve the problem of which exchange rate to choose, I have decided to use an aggregated trade weighted exchange rate. The Central Bank produces such an index (effective exchange rate), which, to the best of my knowledge, is trade weighted exchange rate with our principal trading partners.[3]

Secondly, again stemming from its "open" nature, it has been well documented that the Irish stock exchange is highly integrated with London. Thus, I use the FT-100 index as a possible measure of risk in the British economy. Furthermore the use of a British index, where thin trading is not as common as it is in Ireland, may help explain some of the systematic risk components of Irish securities.

Finally, the non-existence of a corporate bond sector precludes the use of measuring default risk. Instead, I propose the use of change in the commercial bank lending rate as a potential factor, as unanticipated changes in this rate could conceivably change the structure by which future cashflows are discounted.

Data Sources

I obtained stated variables and stock price data from three sources.

The monthly Central Statistics Office publication, Economic Series, contains a monthly wholesale price index, and a seasonally adjusted industrial production index. I decided to use this index as it removes some of the "predictable" component of industrial production.

Central Bank Quarterly bulletins provide monthly data on the effective exchange rate, the return to long term government bonds (15 years to maturity), the return to 91 day exchequer bills (serves as a proxy for the risk-free rate), and average commercial bank lending rates.

Data-stream provides monthly data not only on stocks, but also on the number of unemployed (seasonally adjusted), the ISEQ index, the FT-I00 index and bond data.

Finally, general data on Irish firms, such as market capitalisation and industry type, was obtained from the *Sunday Business Post* newspaper.

[3] The CB does not publish the weights used.

The Empirical Investigation

Preliminaries

Before I could proceed with the tests, it was necessary to manipulate the data. It is necessary to strip out any predictable components in the state variables. Most writers propose that the monthly change in price indices, unemployment, industrial production and exchange rates be treated as an innovation. For simplicity I will use this technique. Thus, in order to calculate the F's associated with these variables, I used the formula:

$Fj(t) = \log^e Ij(t) - \log^e Ij(t-1)$
where
Ij(t) - value of index j in period t
Fj(t) - value of factor j in period t

An analogous procedure was used to calculate the monthly returns of the price indices and stock prices down-loaded from Datastream.
With regards the term structure factor, Chen et al advise the use of the following factor:

$F(t) = LGB(t) - EB(t-1)$
where:
LGB(t) is the return on a long term government bond in period t
EB(t) is the return on an exchequer bill in period t

Finally, in order to calculate residual market risk as espoused by Burmeister and Mcelroy, a time series regression was run on the excess return of the ISEQ index against the above factors. The excess monthly return in month t, Et was calculated by the following equation:

$Et = Rit - ((I + Ebt)^{1/12} - 1))$

where Rit refers to the return on the ISEQ index in month t.

The Tests[4]

I divided my data into 2 sub-samples - period I (Jan 1985 - Dec 1990) and period 2 (Jan 1991 - June 1996), with the goal of performing 2 separate, distinct tests of the APT in both periods. I aimed to use the first 36 months of each sub-sample to

[4] Note: All regressions were carried out using SPSS. Tests of significance which will be referred to throughout the rest of this section relate to simple t -tests, where the null hypothesis states that the coefficient is insignificant (=0). Thus, significance at the 10% level implies that I reject the null hypothesis with a 90% chance of being correct.

perform the time series regression and the final 24-30 months to perform monthly cross-sectional regressions.

The First Sub-sample

The grouping of stocks into portfolios is necessary to avoid an "errors in variables" problem associated with the bj estimates in the cross-section regressions. Unfortunately, for the first period I was not afforded such a luxury. Datastream provided coherent monthly price data on about 40 stocks during this period. Portfolio formation on the basis of such limited sample would be unwarranted, especially given the severe multicollinearity problem[5] in the subsequent cross-sectional regression. Thus, I decided not to form portfolios, but to take 20 "main movers"[6] across different industries, of differing market capitalisation.

Main Results[7]

The meaning of the factor sensitivity coefficients can be interpreted as the quantity of the associated risk inherent in a particular stock. Thus, for example, a realisation for residual market risk of 1% per month will raise James Crean's monthly rate of return by 0.56%, when all other factor realisations are zero. The coefficient for the London index is, in general, well behaved, in the sense that fairly stable significant quantities of that risk are inherent in most of the securities. Residual market risk follows a similar pattern, where significant, quantities of term structure risk seem to be low. Exchange rate risk tends to be present (and in large quantity) only in larger firms. For the most part the other factors fail to have a significant, consistent impact on other stocks returns.[8]

The results of the cross section regression are summarised in Appendix 3. The data failed to establish a significant, consistent (factor loading) risk premium for any of the factors. The constant, which should measure the risk-free rate, was statistically significant on only three occasions in the 24 month period, giving rates of 10%, 10% and -2%. The value of the other risk premia were quite erratic, for example, when the risk premium associated with the FT-I00 was priced, it gave rates of -22%, -11%, 10% and 20%. Given these ambiguities, which were

[5] Problem of few observations and several variables.

[6] The "Main-moving" criteria was rather ad hoc, it involved the visible inspection of the 40 stock prices, and the selection of the 20 that tended to frequently change price.

[7] See appendix 2 for a summary of the time series regression results.

[8] The unemployment and industrial production factor are not included, as their factor sensitivity estimate failed to be significantly different from zero for all firms in the time series regression - I re-estimated the regressions without using these factors.

prevalent in the other premia estimates, and given the spurious validity of the variables used to construct them, I did not test the average value of the risk premia for significance.

The Second Sub-sample[9]

For the second period, I had access to data on 60 stocks. I believed I could perform viable portfolios on the basis of such a number of stocks. Portfolios were formed on the basis of industry sector, and weighted using market capitalisations. The portfolios formed were: leading industrials (high market capitalisation), leading industrials (low market capitalisation), three other industrial portfolios ranked on market capitalisation, the two main banks, other financial property companies, and finally, other stocks (consisting mainly of exploration companies of low market capitalisation).

Main Results

Results were once again of limited significance.[10] The exchange rate sensitivity was the only coefficient that proved to be significant, it being present in large negative quantities in three portfolios, thus implying high sensitivity to exchange rate fluctuations for these portfolios. The cross-section regressions[11] were disappointing, yielding only one interesting result - all factor loadings were statistically significant for three periods - the same three periods! Although a formal test is impossible, by visual inspection one can see that the loadings tend to be fairly stable. However, we must be reminded that the data used to generate these results is of limited quality.

Concluding Thoughts

Clearly the APT model in its proposed form is refuted by the above results. None of the factors were consistently significant in explaining stock returns. Indeed, the results of the first time series regression implicitly support the CAPM (the aggregate market factor excluding the hypothesised factors and the London index being highly significant).

Before we consign APT to the financial economists' graveyard, a number of concerns should be voiced. Firstly, the usual problem of modelling expected returns, not actual returns appears. Similarly, specifically with regards to the

[9] For the second sub-sample it was necessary to reduce the number of explanatory factors, so as to avoid multicollinearity in the cross-section regressions. For this reason I decided not to use the least significant factors in explaining excess return on the market index, these factors once again proved to be unemployment and industrial production.

[10] See appendix 4 for summary.

[11] See appendix 3 for summary.

APT, the forecastable component of any of the explanatory factors should be excluded. My analysis did not really account for either of these issues.

Secondly, there were only nine observations, for seven explanatory variables in my second series cross-sectional regressions. The problem of multicollinearity arises.

However, this problem was necessary to construct portfolios. The construction of portfolios is needed for reliable variables in the cross-section regression. Immediately, one is struck by the question of how one makes an efficient trade-off?

Finally one particular problem of theoretical inconsistency, succinctly underlined in the second period, merits discussion. Due to the currency crisis of 1992, the "risk-free" rate reached over 30% in some periods, clearly distorting the results on term structure and perhaps interest rates. However, it is precisely this type of situation that the APT tries to model - currency risk - a specific risk to the economy as a whole that is probably undiversifiable.[12] My own analysis somewhat accommodated this risk. In my second period model, sensitivity to exchange rates was the best factor of a bad lot. Indeed, by extending the analysis, I could assert that, in three periods, investors demanded an 11% premium due to this risk - this is entirely plausible. However, the other parameters of the model were unable to cope with such an environment.

To sum up - yes, APT in its proposed form does not adequately model the Irish market, but no, this should not lead to an absolute rebuttal of the theory. If anything, I have shown that research efforts should be redoubled, so as to resolve some of the problems my study has elicited in dealing with a market such as Ireland.

[12] Unless of course, investors can internationally diversify by converting their holdings into other currencies - this is unlikely.

Appendix 1

The generation of the APT equilibrium equation requires only the 2 rather innocuous assumptions that markets are in equilibrium (in the financial sense that there are no arbitrage opportunities), and that the return generating process can be described by the following equation:

$$\mathbf{R_k = E_k + bk_1F_1 + bk_2F_2 + bk_3F_3 + ... + bk_qF_q + \varepsilon k} \quad \mathbf{(1)}$$

where:
R_k = return on security k
F_q = value of the qth risk factor in the economy that impacts on R_k
$E(F_q) = 0$ (i.e on average, we do not expect the factor to be different from zero)
bk_q = the sensitivity of stock k's return to the qth factor (factor sensitivity)
E_k = the expected value of R_k if the factors have a zero value
εk = "classical" random error term with the usual properties[13]

When all arbitrage possibilities are exhausted, the expected return on a well diversified portfolio p of securities will be a linear combination of the b coefficients:

$$\mathbf{E(Rp) = \lambda o + \Sigma bpi\lambda i} \quad \mathbf{(2)}^{14}$$

where:
λo - risk-free rate
λi - the risk premium associated with the ith factor (factor loading)

Appendix 2

Leading industrials

	Exchange rates	FTSE100	Inflation	Interest rates	Term structure	Residual mkt risk
James Crean	-2.02x	0.98xx	2.02	-0.18	-0.01x	0.56xx
CRH	-1.1	0.66xx	2.25	0.4	0	0.73xx
Fyffes	0.07	1.02x	-2.54	0.24	0.01	0.79xx
Smurfit	1.57	1.23xx	-5.57x	0.11	0.01x	1.05xx
Waterford Wedgewood	-0.43	1.03xx	-4.49	-0.25	-0.01	0.45

[13] Including $E(\varepsilon k)=0$, $Cov(\varepsilon k,\varepsilon j)=0$, $Cov(\varepsilon k,Fj)=0$; for all k & j

[14] The derivation of the APT is outside the remit of the paper. hb I refer the interested reader to Roll (1977) for a rigorous treatment.

Second line industrials
-High market capitalisation (>£40m)

	Exchange rates	FTSE100	Inflation	Interest rates	Term structure	Residual mkt risk
European leisure	24.06	3.78	41.66	6.93	0.3xx	6.6xx
Fitzwilliam	4.89xx	1.02xx	-5.59	-2.51	0.04xx	1.31xx
Flogas	2.93xx	0.84xx	-2.07	0.72	0.01	0.54xx
Jones Group	0.21	1.07xx	5.75	-0.02	0.01	0.91xx
Ryan Hotels	-2.73	0.95xx	5.35	-0.52	-0.02	o.44
Unidare	2.85x	0.62xx	-3.69	0.9	0.01	0.43x

Second line industrialists
-Low market capitalisation (<£40m)

	Exchange rates	FTSE100	Inflation	Interest rates	Term structure	Residual mkt risk
Abbey	0.14	1.54xx	12.75	1.1	0.03	1.13
Arnotts	-0.09	0.72x	3.62	0.32	-0.01	0.12
Ennex international	0.57	0.99xx	11.89x	-0.48	0.01	1.02xx
Heitoin Holdings	0.52	1.41xx	4.52	-1.07x	0.02xx	1.1
Clondalkin Group	-0.13	0.93xx	3.27	-0.34	0	0.79xx

Banks

	Exchange rates	FTSE100	Inflation	Interest rates	Term structure	Residual mkt risk
Allied Irish Banks	-0.09	0.45xx	-6.31x	0	0.8	0.8xx
Bank of Ireland	-1.99	0.34	-1	-0.01	0.5	0.5xx

Other Financials

	Exchange rates	FTSE100	Inflation	Interest rates	Term structure	Residual market risk
Anglo-Irish Bank	1.88	0.58	-0.25	0.01	0.85	0.85xx
	0.58	1.55xx	-3.67	-0.34xx	0xx	1.02xx

x significant at the 10% level
xx significant at the 5% level

Appendix 3

Number of periods where the lambda (risk-premium) coefficient was significant:

	No. of Periods Jan 88-Dec 90	No. of Periods Jan 94-Dec 96	Per. a Jan 1994 - Dec 1996	Per. b Jan 94-Dec 96	Per. c Jan 94-Dec 96
Exchange Rates	2	3	0.13	0.11	0.11
FTSE 100	4	3	-0.38	-0.49	-0.13
Inflation	6	3	-0.16	-0.20	-0.13
Interest Rates	2	3	0.70	0.67	0.42
Term Structure	1	3	-300.00	-314.00	-244.00
Residual Mkt Risk	4	3	1.13	1.85	1.32
Constant	3	3	-0.04	-0.16	-0.16

Note: Significance of the coefficients is evaluated at the 10% level.

Appendix 4

"b" coefficient (factor sensitivities) estimates of time regression 2 (Jan 1991 - Dec 1993):

	Exchange rates	FTSE100	Inflation	Interest rates	Term structure	Residual market risk
Leading industrialists (1)	-3.27xx	-0.33	0.41	-0.43	0	-0.17
Leading industrialists (2)	-3.02xx	-0.22	-0.42	0.08	0	0.09
Industrialists (3)	-1.73	-0.43	1.75	0.88	0	-0.11
Industrialists (4)	-0.89	0.31	1.08	0.07	0	0.26
Industrialists (5)	-1.6	0.28	-1.69	0.32	0	-0.01
Banks	-2.58	-0.12	1	-0.07	0	0.1
Other financials	0.27	0.17	0.09	-0.12	0	0.07
Market/Property	-4.12	0.41	3.61	1.39	0	-0.3
Others	-1.43	-0.23	0.86	-0.08	0	0.09

(1) - Market Cap.>£200m
(2) - Market Cap. <£20m
(3) - Market Cap. £70m-£100m
(4) - Market Cap. £30m-£70m
(5) - Market Cap. <£30m

xx significant at the 5% level
x significant at the 10% level

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The Great Debasement of Henry VIII and Edward VI

Catherine Downey
Senior Sophister

In the early stages of the development of our monetary system there was much incentive for rulers of countries to secretly debase the value of their coinage in order to generate wealth. In 15th and 16th century continental Europe, such debasements were common amongst rulers financing wars and the excesses of their courts. Catherine Downey investigates what can arguably be titled the greatest debasement of all – the coin alteration implemented under Henry VIII and continued under Edward VI.

Introduction

"there is no surer symptom of a consumption in state than the corruption of money" -Sir Robert Cotton[1]

Although possibly best known for his multiple wives and policies to take over possession of the monasteries, Henry VIII also played a major role in the history of monetary policy. The monetary regime he followed has been analysed as one of the greatest coin alterations for state/personal profits in history, and thus has been christened 'The Great Debasement of Henry VIII and Edward VI'.[2]

The great debasement of Henry VIII and Edward VI exemplifies how the greed of a ruler can transform sound monetary policy to completely undermine the currency of a kingdom. The backdrop of war is an example of a situation which often places a kingdom in a compromising position. This essay will examine how attempts to keep the currency within the realm under the auspices of war eventually evolved into what is now known as 'The Great Debasement'. The initial coin alterations were of sound monetary policy, designed to keep English coins from being sucked into the currency vacuum which had been created in continental Europe. The King's power over the currency, and the proliferation of debasement on the continent created the perfect opportunity for the king to profit from debasing the coinage. Thus Henry's weakness manifested itself in what is often viewed as one of the largest debasements in history. This essay will first examine the incentives for a debasement in a contemporary context. Through an

[1] McCullock p.3 in the essay *Alteration of the coin*, the authorship of which is not for certain and it has also been suggested that the author could be Sir Thomas Roe.
[2] Although the alteration of the coin is known as The Great Debasement of Henry VIII and Edward VI, due to the young age of his son when he took over the thrown, and his later reversal of policy, the Great Debasement if most often attributed to Henry VIII.

historical trace of the profits reaped by the king, and the opinions of contemporary writers, I will contrast the costs and benefits of such policies. Finally, I will examine some of the influences the historical understanding of this incident has had on monetary policy since the contemporary period.

An Historical Perspective of The Great Debasement

"In concept a coin is a piece of gold or silver, the weight and fineness of which is guaranteed by the ruler by whose authority it was issued. Rulers, including Henry VIII, could and did cheat."[3]

The monetary rule of King Henry VIII can be easily divided into two periods. The first period reached from his induction to the thrown in 1509 until 1542. The second period continued from here and stretched to the end of his reign. This later period is the beginning, although not the entirety of, The Great Debasement. For the alteration of the coin extended into the early stages of his young son's rule.

From the end of the initial period of his rule, and including the early part of his son Edward VI's reign, the intrinsic value of the currency was depleted to less than 1/3 of its initial value. In the case of certain coins the intrinsic value drooped to less than 1/6 of the initial value. A major result of which was a necessity to increase the frequency and intensity of the debasements. A process which would eventually remove a large portion of the common currency of transaction from the country due to an overvaluation of silver in the bimetallic ratio, (compared to the rates prevailing on the continent.) The debasement of the coins caused a lack of general acceptance of the new currency, and hoarding and illegal coinage of the old more pure substance. These factors combined to lower the quantity of coinage coming into the mint to be recoined. This in turn dictated a greater magnitude of debasement in order for the mint to reap the same profits from the recoinages. The result was the production of coins with increased proportions of alloy and decreased acceptance. The coins had such a high proportion of alloy in them near the end of this period, that they began to turn red from the amount of copper in them. This phenomenon, and criticism of current monetary policies were captured by the epigrams of John Heywood:[4]

Of redde Testons.

These Testons looke redde: how like you the same?
Tis a token of grace: they blush for shame.

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[3] Chown, p. 52
[4] Tawney, p.179

Henry's monetary regime was exemplary for the first 16 years of his reign. During this period his coinage policies closely followed those of his father, the extent of which is exemplified in the fact that during this period his father's image still adorned the coins. This is a deserved homage to Henry the VII, considering his amazing feat of restoring the quality of the coinage. Especially considering the coins he inherited from Richard III, which had suffered clipping, sweating, and other adulteration at the hands of the people during The War of The Roses (1455-1485).[5] His son failed to learn from his father's experiences and strong beliefs in the need for a reputable coinage. The fact that Britain was in the rare situation of having a high quality domestic currency should have been seen as a point of pride and strength, and not an opportunity to sink into the depths of the coin alteration which ran rampant on the continent. It certainly did not justify one of the greatest acts of monetary treason in history.

The ability to debase coins and have them circulate at face value depends greatly on the reputation of the state, and the ruler under which they are coined. Regardless of reputation, though, an alteration of the coin will show in the value at which the currency is accepted for general transactions. A sound currency will normally circulate in tale particularly if the issuing authority is politically strong, as in Anglo-Saxon England, but a debased, or heavily clipped coinage will cease to be trusted and the coins will be accepted at least by the sophisticated, only in specie.[6] The initial debasement of the coins under the Reign of Henry VIII came in August 1526. The foreign pressure placed on the currency resulting from a proliferation of debasements in continental Europe was too much for the coin to bear. In an attempt to avoid an outflow of coin and bullion, the government raised the prices of all English coins by one-tenth. This motive is exploited in the initial proclamation of the debasement by the mint:

"For as much as coyness of moneys as well of gold as of silver be of late days raised and enhanced both in the realm of France and also in the emperors Low Countries and in other prates unto higher prices then the very poi, weight, finesses and valuation of the same, and otherwise then they were accustomed to be currant, by meanness whereof the money of this our realm is daily and of long season hat been by sundry persons, as well as our subjects as strangers, for their particular gayne and lucre conveyed out of this realme into the partes beyond the seas, and so is likely to continue more and more, to the great hinderance of the generallity of our subiectes and people and to the no little impovrishing of our said realme, if

[5] Davies, p. 100
[6] Chown, p. 12

the same be not speedely remedied and forseene: we after long debating of this matter with you and sundry other of our councell, and after remission made unto outward princes for reformation thereof, and finding finally no manner of remedy to be had as their handes, have by mature deliberation determined, that our coyness and moneys as well of gold as of silver shalbe by our officers of our minte from henceforth made of such finesse, allay, standard and value, as may be equivolent, correspondent and aggreable to the rates of the valuacion enhaunced and raised in outward partes, as is afore specified." [7]

Although this initial 'crying-up' can be considered sound monetary policy, simply accounting for normal wear and tear on the coins, it is the post-ceding policies which define this move as a precursor to monetary turmoil. The enhancement of the coins only created greater pressures on the currency, as speculation began about the true 'hardness' of English currency. This speculation was quickly quieted, as in November, Henry affirmed by raising the coins further, what was to be the monetary legacy of soft coinage under his regime. This was greatly manifested in the switch from the Pound Tower to the Pound Troy. At the same time a new silver penny bearing Henry VIII's portrait of 10 grains of silver to the old 12 grains was coined. These measures in combination resulted in a plentiful supply of silver to the mint.[8]

In addition to manipulating the money supply, control was also asserted in the form of attempts at price controls. A proclamation was issued 'forbidding any person to raise the price of any goods or merchandise under the colour of money being enhanced'.[9] This period still does not begin The Great Debasement, as the policies undertaken until now can be regarded as mere measures upon which to keep the currency within the country and serving it's basic functions as money. The devaluations and debasements can be seen merely as precautionary measures needed to take account of the use and misuse of coins which occurred in this century.[10]

The Great Debasement breaks from the earlier period as the measures implemented can no longer under any circumstances be considered necessary to 'adjust' the circulating currency. These policies could neither be seen as part of a

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[7] Tawney, p. 176-177

[8] Chown, p. 42

[9] Chown, p. 42

[10] A common practice of the period is 'clipping' the coins, or removing some the valuable metal from their edges. Jevons estimates this normal wear and tear to be around 2-2.75%.

larger European trend of coin debasement which was creating a vacuum on the continent, and had to be adjusted to keep metallic coins in the country for use as a medium of exchange. This period preceding The Great Debasement only sufficed to give Henry a taste for the possibilities. It was the run he took with these which characterises The Great Debasement.

The period of debasement at fraudulent levels was manifested in the final four coinages of Henry VIII's reign, and the entire six coinages of his son's reign. Despite initial defenses claiming these were justified to counter balance a large out-flow of coin, and the need to finance the war, the monetary policy became fuelled by greed. The revenues earned exceeded the need in the second justification, and, as the bimetallic ratio was so far eschewed from the same measure on the continent, it actually added to the large scale outflow of silver - the currency of transactions.

Following the debasement, there were many attempts to return the coinage to its original standards. Edward VI's follower, Elizabeth found good reason for this, and put great efforts into the project.

"Her highness weyinge and consideringe the state of this her realme and crowne in tyme past, the greate expenses of her Auncestors by reason of their warrs, and their abilities not onely to support the same, but also to leave greate treasure behind them: And conferring therewith all her longe and happy peace (in which tymes princes grow rich) and the great want and insufficiencie of her reuennues and treasures to supply the ordinarie charge and defence of her dominions: she could not but with greate care studdie theruppon, and devise for remedy of the same. And after sondry debatementes and consultations with her selfe, she is by divers reasons induced to conceiue, that the greatest and almost the only cause thereof hathe proceded by the inhauncements of the coigne in the tyme of her father and brother, and that the only remedy therof is to reduce the monies to the auncient standerd..."[11]

The realisation of a need to return to a harder currency is intertwined with defence of past policies. The true judgement on the monetary rule of Elizabeth's predecessors can be seen in the reference to kings of prior eras who managed to fight wars and still leave great stocks of treasure.

The Costs and Benefits of Debasement

[11] Tawney, p. 193

"I must distinguish the monies of gold and silver, as they are Bullion or commodities and as they are measure: One the extrinsic quality, which is at the king's pleasure as all other measures to name; the other the intrinsic quality of pure metal, which is in the Merchant to value. As there the measure shall be either lessened or , enlarged as is the quantity of the commodity that is to be exchanged."
-Sir Robert Cotton

The great debasement influenced many facets of the economy. The benefits for the government of such a policy are numerous. Henry VIII was not as frugal as his father, his military successes had been dearly bought, and substantial sums had to be remitted to Flanders.[12] An increase in the exchange rate caused the relative magnitude of this debt to increase. The kingdom struggling with dealing with these war debts, and with the debasements still flourishing on the continent turned to the easiest way to repay a debt- coin more money with a constant face value, but a lower portion of valuable metal, and thus a lower intrinsic value. The negative repercussions which resulted from such a devaluation outweigh the benefits in the long run. One of the major costs associated with debasement and enhancement was due to the fact that crown land was all leased out on long-term leases. In the case of debasement rent on these lands would be paid back to the king in the new money. Thus the king was receiving back the devalued money which he had introduced into circulation, a situation which lowered the scope for increased debasement without detection. As the people realised that the new money did not have the intrinsic value of the old money, a dual exchange system came about. The system created was characterised by a dual acceptance, where a gold coin could not be exchanged in the market for a silver coin of equal face value. The major cause of this was the artificially low rate the mint gave for silver, which resulted in a vacuum effect, whereby most of the system's silver was siphoned onto the continent. The new money was accepted on the market, at an exchange much greater than the official rate. This dual system accelerated with the subsequent debasements as the reputation of the sovereign's monetary policy disintegrated with each repeated reinforcement of it's lack of stance for a 'hard' currency. A vicious circle developed from this as subsequent debasements were necessarily of increasingly great magnitudes to counter-balance the stabilising forces created by society. The government's inability to completely control the repercussions of their monetary alteration is one influence which leads to the need for debasements of increased magnitude to reap equal benefits.

[12] Chown, p. 41-42

One of the greatest limitations in the ability to profit from the recoinage, was a limit on the monarch's ability to remint on public accounts, which necessitates private minting. The first reason for this was that central Government revenues were small relative to national income. Second, due to large debts of a virtually perpetual state of war, public revenue was not large enough relative to public expenditure to allow for a temporal break between revenue receipt and expenditure to allow for reminting of public funds.[13] In addition to these two governmental factors, there was an incentive for the people to always pay their debts (including those accruing to the government) in coins which had been altered the most. This allowed a smaller scope for additional alteration of the coins which the government actually had the ability to ability to debase. These factors combined to necessitate private minting for additional profits from minting to be gained. Gould described the situation in which sufficient incentives were created for both public and private minting:

"... whereas the first approximation to a general precept in regard to the supply of gold or silver to the mint by the private citizen is 'recoin whenever current mint price exceeds mint equivolent of coins proffered', and equivolent formula applicable for reminting on government account would be 'recoin whenever current mint equivolent exceeds mint equivolent of coins proffered."

According to these rules, as the mint price was always rising, there were always previously coined issues at which the current mint price exceeded the mint equivalent. Therefore, there was always some incentive for private recoinage. The monarch, in setting the mint prices and equivalents, made sure always to profit.

A factor which effected the ability of the monarch to control the inflow of metal to be recoined, yet was largely out of his hands, was the specie export point. The possibility of this incidence stems from the fact that, when de facto value exceeded fiat value, a coin's purchasing power relative to other coins increased. As the coin could buy domestically more than the value attached to it, the incentive to export it was greatly reduced. Thus coins which actually circulated at a value greater than their fiat value, not only were unlikely to be reminted, but also were unlikely to be exported. Thus, an attempt by the government to 'cry--up' coins to a point where their fiat value greatly exceeded their de facto value in order to increase inflows to the mint, was partially counter-balanced by an increase in export flows of the coin. This argument assumes that the debased

[13]Gould, p. 20

coins were accepted at fiat, or at least greater than domestic de facto value abroad, an assumption that often did not hold.

Debasement usually become obvious fairly quickly. Indeed, if the ruler was successful first time around, he would invariably go on repeating the exercise until he was found out. Success would depend on whether coins were in fact accepted 'in tale', i.e. at face value, or 'fiat value'.[14] Due to their larger relative values, less frequent use in exchange, and smaller portion of the money supply, gold coins were less likely to be accepted at fiat value. The authorities to some extent recognised and attempted to meet this problem. On two occasions the fiat values of the gold coins minted according to the standard of 23 Carats 3 1/2 grs. were raised to make them more realistic, having regard to the fine-gold content of these coins in comparison with the newer sovereigns minted according to lower standards.[15] Such measures demonstrate the government's inability to control the money supply and exchange value of coins, the major reason for the largest costs of debasement.

Influences of The Great Debasement Through History

"There was indeed ample practical experience of debasements and revaluations to stimulate attempts to analyse their consequences."
-Marian Bowley[16]

One of the positive aspects of these devaluations is the development of economic thought which it initiated. Many breakthrough works were based on explaining the tremendous fluctuation of both the intrinsic and face value of the currency. In a addition many well known writers tackled the complex question of the large-scale out flow of silver and the effect it had on economic transactions within the market. The problem of the ease of alteration was pondered, and the output of such thought has been the basis for independent central banks in many countries. A move which allows for a harder currency, as the independent agents of the central bank are not supposed to allow for political influence to affect monetary policy. The predecessor to the idea of a central bank, the idea of a land bank is a direct spin off the quest for independence from a ruler's power over the currency. A descriptive justification of this institution is given by John Law[17]:

[14]Chown, p. 12
[15]Gould, p. 22
[16]Bowley, p. 8
[17] Antoin Murphy lecture notes

"Though land be more uncertain in its quality than silver yet it is of more certain value because the changes silver is liable to, from its greater or lesser quantity and the greater or lesser demand for it ... so that a land money being more certain in its value and equally capable of being brought to a standard with silver is more qualified to be the measure by which goods are valued and the value in which contracts are made payable than a silver money."

This essay believed to be written in 1703-1704[18], uses the example of The Great Debasement to examine the effects of an alteration of the coin. He concludes that the alteration can undermine an economic system to the extent that metallic money is of such uncertain value that a new form of money is needed.[19]

The Great Debasement is often referred to even in modern work. Recently, attempts at prediction have created a long line of economic thought. The main interest has shifted with the implementation of imaginary money, from a focus on the loss of both the quantity and quality of metallic money, from a focus on the loss of both the quantity and quality of metallic money in circulation, to the effect on reputation of currency. The shift follows the transition of the true value of the currency from the pure metallic content to the reputation view of the issuing government's monetary policy. The greatest modern application of which has been the analysis of the potential viability of Economic and Monetary Union in Europe. Some of these modern studies give us a much greater understanding of, and ability to model the factors influencing the different steps of the Great Debasement. Chen and Giovanni conclude for their econometric model of EMU:

"The most important finding is that expected parity changes vary over time, and appear to be significantly related to a number of variables. The variables that have consistently high explanatory power are the length of time since last realignment (measuring the reputation of the central bank) and the deviation of exchange rates from central parity."

These observations infer that not only could the tremendous frequency and magnitude of devaluation undermined the coinage in England in this period, but also the great differential between the mint ratio and the actual market ratio of gold to silver. The model they present is estimated using data from EMS countries between 1979 and 1992. In terms of the great temporal differential and

[18] Antoin Murphy lecture notes

[19] Although Law's views were modified later to see land money as a compliment for metallic money, the idea of land money as a substitute continued to be championed by many.

the large differences in the functioning of the economy between this time period and that of evaluation between Chen and Giovanni with the contemporaries of Henry VIII and Edward VI is quite striking.

Conclusion

"When national debts have once been accumulated to a certain degree, there is scarce, I believe, a single instance of their having been fairly and completely paid. ...The raising of the denomination of the coin has been the most usual expedient by which a real public bankruptcy has been disguised under the appearance of a pretend payment"
-Adam Smith

The period of The Great Debasement marks an important period in the history of monetary policy. The possibility for monetary treason by a ruler, by way of altering the coin for crown profit or to avoid debt default, has long been acknowledged and often tried. The Great Debasement stands out as an attempt at the alteration of a magnitude never before implemented. By altering the coins on such a large scale, the long-term costs were made strikingly clear. There is much contained in this to be learned by students of monetary policy. The need to return the coin to ancient standards by Elizabeth is evidence of problems within the government monetary system after debasement. An analysis of this shows that in this situation money is not neutral. When money was injected into the system prices did change through the variance of accepted exchange value from the official value. In the long run those who gained were the hoarders who held onto coinage and precious metals, recoining when it was profitable. In the act of hoarding these people who tended to be rich landowners and merchants created room for a system of dual acceptance, and slowed down economic transactions, the net result often being to their detriment. This situation was counterbalanced by the greater magnitude of costs placed on the poor, especially agricultural workers, who had no ability to hold onto coinage and recoin when profitable. These workers still faced increased prices, and lack of acceptance of coins, and were plagued by the lack of silver, as this would often be the only form of currency in which they made transactions. Thus the fortunes of the workers in proportion fell more due to the debasement, and relatively pushed up the wealth of non-land owning merchants.

That these lessons have been learned is contained in the historical lack of post-ceding debasements of similar or greater scale. Beyond The Great Debasement there is much to learn from the measures taken to restore the value, and more important in today's monetary regime, the reputation of the currency. Later writers have been aware of this incident as is evidenced in their work, and as long

as we continue to be aware of past lessons we will be unlikely to face the consequences of the situation from which they evolved again. Thus while creating great havoc for the contemporary citizens, the Great Debasement has illustrated in detail the consequences of an short-term economic solution such as a debasement.

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Thomas Mun – a man more sinned against than sinning

Robert Murphy
Senior Sophister

Economic theorists throughout history have delighted in knocking the established doctrines, as a preparatory stage to supplanting them with their own (superior) ideas. Smith's target was the mercantile system and his scapegoat was Thomas Mun. Robert Murphy reassesses Mun's contribution to economic thought, and shows how Smith misinterpreted Mun for his own means.

Introduction

The book *England 's Treasure by Forraign Trade* (1664), written by Thomas Mun, is regarded as a classic of English mercantilism, a doctrine that has received widespread criticism and condemnation. In this essay I shall demonstrate that Thomas Mun was an individual of considerable intellectual sophistication and that he made significant contributions to economic theory. I start by explaining why a number of commentators on mercantilism failed to acknowledge the analytical strength and principled side of *England 's Treasure.* I then examine the proposals put forth, by Mun, to combat the trade crisis of the early 1620's. I argue that the self regulating price specie flow mechanism in no way qualifies as inconsistent, Mun's repeated calls for a balance of trade surplus. In fact, I shall argue that Mun conceptualised the self adjusting specie flow mechanism almost one hundred years prior to Hume. I conclude with a brief synopsis of Mun's contribution to economic thought.

Section One: Adam Smith's "mercantile system" and mercantilism

Although the term "systeme mercantile" first appeared in print in Marquis de Mirabeau's *Philosophie Rurale* (1763), Adam Smith was the first to describe the "mercantile system", in his *An Inquiry into the Nature and Causes of the Wealth of Nations* (l 776), as a system of economic doctrines and policy practices in England during the period 1600 to 1776. The principle of the mercantilism system was a doctrine, or a popular fallacy to confuse wealth with money[1]. The objective of the system was the accumulation of wealth, which was equivalent to the hoarding of specie. Wealth could be accumulated by a balance of trade surplus, which could in turn be promoted by government encouragement of domestic industries and protection from foreign imports. The "sole engine the mercantile system"[2] was

[1] Money took the form of precious metals such as gold or silver and was collectively known as specie.

[2] Adam Smith, (1776) Vol. IV viii c89, *An Inquiry into the Nature of the Wealth of Nations.*

said to be the "monopolising spirit of merchants and manufacturers"[3] who "both invented and promoted this doctrine."[4] Thomas Mun was the most prominent of the former.[5]

Smith's view of mercantilism "as an agglomeration of commercial interference's fortified by a monetary folly"[6], was promoted further by classical political economy. As Magnusson (1994 p. 26) has noted, it became popular for economists such as Senior and Mill to ascertain that protectionism relied on the "childhood fancy" (Mill), that money was the only form of wealth. In France and Britain, Blanqui and J. R. McCulloch respectively, reinforced the notion of a mercantilism on the lines of Adam Smith. McCulloch was ready to admit that Mun's *England 's Treasure* was "a considerable step in the progress to sounder opinions."[7] However, Mun, could not help but fall victim to a popular delusion which was so "widely spread". McCulloch argued that "the wealth of individuals and states was measured, not by the abundance of their disposable products ... but by the quality of these metals actually in their possession"[8]. Furthermore, "Mr Mun lay no stress whatever on the circumstances of foreign commerce enabling us to obtain an infinite variety of useful and agreeable products, which it would have been impossible for us to produce at all, or to produce so cheaply at home."[9]

In section two I shall demonstrate that the association of Mun, as the founding father of the above economic doctrine, resulted from either complete ignorance of his writings, or from a blatant distortion of them. So why was it that Smith placed Mun as the founding father of the "mercantile system"?

The answer to the above is that Smith's writing on mercantilism is not an objective scientific inquiry into past economic writings. Rather, it must be viewed in terms

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[3] Smith, (1776) Vol. IV iii c89.
[4] Smith, (1776) p. 460.
[5] Smith never directly accuses Mun of the above fallacy. However, those who have read Smith seldom notice the distinction between harmful protectionism and the doctrine of Thomas Mun. Schumpeter, (1954) p. 361., claims that Smith instigated this connection "in such a way that his readers cannot help getting the impression which has in fact become very general."
[6] A.V. Judges (1961) p. 38., "The idea of a mercantile state" in D.C. Coleman (ed) *Revisions in Mercantilism.*
[7] J.R. McCulloch (1828) Vol. I p. xviii
[8] McCulloch (1828), p. xii
[9] McCulloch (1828), p. xviii

of Smith's "hypothetical" or "conjectural" history.[10] While Smith singled out a number of mercantilist writers, for example Mun, whom he argued "were apt to forget their own principles in the course of their reasoning and fall into confusion." His main concern was to construct "an ideal account of historical evolution", and so, "historical evidence" and, indeed, economic writings were "of secondary importance in his grand design of a comprehensive system."[11] Indeed, it is probable that Smith's concern for Mun stemmed not from the economic philosophy present in *England's Treasure* per se, but more so from the fact that Mun's magnum opus was used as intellectual backing by supporters of protectionism in the political debates of the 1660's.[12]

Walter Bagehot noted "He (Adam Smith) wanted to show how from being a savage, (man) rose to be a Scotsman." In attempting this modest task Smith utilised his basic conceptual framework[13], his four stage theory of economic development as set out in Book III[14]. Smith believed that there was a "natural order of things which must have taken place" in every growing society–the sequence broadly running from hunting to pasture to farming and finally to commerce.[15]

Although the "mercantile system," had reached the final stage of the development process, the interference of merchants, whom Smith alleges were "an order of men whose interest is never the same with that of the public", in economic activity, led Smith to view mercantilism as a perversion of his idea of natural liberty. That is, not only did such policies lead to a misallocation of scarce resources and thereby distort economic growth, but "more fundamentally, such policies conflicted with the obvious and simple natural liberty" an idea central to Smith's economic doctrine and laissez-faire policy advocacy.[16]

Hence, the "mercantile system", where monopolies and economic restraints were prominent features, must be shown to be fallacious. With this objective Smith

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[10] This term derives from Douglas Stewart and relates to a view of history not designed to give an accurate account of historic past, but to reveal the orderly unfolding of the process of chance.

[11] Wealth of Nations, Vol. I p. 55-56., ed. R.H. Campbell and A.S. Skinner, (1976).

[12] That Smith referred to Mun's magnum opus using the incorrect title, suggests that he was not especially familiar with Mun's work.

[13] Meek (1971), p. 12.

[14] Though probably developed earlier in 1750, and independently by Turgot, see Meek (1971).

[15] Smith, (1776), p. 360.

[16] Coats (1975), p. 219.

created a straw man, Thomas Mun, as the preacher of a false economic doctrine. Smith then set out to unveil the fallacy of this widely held doctrine not by reference to Mun's pamphlets. Instead he set out to demonstrate the damning consequences resulting from adherence to this doctrine. Why else did Smith devote, in its first edition of *The Wealth of Nations*, almost one quarter of Book IV to the mercantile system? Why else did Smith add a further chapter and several additional paragraphs in the enlarged third edition? Do these new additions contain new analysis of mercantilist pamphleteers? Do they contain any novel arguments? No they do not. Rather they represent new factual material, to an already tedious and long winded section, on duties, bounties and drawbacks from mercantilist restrictions.

The fact is that when analysing mercantilism Smith was, ironically, blinded by self interest. Economic circumstances of the period were secondary. The contrasting arguments of Mun, Malynes and Misselden were immaterial. Smith's sole concern lay in promotion of his economic theories and policy proposals. Is it then surprising that the analytical and principled side of England's Treasure went unnoticed? The blatant subjectivity of Smith's analysis is sufficient to discredit all classical interpretations of mercantilism, as "it [has] been the starting point of all subsequent explorations of mercantilism."[17]

Unfortunately, Smith is not the only theorist who was motivated by an ulterior motive when analysing mercantilism. Take, for example, the theorists, such as the German Protectionist List and the economic historian Gustav Schmoller, who instigated the first challenge to the classical view of mercantilism in the late nineteenth century. They were undoubtedly inspired by the fact that if they could show mercantilist ideas were rational for their time, then laissez-faire was not the universal language of economic sense. Hence, they argued that just as mercantilist policies were a rational response to seventeenth century problems, so too was their economics of protectionism appropriate for Germany's modern industrial society. In the 1930's Prof. Eli F. Heckscher strongly denounced the notion that mercantilist policies were rational, "there are no grounds what so ever for supposing that mercantilist writers constructed their [policies] .... out of any knowledge of reality however derived."[18] Again, it may be argued that this outburst stemmed more from Heckscher's personal political beliefs[19], than from

[17] Coleman (1980), p. 776.

[18] Heckser (1954), Vol II, p. 347.

[19] See Rolf Henrikson, "Eli F. Heckscher the economic historian and economist," in Bo Sandelin (ed), *The History of Swedish Economic Thought* (1991), for an account of Heckscher's defence of laissez-faire and free trade.

evidence in his economic writings.[20] Keynes's re-appraisal is another example, as I shall demonstrate, of a theorist who is more concerned with promoting his own economic doctrine, than attempting an objective scientific inquiry into past economic doctrines.

John Maynard Keynes's *General Theory of Employment, Interest and Money* (1936) contains an economic message which, Keynes believed, would revolutionise the way the world views economic problems. Keynes was aware that his economic doctrine possessed the potential to instigate a "conservative revolution." Unlike Karl Marx, who believed that capitalist economics were inherently doomed, Keynes viewed the economy as an intrinsically unstable entity. This view was, of course, in direct conflict with the then widespread beliefs of the classical school, of which Keynes was once a "faithful pupil."[21] In order to strengthen his challenge to the classical school, Keynes sought to demonstrate that the intellectual roots of his doctrine lay in the writings of his predecessors. It is for this reason that Keynes in chapter twenty-three of the General Theory presents an account of pre-Smithian economics.

Keynes challenges the classical school's claim that "the mercantilist argument is based, from start to finish on an intellectual confusion."[22] He argues that "the early pioneers of economic thinking may have hit on their maxims of practical wisdom without having much cognisance of the underlying theoretical grounds."[23] Keynes presents what he believes to be "the element of scientific truth in mercantilist doctrine."[24] Which conveniently corresponds with Keynes's economic doctrine. The State's concern, in mercantilist times, with achieving a favourable balance of trade is comprehensible since it is "the only direct means at their disposable for increasing foreign investment and at the same time .... their only indirect means of reducing the domestic rate of interest and so increasing the inducement to home investment."[25] There are two caveats to the above in an open economy, which were overlooked by mercantilist writers. Firstly, if the domestic rate interest falls so low that the volume of investment stimulates employment to a point where wages and hence prices rise, then a balance of trade deficit will follow. Secondly, if the domestic rate of interest falls below interest rates available elsewhere then a capital outflow will result. Hence, since the initial increase in the money supply is offset by the capital outflow, the potential benefits

[20] Magnusson (1994, p. 33) notes that Heckscher's analysis of mercantilism has been used by members of the historical school to defend their philosophy.
[21] Keynes (1936), p. 334.
[22] ibid.
[23] ibid., p. 340.
[24] ibid., p. 335.
[25] ibid., p. 336.

of a lower interest rate are lost. The Spanish economy in the fifteenth and sixteenth century, and Great Britain during the pre-war years of the twentieth century, are cited as respective examples. Keynes reaffirms that mercantilist doctrines contain "practical wisdom which the unrealistic abstractions of Ricardo first forgot and then obliterated."[26] Indeed, mercantilists writers along with Keynes were unwilling to allow the determination of the domestic rate of interest be "sacrificed to the operations of blind forces."[27]

Keynes then examines, drawing copiously on Heckscher's Mercantilism, the reasons given by mercantilists for their recommendations. Firstly, "Mercantilists thought never supposed that there was a self-adjusting tendency by which the rate of interest would be established at the appropriate level."[28] Furthermore, it is claimed, they were aware that if the precious metals were diverted from circulation to treasure hoards, the advantages to the rate of interest would be lost. However, Keynes tells us that "in some cases (e.g. Mun) the objective of enhancing State power led them, nevertheless, to advocate the accumulation of state treasure."[29] In section two I shall demonstrate that this accusation is unfounded. Secondly, "mercantilists were aware of the fallacy of the cheapness and the danger of that excessive competition may turn the terms of trade against a country."[30] Thirdly, "mercantilists were originals of "the fear of goods" and the scarcity of money as causes of unemployment which the classicists were to denounce two centuries later as an absurdity."[31] Keynes suggests that if either school was guilty of committing an absurdity, it was the classical school. As the "weakness of the inducement to invest has been at all times the key to the economic problem."[32] Finally, Keynes notes "mercantilists were under no illusion as to the nationalistic character of their policies and their tendency to promote war."[33] He uses this also as the foundation for another attack on classical school's policies. As "intellectually their [mercantilists'] realism is much preferable to the confused thinking of contemporary advocates of an international fixed gold standard and laissez-faire in international lending, who believe that it is precisely these policies which will best promote peace."[34] Keynes concludes by noting the "extra-ordinary achievement of the classical theory was to overcome the beliefs of

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[26] ibid., p. 340.
[27] ibid., p. 339.
[28] ibid., p. 341.
[29] ibid., p. 345.
[30] ibid., p. 345.
[31] ibid., p. 347.
[32] ibid., p. 348.
[33] ibid.
[34] ibid.

the "natural man" and, at the same time, to be wrong."[35]

This new interpretation of mercantilism by Keynes received immediate and widespread criticism. Not surprising Heckscher was one of the most zealous critics. Keynes responded to the charge of "glorifying imbeciles" by declaring "What I want is to do justice to schools of thought which the classicists have treated as imbecile for the last one hundred years, and, above all, to show that I .... have important predecessors."[36] A most noble goal indeed. However, if Keynes's main concern was to demonstrate that he had "important predecessors", why does he devote so little attention to the direct concern of Mun, Petty, or Law? After all Mun was the "founding father" of mercantilism and the latter writers were all concerned with how government intervention could stimulate economic prosperity. If Keynes's primary objective was to show he had important predecessors, why did he use Heckscher's *Mercantilism* as his sole source of reference? If Keynes's intentions were as stated, why did he quote from a source were "there is no risk that "the" choice of quotations has been biased in any way by a desire to illustrate their wisdom"?[37] Was Keynes safeguarding against subjectivity in his analysis? Hardly. Rather Keynes copiously drew from Heckscher's Mercantilism as he admitted these quotations were "more suitable for my purpose because Prof. Heckscher is himself an adherent,... of the classical theory."[38] The purpose was to denounce the classical school.

It is evident that a number of contributors to the literature on mercantilism possessed a broader agenda than "mere" scientific inquiry into past economic writings. Their objective being to score points against opposing economic doctrines or political philosophies. As A. V. Judges's definition of mercantilism notes, it is a "system conceived by economists for purposes of theoretical exposition and mishandled by historians in the service of their political ideas."[39] Given such an intellectual environment it is not surprising that the analytical and principled side of Mun's England Treasure has largely gone unnoticed. In order to redress this, I now turn to Mun's writings and the circumstances in which they occurred.

Section Two: Thomas Mun and the trade depression of the 1620's

Both A Discourse of Trade from England unto the East Indies (1621), and England's Treasure (1664) were written "apropos of the depression of 1620."[40] It

[35] ibid. p. 350.
[36] Keynes (1973), Vol. XIII, p. 552.
[37] Keynes (1936), p. 341.
[38] ibid.
[39] Judges (1969), p. 59.
[40] Hinton (1955), p. 284.

is now well established that "Mun wrote with particular and immediate problems in mind."[41] It is important to appreciate the impact the crises had on Mun. Not only does it challenge Heckscher's (1954 vol. II p. 347) criticism of mercantilist writers, it also implies that we must not expect Mun to have pushed his analysis "beyond the point where it was constructive."[42] That is, Mun's objective was to formulate a possible solution to the depression, and not to participate in unproductive theorising. I will argue that, viewed in this light, Mun's "failure" to explicitly state and adhere to the self-adjusting mechanism of specie distribution should not be viewed as a criticism of his analysis. But first a look at the circumstances that provided the impetus to Mun' s writings.

The depression of the 1620's led to a controversial debate, the main protagonists being Gerard de Malynes (fl. 1586 1641), Edward Misselden (fl. 1608-16541) and Thomas Mun (1571 -1641). All three were broadly agreed that the cause of the depression was the outflow of specie, which resulted from an "unfavourable balance trade." But there was sharp disagreement as to why this occurred and what the appropriate remedies ought to be.

Malynes was deeply suspicious of usury and described it, in *Saint George for England Allegorically Described* (1601), as a wolf held by the ears "dangerous to keep and even more dangerous to abandon." In *A Treatise of the Cranker of England's Common Wealth* (1601), Malynes describes how common wealth suffers a decline if foreign purchases exceeds sales to foreigners. This problem is "the unknown disease." Malynes believed that the "efficient cause of the disease" were bankers who use their power to manipulate the rate of exchange for the sake of their own gain. These actions were said to result in a below par exchange rate. This resulted in England paying too much for imports and not receiving enough for her exports and so a specie shortage materialised. The problem, he argued, should be solved by government laws preventing England's exchange rate fluctuating below par.

Misselden, in *Free Trade or the Means to Make Trade Flourish* (1622), proposed to combat the depression by increasing the money supply. He argued that this could be achieved by "raising the coin", or by a depreciation, to which Malynes was opposed. Misselden believed a devaluation would attract coin into the country and prevent its exit. Malynes airs his opposition in The Maintenance of Free Trade (1622). The debate became particularly acrimonious as Misselden responded with the tract The Circle of Commerce (1623). Here Misselden introduced the concept of the "balance of trade" and denounced Malynes's proposed remedy, noting "Natural Liberty is such a thing .... as will not endure the

[41] Supple (1954), p. 93.
[42] Hinton (1955), p. 284.

command of anything, but God alone."[43] To which Malynes prominently responded with the tract The Centre of the Circle of Commerce (1623)

Mun's first pamphlet "A Discourse of Trade"(1621) was primarily dedicated to the defence of the East India Company, of which he served as a director, against the widespread accusations that it was responsible for the country' s specie shortage. Mun also refereed to the "real" forces which would strengthen England's position, namely "Industry to increase and frugality to maintain."[44] Mun's general case was expounded in the memoranda's he submitted to the Commission of Trade, which contain large portions of England 's Treasure in both embryo and final form.[45] As a solution to the depression, Mun proposed the principle that "The ordinary means to increase our wealth and treasure is by forraign trade, wherein we must ever observe this rule; to sell more to strangers yearly than we consume of theirs in value."[46] Denouncing Malynes's remedy, Mun noted the exchange rate reflects the movements of trade rather than the manipulations of bankers. The below par valuation of England's exchange rate was a result of and not a cause of the experienced balance of trade deficit. "That which causes an under or over valuing of moneys by exchange is plenty or scarcity there of." Malynes remedy was then unnecessary, if not worse than the existing Statute of Employment. Misselden's proposal for increasing the money supply would prove sterile also, since changes in the measure of value would only cause confusion. In addition, it would result in special benefits for Spain and furthermore foreign countries would follow suit as "it is a business without end." But more importantly Mun reiterated the fundamental balance of payments equation that specie flows must be determined by the excess of exports over imports, and therefore insisted that there could not be a sustained loss of gold and silver while there was a trade surplus, while none of the above proposals could prevent a monetary outflow in the face of a sustained deficit.

The concluding section of FO. 177 presents in embryo form chapter three of *England's Treasure*, where Mun lists ways in which a balance of trade surplus may be achieved. The most important being sufficiency in wares which were being imported, and the reduction of imports of luxury goods. Secondly, when exporting goods merchants should be aware of the buyers price elasticity of demand and how this will effect their total revenue. "In our exportations we must not only regard our own superfluity, but also we must consider our neighbours necessities, that so .... we may (besides the vent of the Materials) gain so much of the manufacture as we can, and also endeavour to sell them dear, so far forth as

[43] Misselden (1623), p. 112.
[44] Mun (1621), p. 2.
[45] See Supple (1954).
[46] Mun (1664), p. 5.

the high price cause not a less vent in the quantity. But the superfluity of our commodities which strangers use, and may also have the same from other Nations, or may abate their vent by use of some such like wares from other places, ... we must in this case strive to sell as cheap as possible we can, rather than to lose the utterance of such ware.[47] Thirdly, when transporting goods abroad, England should seek to "perform it ourselves in our own ships."[48] Here, Mun demonstrates his awareness of the importance services or invisible items have on the balance of trade.

Mun advises merchants that they "ought to esteem and cheerish those trades which we have in remote or far Countreys, for besides the increase of Shipping and Mariners" these markets provide potential to gain from arbitrage.[49] This is a point which McCulloch (1828 p. xviii.) obviously overlooked. Elsewhere in *England's Treasure* Mun develops this further by distinguishing between a particular and general balance of trade, the former representing relations with another country, the latter trade with the rest of the world. By noting that a particular balance may be "unfavourable." This reflects triangular trade relations, or other circumstances that turn out to be beneficial in the light of a favourable balance of trade. Mun stresses, export of wares, services and money should be encouraged. Furthermore, exports should be duty free. For example, if commercial policy was fashioned such that manufactured goods made from foreign materials were relieved of export duties, then this would increase exports and employment for the poor. In addition the increase in imports of the foreign raw materials would increase revenue from import duties, off-setting the loss of revenue from export duties. Finally, England must make the best of both "natural" exports, i.e. minerals and products of the soil, and "artificial" exports, i.e. the products of industrial manufacturer. The latter should be especially promoted since "We know that our own natural wares do not yield us so much profit as our industry."[50]

Mun's analysis surpassed that of Malynes and of Misselden, by emphasising underlying the market factors. Mun's *England Treasure* implies the operation of market forces and the tendency to conceptualise the economy as system of related mechanisms. However, the burning question still remains, what was the ultimate end of the specie inflows which Mun was so eager to maximise?

Before answering this question, I shall first eliminate a number of proposed answers which clearly lack knowledge of Mun's writings. Firstly, despite classical theorists claims to the contrary, Mun did not confuse wealth with specie, nor was

[47] ibid., p. 8.
[48] ibid., p. 9.
[49] ibid., p. 10.
[50] ibid., p. 13.

he a monetary fetishist who was drawn by an irresistible attraction. Mun specifically denounced the "want of silver", in *A Discourse of Trade*, noting it "has been, and is, a general disease of all nations, and will continue until the end of the world; for poor and rich complain they never have enough." Secondly, regardless of the acquisition made by Keynes (1936 p. 344), Mun did not promote the accumulation of specie to serve as a store of wealth in the King's treasure chest. Although Mun discussed the notion of additions to the King's store, this was a purpose minimised by Mun and "his whole approach invites the conclusion that he introduced it mainly for the sake of completeness .... and his real concern was less with the king's treasure itself than with keeping it within proper bounds."[51] Thirdly, nether was Mun possessed by the "fear of goods" characteristic of some mercantilists. In *A Discourse of Trade,* Mun protested "let no man doubt, but that money does attend merchandise, for money is the price of wares, and wares are the proper use of money."

In order to understand Mun's desire for specie inflows it is first necessary to appreciate that money in Mun's time is not equivalent to our present day concept. Money in the seventeenth century was viewed as both "capital and currency."[52] If Mun sought a specie inflow in order to increase the domestic units of exchange circulating in the economy, then his continued calls for a balance of trade surplus are clearly self contradictory. As the self regulating mechanism of specie distribution recognises, it is impossible for any nation to maintain a permanently favourable balance of payments.[53] It has generally been accepted that Mun failed to integrate the three principles, all of which were in his writings, and so failed to uncover the self regulating mechanism of specie distribution.[54] While some other writers hold that what Mun had in mind was not, in fact, the quantity theory of money but the equation (identity) of exchange.[55] It is argued that when Mun wrote "It is a common saying, that plenty or scarcity of money makes all things dear" he saw it more as an empirical statement than as an analytical proposition, and therefore it was not integrated into his thought.[56]

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[51] Spiegel (1992), p. 114.

[52] Hinton (1955), p. 282.

[53] Since if any country enjoyed for some time a favourable balance of trade, the inflow of bullion would increase domestic prices (and depress them in the country from which the bullion came), thus decreasing exports and increasing imports. The balance of trade would become unfavourable, and bullion would flow back until equilibrium was restored at the new levels.

[54] See J. Viners, *Studies in the Theory of International Trade* (1937).

[55] Blaug (1990), p. 18.

[56] Gomes, L (1987), p. 105 in *Foreign Trade and the National Economy: Mercantilism and Classical Perspectives.*

Chapter four of *England's Treasure*, which is entitled "The Exportation of our Moneys in Trade of Mercandize is a means to encrease our Treasure," contains the seeds of an explanation as to why Mun was so eager to maximise the generation of specie. Here, Mun argues that the inflow of specie obtained from "an overbalance in the value of forraign wares" should be used as a form of liquid capital, "to enlarge our trade by enabling us to bring in more forraign wares, which being sent out again will in due time much encrease our Treasure."[57] Economic prosperity follows, or as Mun puts it "our treasure will increase" as "in this manner we do yearly multiply our importations to the maintenance of more Shipping and Mariners, improvement of his Majesties Customs and other benefits."[58]. In addition Mun argues that additional specie or potential capital is generated since "our consumption of these forraign wares is no more than it was before, so that all the said encrease of our ready money sent out as is afire written, doth in the end become an exportation onto use offar greater value than our said money's were."[58] Mun did not feel that the surplus of specie should be circulated in the economy, as he felt "it is not the keeping of our money in the Kingdom, but the necessity and use of our wares in forraign Countries, and our want of their commodities that causeth the vent and consumption on all sides, which makes a quicker and ample trade."[59]

Gould (1970, p. 29-30) points out that it is at this stage of his argument that Mun presents a conceptualisation of the self regulating specie flow mechanism, as the below quotation demonstrates;

"shall this [that is trying to keep a great store of money in the country] cause other Nations to spend more of our commodities than formerly they have done, whereby we might say that our trade is Quickened and Enlarged? no verily, it will produce no such good effect: but rather according to the alterations of times by their causes wee may expect the contrary; for all men doe consent that plenty of money in a Kingdom doth make the native commodities dearer, which as it is to profit t of some private men in their revenues, so is it directly against the benefit t of the Publique in the quantity of trade; for as plenty of mony makes wares dearer, so dear wares decline their use and consumption."[60]

Acknowledging that the principle is not explicitly stated, Gould argues that the sense of the passage is certainly that it is vain to try to aim at a permanently favourable balance of trade. Gould further suggests that having arrived at the principle, Mun rejected it on the grounds that if the increased stock of bullion was

[57] Mun (1664), p. 15.
[58] ibid, p. 16.
[59] ibid.
[60] ibid., p. 18

used as liquid capital to finance a greater volume of trade, domestic prices would not rise. That is, Mun was aware that financial surpluses to the public and private sectors, resulting from the current account surplus, must be met by a corresponding capital outflow, or balance of payments problems will occur. Hence, there was no contradiction in Mun's repeated calls for a balance of trade surplus.

Wilson (1958) argues that Gould's explanation does not stand up, and that Mun was inconsistent. Wilson's argument is that Mun remains inconsistent, as it is unlikely that he assumed "a constant re-export of an ever enlarged volume of specie inflow which is necessary to prevent domestic prices from increasing."[61] However, as Gould (1958) notes, this ignores that the specific employment of specie was in exports if "the danger of inflation was more remote than, if it had been a case merely of exporting more English cloth."[62] That Mun is consistent is further supported by the fact that "after the peace of Utrecht, English overseas trade, especially entrepot trade, expanded greatly, at the expense of the Dutch." and that "during this period, price level was stable and gently decreasing."[63]

Another shortcoming present in Wilson's analysis is that he fails to address the issue as to why Mun wanted to attain a stock of bullion or liquid capital in the first place. Implicit in Wilson's analysis is the assumption that Mun sought to generate a greater stock of bullion purely for the sake of generating an even greater stock of bullion. As he argues that for Mun "such exports are justified solely on the ground that an even greater amount of specie will return through international trade in the goods so acquired."[64] However, the only possible explanation as to why Mun could desire the above, is that he was either a monetary fetishist, or sought to increase the King's store of treasure. I have demonstrated that neither of these desires may be attributed to Mun. So we may add Wilson's name to the long list of commentators who failed to appreciate the content of Mun's writings because, in the words of Mun, "they search no further than the beginning of the work, which mis-informs their judgements, and leads them into error."[65]

From my reading of Mun I feel that his proposed solution to the depression of the 1620's may best be understood in the following manner. Methods, as earlier described, should be employed to achieve a balance of trade surplus. The surplus of bullion should be used as liquid capital to finance purchases of foreign goods for re-export, and this process should be repeated. In the short run, domestic

[61] Wilson (1958), p. 62.
[62] Gould (1958), p. 64.
[63] ibid.
[64] Wilson (1958), p. 62.
[65] Mun (1664), pp. 20-21.

consumption and exportation of native goods remains unchanged, so domestic prices are not inflated. In the short to medium term, employment in shipping and related services increases. Domestic industries discover potential export markets, and financiers and merchants make substantial profits.[66] Moving by a process of "continual and orderly change" to the long run, the economy is transcended to one with higher employment and increased consumer welfare. Mun cites the Italian province of Tuscanie as an example of how an economic unit can be transformed by similar policies as his own. A province that benefited substantially by Ferdinado the first's credit policies, as Mun notes "within . . . thirty years . . . a poor little town is now become a fair and strong City being one of the most famous places for trade in all Christendom" whose citizens "are much enriched by the continual great concourse of Merchants from all the States of their neighbour Princes, bringing them plenty of mony daily to supply their wants of said wares."

Conclusion

Ultimately, I believe that Mun's proposals to stimulate the economy out of its depression were indeed consistent, given the circumstances of the day. While some commentators may dispute this, it cannot be denied that Mun made a significant contribution to economic thought, and especially to the theory of international trade. He worked on the principles of elasticity of demand and the quantity theory of money. Mun recognised the casual relationship between exchange rates and the balance of trade, arguing that it was the multinational, and not the bilateral, balance of trade that mattered. Mun was probably the first to distinguish between visible and invisible items in the balance of trade. He was also the first to state the proposition that the current account trade surplus must correspond to the sum of financial surpluses of the private and public sectors. In addition, Mun foresaw the importance of industry for the development of economic nations. No doubt Mun possessed personal incentives in defending the East India Company, and was prone to oversimplify. However, as we have seen even "great economists" such as Smith and Keynes, themselves, were not exempt from such acts. One must thereby consent that Thomas Mun is a man "more sinned against than sinning."

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[66] Mun (1664, p. 20) cites the example of demand for lead, cloth, and tin from the East Indies, which grew from export trade.

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George Berkeley as an Economic Querist

Daniel Gallen
Senior Sophister

Many of the greatest insights of early economic thought have had their roots in philosophy, moral thought and theology. George Berkley, as Bishop of Cloyne and emminent philosopher, can be fitted into such a bracket. Daniel Gallen discusses Berkeley's contribution to economic thought and points to how his social concerns for 18th century Ireland continually influenced his ideas.

Section I

In the early eighteenth century, George Berkeley, Bishop of Cloyne, and ex-Fellow of Trinity College, who is best known as the philosopher of immaterialism, set himself the task of devising a solution to the social and economic problems of the Ireland of his time. The country was faced not only with primitive monetary structures but also with chronic unemployment and persistent strains on the balance of payments, in conditions of intense rivalry with England. His desire to 'feed the hungry and clothe the naked' of his land takes literary form in *The Querist*[1], presented in the unusual, though by no means unique form[2] of a series of haphazardly arranged rhetorical questions, some to arouse the spirit of his fellow countrymen, and others to inform them as to the definite methods of alleviating Ireland's plight. *The Querist*, and his two other principal works of political economy, can only be fully appreciated if perceived as a synthesis of moral, philosophical and economic doctrines in the form of practical policies aimed at the improvement of depressed conditions in these islands. These two other principle works are *An Essay towards preventing the ruin of Great Britain* (1721), addressed against the spirit of avarice and excess in Great Britain circa the South Sea Bubble collapse, and *A Word to the Wise* (1749), calling on the Catholic clergy to promote the material welfare of their flocks by dissuading their parishioners from idleness and beggary.

The purpose of this essay is to classify and to put into context Berkeley's economic thought. I will show that to a significant extent the three main economic issues which Berkeley confronts in his writings, namely trade and

[1]The first anonymous edition was published in three instalments in 1735, 1736 and 1737, with a total of 895 queries. The second edition, bearing Berkeley's name, published in 1750, contained a single consecutive series of 595 queries (omitting 345 and adding 45 new ones). The references to queries in the text are to the latter edition (Q.), those appearing only in the first edition annotated (Om.Q.).
[2]Petty's *Quantulumcunque* (1682), Newtons *Representation* (1712) and Prior's *Observation of Coin in General* (1729) also contained this form.

employment (section II) and currency (section III), were also exhibited in the English economic thought of the previous half-century and in the contemporary writings in Ireland. Finally, the development of Berkeley's ideas in the classical and Keynesian analysis will be traced (section IV).

Section II

To help understand the evolution of his economic philosophy, however, it is important to refer briefly to the prevailing economic circumstances of the time. Swift, in *A Short View of Ireland* (1728), reckoned that half of Ireland's income was spent in England with no return. This 'devouring Drain', Berkeley's close friend Thomas Prior wrote at the start of *Observations of coin in general* (1729) 'will ever keep us poor and miserable.[3] He believes that 'there is no way left to save us, but by obliging them (absentees) to live at home, or making them pay for living abroad.[4] The more spirited Irish emigrated in large numbers, the spiritless remaining to sink into abject poverty. The Cattle (1666) and Woollen (1699) Acts, the rigorous enforcement of the Navigation Laws and the Bank Controversy of 1720-21 led to the conviction that commercial jealousy in England would endanger any success in Ireland. This feeling first received overt political expression in Molyneaux's *Case of Ireland Stated* (1698) which expressed the belief in the natural right of Irishmen to conduct their own affairs. There had also been no mint in Ireland from the time of Edward VI, so the country suffered from a shortage of reliable currency, particularly currency of smaller denominations. A so-called 'perverse' supply curve of labour, whereby an increase in wages would be followed by a fall in the quantity of labour available, as workers became more idle in proportion to the advance in wages and relative cheapness of provisions, was prevalent too: as Melon (1735) wrote *L'Ouvrier ne vend plus l'industrie qui lui procuroit du pain et du vin.*[5] There was also a lengthy down-swing in agriculture from 1726, leading to famine conditions by the end of the decade and growing difficulties in international trade. To Berkeley it seemed that only by a comprehensive government programme combining labour legislation with fiscal and public works policies, could a high level of employment and external solvency be scoured for Ireland.

The difference between Berkeley and Protestant nationalists of the time, like Swift, was that Berkeley thought it impolitic to "annoy" England. He was more of a bishop, and less of a politician and while pleading for the support of Irish industries, he deprecates the notion that English and Irish interests are opposed and in more than twenty queries, he exhorts the Irish explicitly not to hanker after a woollen trade, but to put themselves on some other method that will not seem to

[3]Prior 1729, p.72
[4]Prior 1729, p.5
[5]Melon 1735, p.9

affect English interests. They could instead raise flax and develop the linen trade (Q.79). Berkeley does provide some arguments about the benefits of open trade: if only the English would permit the Irish to exert themselves in exporting cattle, or wool, then England would herself gain, for it was 'the true interest of both nations, to become one people,' (Q.90). In the absence of this co-operation, however, Berkeley tells his countrymen that the remedy for the evils under which they suffer lies, in the main, in their own hands.

Though England had hampered Ireland's commerce, and destroyed their woollen trade, many nations, whose external trade was insignificant, for example, Switzerland (QQ. 420-22) were flourishing. Berkeley begs the Irish not to depend on foreign commerce but to labour for themselves, both for the economic life of the country and for the individual welfare of the people. He rejected the chief bastion of mercantilist thinking, that national wealth was dependent on foreign trade, an argument expounded at length in Mun's *England's Treasure by Forraign Trade* (1664). Mun's maxim failed to hold for Berkeley. He posits 'Whether there may not be found a people who so contrive to be impoverished by their trade. And whether we are not that people,' (Q.325). Berkeley wanted a concentration in the short term, on what Petty called 'local' or 'domestick' wealth.[6] His suggestions for home industries include cheese (Q.539), fisheries (Q.540), hats and pottery (Q.533), tiles (Q.534), building materials (Q.536), carpets (Q.69) and mead and cider (Q.538). Berkeley conceived of a society 'depending on no foreign imports either for food or raiment' (Q.117) and queries whether Ireland, far superior to other nations with respect to natural advantages 'be not as well qualified for such a state as any nation under the sun,' (Q.124). He was not in favour of a closed economy, or what he called a 'wall of brass' (Q.134) around Ireland, as a desirable national institution, but considered that if such a wall existed, new local values would be discovered and internal trade promoted. Then local markets would spring up and replace the foreign ones. English jealousy would have served a purpose, if it causes Irishmen to learn by experience the true nature of wealth.

While the absentees were the most visible embodiment of the lack of social responsibility and concern of the Irish upper classes, Berkeley clearly noted that one could live in Ireland and still be an absentee (Q.104). Previously in his Essay of 1721, Berkeley wrote that 'we had the experience of many ages to convince us that a corrupt luxurious people must of themselves fall into slavery.' These reflections he thought, would have forced any people in their senses upon frugal measures.[7] In this, at least, he was in agreement with the mercantilists for whom frugality was a virtue as well. Arthur Dobbs, in *An Essay on the trade and*

[6]As he enunciated in *A Treatise in Taxes and Contributions* (1662), *The Political Anatomy of Ireland* (1691) and *Political Arithmetic* (1690).

[7]Essay,Works, VI,p.79

improvement of Ireland (1729-31), also traced the hardships of trade, such as bad debts and costly lawsuits, to the extravagance of the Irish: 'How can trade flourish or the nation grow rich when the number of the extravagant exceeds the frugal.'[8] They both believed that a decrease in imports, resulting from a diminution of luxury expenditure, would relieve all strain on national reserves of gold and render the compulsory reduction of exports more tolerable. Berkeley believed that the industry of the lower class depends on the upper (Q.395), and if the gentry distinguished themselves by fine houses and furniture rather than fine clothes, the result would be altogether salutary, providing equally for the 'magnificence of the rich and the necessities of the poor,' (Q.404). There was also the hope, expressed in Q.408, that 'in proportion as Ireland was improved and beautified by fine seats, the number of absentees would...decrease.'

Berkeley did not propose to leave the balance of payments to take its own course, but proposed the combining of sumptuary laws against luxuries, as he had indicated earlier in the Essay, with import duties protective of Ireland's solvency. Earlier, Barbon in *Discourse on Trade* (1690) had considered the question of sumptuary laws and concluded against their use, arguing that they would reduce a country's expenditure abroad, and foreign demand for its exports and thus lead to a drop in the level of activity in export industries. In Berkeley's case, the argument for sumptuary laws (QQ. 103, 146, 222) rested on the primary consideration of the diversion of the flow of monetary demand. Barbon, meanwhile, claimed import prohibitions would not necessarily stimulate production domestically; the demand for comparable home-produced alternatives may be relatively inelastic and satiable. If taxes were imposed instead, the well-to-do would spend on imported commodities those funds that might otherwise have remained idle. Those spent funds would in turn facilitate foreigners' demand for the country's exports and thus increase the level of its industrial activity. Berkeley, on the other hand, was concerned more directly with the importance of a consistently high level of internal activity and thus felt the answer to England's commercial policy of banning Irish woollen exports was to change the structure of industrial activity to meet new economic demands. This was previously suggested by Petty, who advocated 'the introduction of new trades into England to supply that of cloth which we have almost lost.'.[9] Most mercantilist writers of the period reasonably supported the proposition that both increased home consumption, and the export of commodities were favoured as means of relieving the burden of unemployment.

Berkeley, like Petty, Steuart and others, held it to be the inescapable duty of the state to make sure there is employment for all those ready to take it, an objective

[8] cited in Rashid 1988, p.148

[9] Petty 1669, ed. Hull 1899, p.30, cited in Vickers 1960, p.158

not adequately provided for by any self-adjusting mechanism. He felt, however, that a large section of the population lacked the appetite for consumption that would stir them to produce for the market. There was, in his view, vast involuntary unemployment. Earlier, the English mercantilists complained about people's indolence; to Malynes, idleness was 'the root of all evil'; Mun deplored that 'through lewd idleness, great multitudes of our people cheat, roar, rob, hang, beg, cant, pine and perish.' Berkeley was incensed by the paradox of poverty and unemployed resources side by side: 'Whether we are not in fact the only people who may be said to starve in the midst of plenty,' (Q.446). This opinion was also expressed by Prior: 'There is no country in Europe which produces and exports so great a quantity of beef, butter, tallow hydes and wool as Ireland does, and yet common people are very poorly clothed.'[10] In *The Irish Patriot* (1738) Berkeley again accuses the Irish of being lazy and too resigned to their fate (QQ.14,23,28,34,36). Later in *A Word to the Wise*, Berkeley still asserts 'if any man will not work, neither should he eat."[11] Berkeley was thus prepared to advocate compulsory labour, which he bluntly described as 'temporary servitude' (Q.382). It seems almost certain, though, that these "slavish" queries (also QQ.380-89) held their origin in expediency rather than in conviction. Even the great originator of economic liberalism, Frances Hutcheson, laid it down at this period that 'sloth should be punished by temporary servitude at least.[12] Forced labour was not an important part of Berkeley's plan. In his view, Ireland was poor because too little work was done. He believed that situation could be rectified only if the majority of the people shared in the wealth (Q.20).

Since his idea was that a happy people was a busy people, he proposed, in both the *Essay* and *The Querist*, large schemes of public expenditure to make up for the cutting of private, luxury expenditure abroad. He mentions education (QQ.183,193,195), the erection of learned academies, public buildings (adorned by art and sculpture) and bridges (QQ.401,402,408,409) and, exactly like Petty before him, 'triumphal arches, columns, statues, inscriptions, and the like monuments of public services.'[13] Berkeley did not give any support to holding down wages, a policy many of his mercantilist contemporaries advocated for coping with laziness or the 'perverse' labour supply curve. Their antidote to the misery all around them, was to encourage domestic consumption where it was possible to do so without elevating the position of the labourer in the class structure of society, and to decrease the labour costs of production in order to capture foreign markets which would provide an outlet for goods sufficient to

[10]Prior, p.32

[11]quote from [2] Thess.iii,10. *In A Word to the Wise,* Works, IV, p.546

[12]Hutcheson, *A System of Moral Philosophy*, vol I, p.318, cited in Hutcheson, 1953b

[13]*Essay,* Works, VI, p.79

induce the high level of employment. A few writers, Defoe, Cary and Culpepper, believed in the stimulus to trade from higher wages, but encouraged them for their potential to improve productivity and competition rather than in sharing Berkeley's socially motivated interest in helping the poor.

Berkeley promoted new industries and improved housing conditions for the purpose of developing new wants by making available, incentive goods for the masses to work for, while at the same time raising the effective demand to pay for them. The translation of the mutual needs of the population into effective demand in economic terms leads us to consider Berkeley's theory of money.

Section III

Berkeley's main attention and emphasis were not on his labour and fiscal policies, important though they were to his programme. His central proposals were those for a national bank and a paper currency. In his 'analysis of the nature of money itself, and of the function of gold in relation to it, Berkeley takes high rank as one of the most modern and advanced monetary thinkers..'[14] The principal aim of monetary policy must be to maintain a high level of economic activity and prevent the paradox of Q.446. Berkeley, like Aristotle before him, emphasised the social function of money 'enabling men mutually to participate [in] the fruits of each other's labour,' (Q.5). Money was not merely a passive medium of exchange, but an active stimulus to trade. An early argument by William Potter in *The Key of Wealth* (1650) ran to the effect that the wealth of the country consisted of all goods produced, money being valuable only in bringing about increased production. The more money men have, Potter reasoned, the more money they spend and the faster they spend it. This increases the sales of merchants and manufacturers. Here, money is not valuable for its own sake, but as a stimulus to consumption. Potter even indicated a rough sort of multiplier: increase money, and 'both trading and riches will increase amongst men, much more than proportionable to such increase of money.'.[15] Following this, a number of writers prior to the publication of Berkeley's *Querist* based their analysis on what Marian Bowley has called the 'necessary stock of money approach,'[16] expressed concisely by Prior at the start of the *Observations*: 'Money, being the Measure of all Commerce, A certain Quantity thereof is necessary, for the carrying on the Trade of each Country, in Proportion to the Business thereof.'[17] Davenant, Law and Bindon all emphasised the unique potential for economic stimulus afforded by a

[14]Johnston 1938a
[15]cited in Pauling, p.63
[16]Marian Bowley, *Studies in the History of Economic Theory Before 1870,* 1973, pp.19-27
[17]Prior, p.18

growing circulation.[18] This life-giving quality of money was often stated as analogous to the nature of the newly discovered circulatory system of the body, its flow in the body politic energising every part of the economy (Q.484).

No one opposed more repeatedly or fundamentally than Berkeley, the Midas fixation of mercantilist writers that the precious metals are, in some sense, the ultimate form of wealth. Gone by Berkeley's time was the consideration that one nation benefited only at another's expense. He rejected the sterile preoccupation of Petty and Locke with acquiring these metals. For him, there could be 'no greater mistake in politics than to measure the wealth of the nation by its gold and silver,' (Q.465). The English were always looking to obtain gold and silver as the "sinews of war". The Irish, on the other hand, did not worry about their "power", and could thus focus only on the economic function of the precious metals. In spite of strong prejudices attaching to gold and silver (Q.439), money was essentially a 'ticket' or 'counter' (Q.23), conveying and recording generalised command over the services of others in proportion to the money incomes of individuals and the prices of such services. Berkeley's emphasis is thus on the credit creating role of the circulating medium, the 'ticket entitling to power,' (Q.441). Since the coin and paper money are seen as tokens of the power over goods and services represented by money (Q.475), the actual material of which the ticket was constituted was not of particular consequence. Yet for many purposes, credit is more convenient in the shape of paper which was 'more easily transferred, preserved and reserved when lost,' (Q.226).

Berkeley's advocacy of a paper currency to supplement the circulation of gold and silver was unique at this time. Prior viewed it with dismay, believing it would result in the loss of the remaining gold and silver. In considering the issue of paper money, though, Berkeley was not content to allow it to be determined simply by the operation of the quantity theorem as earlier propounded by Locke. He assumed that it must be backed by the credit of land, thereby seeking to provide this paper money with an intrinsic value comparable to the intrinsic value of gold or silver money. Thus, Berkeley's analysis is not as innovative as it seems: in Schumpeter's view, Berkeley was a concealed metallist. Unlike Locke, he sees no important distinction between money and credit. Both money and credit were to him a means of acquiring gold and silver offered in exchange, 'credit for so much power,' (Q.426). But paper money was, for Berkeley, the highest stage in the development of exchange economies, and by creating it, the state transformed the needs and wants of individuals into effective demand

[18]Davenant, *Discourses on the public revenues, and on the trade with England* (1698), *Law, Money and Trade Considered* (1705) and Bindon, *A scheme for supplying industrious men with money to carry out their trades and for better providing for the poor of Ireland* (1729).

proportionate to their labour product, which provided the stimulus of credit necessary to marry wants and industry within the closed economy.[19]

Berkeley wanted to reduce imports, as the old mercantilist school did, but not to hoard up gold. On the contrary, to increase circulation he would increase note issues and not add anything to the amount of gold. As outlined earlier, he wished to stimulate internal trade only, and notes were a national ticket, whereas gold was an international counter. Thus Q.289 asks whether a national bank creating money will not better advance the material wealth of Ireland than the discovery of a gold mine. In a time when coin was scarce, whatever the superfluity of potential or actual real wealth, and however elastic the elements in the price and income structure, the rate of interest was bound to be high, and this alone, he felt would inhibit enterprise. Consequently, Berkeley maintained that a national bank free from profiteering and stock jobbing (QQ.308,429) would put an end to usury, facilitate currency, supply the want of coin and produce ready payments in all parts of the kingdom (Q.277). He insisted, however, that any scheme must be treated as experimental and that his own proposals admitted to many variations. He was well aware of the crucial importance of wooing public confidence discretely and cautiously (Om.Q. IT,138,139). Berkeley could hardly have been unaware of the dangers of inflation and speculation given the disasters in London and Paris, but he attributed these disasters to undisciplined private appetites which a publicly regulated monetary authority should be able to control. For Berkeley, then, the supreme aim of the monetary authority would be the high level of production and employment: 'Whether a National Bank, and the advantages conceived to flow from it, must not multiply employments, and raise the value of those we have already' (*The Irish Patriot*, Q.25). Such a bank, consisting of land and paper money, would be the 'true philosopher's stone' (Q.459) of the state, for land cannot be exported, nor money imported.

However, Berkeley's proposal for a national bank failed to pass through Parliament. An adjustment was made in the Irish currency value of the English guinea and certain other foreign gold coins, which had the effect of removing the worst of the currency difficulties, though it fell far short of the complete monetary remedy which he had advocated. A national bank was not established for the country until 1783. *The Querist* foundered in its own time, too, because there was not the statistical information necessary (QQ.495,530), or the government administration in place, to work some of the analytically sound policies contained therein. The 'perverse' labour supply curve also remained, rendering futile Berkeley's concept of the right to work. If *The Querist* was no more than normally successful in making his countrymen think (and act) successfully, what of its longer-term contribution in helping subsequent economists to think?

[19]Kelly, 1986

Section IV

The Querist- appeared some forty years before Adam Smith's *Wealth of Nations* (1776) initiated the classical approach to economics, based on the assumption that the main aggregates of demand and supply tended, apart from periodic frictions, to be satisfactorily self-regulating. One presumes that Smith and Hume read Berkeley's work, and the former in particular, reproduces many of its essential ideas, namely on the division of labour and consumption as the sole origin of wealth. In the fiscal context of strict public finance, however, Berkeley would have rejected Smith's view expressed in Book II of *The Wealth of Nations*, that paper money can never exceed the value of gold or silver which it replaced. And, of course, the whole subsequent history of banking in all mature economies has vindicated the contention of Berkeley and refuted that of Smith. As outlined in Section II, Berkeley morally considered luxury expenditure a detriment and criticised the satirical eulogy of luxury in Mandeville's *Fable of the Bees* (1714). However, Berkeley, like Mandeville, Petty, Barbon, and Steuart, would have rejected the economic analysis of saving and investment on which Smith based his eulogy of parsimony, and Smith's advocacy that public and private parsimony and laissez-faire were adequate guarantees for a satisfactory level of aggregate economic spending and activity. The Hutchison Smithian analysis, that saving is investment, later to be developed by James Mill and J.B. Say into a "law of markets" was markedly in contrast with the Berkleyan attitude that 'the level of aggregate demand could [not] be left to settle itself and therefore 'that money not spent in one way would [not] inevitably get spent in another.[20] Hutchison, on the other hand, was opposed to luxury on both moral and economic grounds and asserted that income not spent on luxury would be devoted to useful purposes since no one wants to hold money for its own sake. This, in due course, with the aid of Tucker and Turgot and later Mill and Say led on to the doctrine of 'the impossibility of over-production', to the Ricardo-Treasury view that public works will not diminish unemployment, and to the orthodox dismissal of all the 'under-consumptionist' arguments.[21]

There was no guarantee, in Berkeley's view, that a necessary and inherent harmony of interests (harmonielehre) would emerge from the conjunction of individual wants, objectives and proposals. Berkeley (and Steuart) had no faith in the "hidden hand" of the later English classicals. It is true that he recognised the rights of individuals and of individual property (Q.334), but it was at the same time the responsibility of the legislature, he argued, 'to guide men's humours and passions' and to incite their active powers...to make their several talents co-operate to the mutual benefit of each other and the general good of the whole,' (Q.346).

[20]Ward, 1959

[21]Hutchison, 1953b

Berkeley, unlike Mandeville and the classicals, believed in the manageability of selfish men. Man could be acted upon by the legislator and institutions so that his social and economic behaviour would embody the divine will of God: in his *Essay* of 1721 he writes that 'the public safety require that the avowed contemners of all religion should be severely chastised.[22]

In terms of economic analysis, Berkeley showed an awareness that Smith did not, namely that an inadequate level of employment and effective demand may be a serious problem which should be dealt with by the state through fiscal, monetary and other policies. The economic analysis and 'summons to national action' of Berkeley's *Querist* are perhaps nearer to the inter-war ideas of Keynes than to those of Smith. Hutchinson (1953a) stresses the importance of the pre-classical economists who prior to being driven underground by Smith and Mill, had posed many of the problems and remedies of Keynesian economics. The most important concept of Keynes' *General Theory of Employment, Interest and Money* (1936), was one with which Berkeley would concur: that capital is brought into existence not only by the propensity to save, but in response to the demand from actual and potential consumption. Keynes, like Berkeley, believed in more centralised monetary management, public works and tariffs if necessary to protect the balance of payments, all with the objective of increasing the level of unemployment and productivity above depressed level. Ward (1 959) suggests such a comparison is unfounded since in eighteenth century Ireland there existed a vicious circle of poverty and an underdeveloped economy. These essentially long-run problems could not be solved by monetary measures alone, such as increasing effective demand. As Berkeley frequently stated, emphasis needed to be placed on education, improved productivity and technique, increases in the quantity of capital and investment and more advanced economic organisation. Keynes, on the other hand, developed a theory directed to a short-run dislocation in the functioning of an industrialised society. Still, the economies for which Berkeley and Keynes prescribed had common features; deflationary pressure, unemployed resources and currency and banking institutions unsatisfactorily (in their view) linked with precious metals.[23] Certainly, the extremely different conditions in the labour market, monetary institutions and in capital equipment must nullify any comparisons with the attempts by economists of different periods and places to

[22]*Essay*, Works, VI, pp.70-1. In this notion he follows Locke, who in his Letter Concerning Toleration, wrote, "Those are not to be tolerated who deny the being of God."

[23]Hutchison, 1960, sees a not insignificant parallel between Berkeley's major interest in the monetary reform and monetary management, and a paper currency as against a gold one, with Keynes's pleas in the 1920's for the monetary reform and his attacks on the gold standard policy, in *Tract on Monetary Reform and Essays on Persuasion*

analyse the problems they face, but this would deny the possibility of writing any consecutive history of economic theories. Berkeley was surely, like Steuart subsequently, concerned with the by no means mutually exclusive problems of short-run unemployment, poverty, and waste and long-run development towards a higher standard of living. As Hutchison (1960) elucidates, the separation of growth and development problems from short-run unemployment problems is a rather recent development and to present Berkeley as an exponent of this modern separation would be 'to find in him the seeds of even more current economic doctrines than those of Keynes.'

Section V

While Berkeley was a protectionist in relation to foreign trade, he did not completely reject mercantilist theory as it evolved in the later seventeenth and early eighteenth centuries. He was an early proponent of the distinction between the economies of the rich and the poor that would so exercise the attention of Hume, Smith, Steuart and other writers in the third quarter of the eighteenth century. He agreed with mercantilism in its opposition to economic liberalism and in the strong role played by the state in the economy, but, whereas the mercantilists relied on state power for economic ends, Berkeley's case for state involvement mixed technical economic considerations with moral, religious, educational and aesthetic concerns. His appeals were addressed not to the state, but to the well-to-do classes to exercise their economic power in a spirit of social justice and with a sense of social obligation. In a final evaluation of Berkeley's scattered works on political economy, one must be careful not to exaggerate his contribution to economic analysis. While he showed insight into a number of important concepts such as the division of labour, the distinction between productive and unproductive employment and the nature and functions of money, his analysis lacks the overall sophistication of his contemporary, Richard Cantillon. In contrast to Cantillon, there is no attempt to explain the functioning of an economic system. Berkeley's economic analysis is useful only to the degree it could be applied to actual conditions. The idealist philosopher who did not believe in the independent reality of matter was before all else a realist in his economic thinking.

Notes

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An Investigation into a Reversal of the Keynesian-Neoclassical synthesis.

Sarah Rowell
Junior Sophister

The Keynesian/Neo-classical synthesis meant that Keynes's General Theory was demoted to a special case of the classical school. However, this special case was agreed to be more realistic and thus gave greater weight to Keynes's policy proposals. Sarah Rowell reviews the theoretical reappraisal of the Neo-classical synthesis as provided by Clower and Leijonhufvud and also examines the truth about his policy proposal and their implementation. She concludes that Keynes's true gift to future economic thinkers was the ability to consider the real economy in ways other than general equilibrium analysis.

"I consider that my suggestions for a cure, which, avowedly, are not worked out completely, are on a different plane from my diagnosis. They are not meant to be definitive; they are subject to all sorts of special assumptions and are necessarily related to the particular conditions of the time. But my main reasons for departing from the traditional theory go much deeper that this. They are of a highly general character and are meant to be definitive."
- John Maynard Keynes[1]

Introduction

The Keynesian Revolution, which followed the publishing of Keynes's *General Theory of Employment, Interest and Money* in 1936 led to a championing of fiscal policy over monetary policy which was declared impotent. The central idea of this school was that the economy could be stuck at a position of persistent involuntary unemployment. The mainstream 'Keynesian' analysis gradually evolved into an IS-LM framework as designed by Hicks and developed by others. The classical rejoinder to the school comprising of the Pigou effect led to the Keynesian-neoclassical synthesis. The Pigou effect stripped the Keynesian school of the theoretical honours, however, the Keynesians were left in triumph over the policy debate due to the agreement that the Pigou effect was weak in practice. The 'Keynesian result' was reduced to a special case of the classical or traditional school.

The contention that this loss of 'honour' is due to a misinterpretation of the *General Theory* by the mainstream Keynesian school has been well documented. The reason for this misinterpretation must surely be due in part to Keynes's unwillingness to crystallise his own ideas, benevolently leaving that unglamorous

[1]Keynes, J.M. (1937) p.224

job for his successors! However, it is probably mostly due to the immensely revolutionary concepts Keynes was grappling with, that in order to comprehend the *General Theory,* those interpreting it must first unlearn the orthodoxy ingrained in their minds. This proved too difficult, though, and thus Keynesianism was reduced to the above mentioned 'special case'. Although I believe Keynes's theory to have been misinterpreted by the neo-classical synthesis, I do not contend that Keynes's policy proposals contained the same kind of universal truths as his theory; an opinion that has the support of the esteemed gentleman himself, as can be seen from the opening quote. Thus reality *may* be a reversal of the neo-classical synthesis.

I propose, within this paper, to review this revised interpretation of the *General Theory* and then to look at what his policy proposals were, and whether those policies that were attributed to him were done so correctly. Finally, I shall discuss how, after thirty or more years of debate, economists may have found Keynes's true gift to us: the ability to revise permanently the way we perceive the macroeconomy.

Section 1: The Theoretical Reappraisal

To look more closely at this misinterpretation of Keynes I propose to use the framework of the re-appraisal of his *General Theory* by Clower and Leijonhufvud. Their works contain more ammunition to fight the traditional school than Keynes's as they have a clearer picture of the content of orthodox theory, namely its grounding in general equilibrium analysis and the Walrasian system. This is the extent of their advantage over Keynes, however, as we can see in the words of Clower "our basic problem is to discover and describe what has not but should have been said - and here we are on all fours with Keynes."[2]

The Walrasian System

Before deriving an alternative framework within which to analyse Keynes's system, we must first look at the principles underlying a general equilibrium framework in order to determine why they are not appropriate to our case. Say's principle that 'supply creates its own demand' underlies Walras' Law, which is in turn the cornerstone of the general equilibrium framework. Walras' Law determines that there exists a vector of market clearing prices at which the value of excess demands equals zero. Such a framework implies a unified decision hypothesis - that individuals simultaneously make a decision about the amount they wish to supply to and demand from the market. The amount they demand is naturally constrained by the amount they wish to supply.

[2]Clower, R. in Hahn and Brechling p.104

However, there remains the difficulty of showing how the market reaches its position of general equilibrium. To overcome this difficulty Walras invented the Walrasian auctioneer, who provided complete information about market clearing prices and future market clearing prices, at zero cost, in order for no trading to take place at 'false' prices. Walras uses the 'tatonnement' or groping mechanism in the market whereby in markets with excess demands the price is raised and vice versa. This mechanism is based on the Marshallian assumption of instantaneous market day price adjustments to fluctuations in demand. There is no room for analysing disequilibrium states in the traditional theory based on constantly clearing markets.

It can be seen that this system is really one of barter - money is artificially imposed on the framework. Keynes thus points out that to hold money as a store of wealth in such a system is only for fools. However in his system, as we shall see, the presence of uncertainty will lead people to hold money as a store of wealth, and this desire can be viewed as a barometer of the degree of our distrust about our calculations of the future. The orthodox model assumes away uncertainty. However, if this assumption breaks down (as it does) we shall see that the results of the model, in general, do not hold.

Clower's Dual Decision Hypothesis

Keynes's denial of the relevance of Walras' Law leads to rejection of the orthodox theory of household behaviour - the unified decision hypothesis. In order to reject this, an alternative theory of such behaviour must be derived. This alternative theory would have to include the orthodox theory as a special case (which is Keynes's contention) as the unique equilibrium solution of Walras' Law is not an independent postulate of orthodox theory; it can be proved through assumptions common to orthodox and Keynesian price theory. Clower provides us with such an alternative as he depicts in his declaration:

"I shall argue that the established theory of household behaviour is, indeed, incompatible with Keynesian economics, that Keynes himself made tacit use of a more general theory, that his more general theory leads to market excess demand functions which include quantities as well as prices as independent variables and, except in conditions of full employment, the excess demand functions so defined do not satisfy Walras' Law. In short, I shall argue that there has been a fundamental misunderstanding of the formal basis of the Keynesian Revolution."[3]

Clower's view of Keynes's work is that, unlike the traditional school, market excess demands are dependent on current market transactions. Income magnitudes do not appear as independent variables in the demand or supply

[3]ibid. p.111

functions in the general equilibrium model, because incomes are defined in terms of prices and quantities, and quantities do not appear in the market excess demand functions of the orthodox theory. This means that the Keynesian consumption function and other market relations cannot be derived through a general equilibrium framework.

It is here, therefore, that we must turn to Clower's dual decision hypothesis. Clower contends that people may be constrained in the amount they can work as demand is only submitted to the market indirectly. In a position of underemployment, the desire for workers to work more, in order to consume more, is seen in the market as the demand for money wages and not a placed order for more goods. Entrepreneurs do not react, therefore, to this demand. This is the distinction between notional and effective demand. Notional demand underlies the traditional school and when we use this concept of demand, Walras' Law always applies. In contrast, effective demand is the desire for more goods with the purchasing power to back it up. Thus if quantities in the market are determined by the 'short side' of the market, then using the concept of effective demand Walras' Law only applies in a situation of full employment i.e. when notional and effective demand coincide. In a state of less that full employment Walras' Law must be replaced with the more general condition that "the sum of all market excess demands, valued at market prices, is at most equal to zero."[4] Thus we can see that orthodox price theory may be regarded as a special case of Keynesian economics, which is valid only at full employment. Keynes seems to have won the battle over the title of *The General Theory.*

Inversion of Marshallian Time Periods

It is important to look more closely at the mechanism that brings disequilibrium into the system. Keynesians within the orthodox school framework often had to resort to strong assumptions such as rigid wages and prices in order to obtain the Keynesian result. Within the above discussed framework this is unnecessary. It is sufficient to drop the strong orthodox assumption, that of instantaneous price adjustment, in order to show Keynesian multiplier responses to initial changes in the rate of money expenditures. This results in the removal of the unrealistic Walrasian auctioneer. "The removal of the auctioneer simply means that the generation of the information needed to co-ordinate economic activities in a large system where decision making is decentralised will take time and will involve economic costs."[5] Thus if a transactor is subject to fluctuations in the demand for his good, he will wait before significantly changing his behaviour. This is an inversion of the traditional Marshallian market day and short run, where the instant market day reaction to a reduction in demand would be to reduce prices.

[4]ibid. p.122

[5]Leijonhufvud (1967) in Clower p.301

Keynes's theory points to a reduction in quantities at this initial period due to the transactor's reservation price. The seller will not drop the price until the fluctuation is proven to be permanent. This is due to the presence of uncertainty - the auctioneer is not available to provide the vector of market clearing prices. Thus the expectations of transactors plays a large role in the determination of the situation in which the economy finds itself.

Thus a fluctuation in demand will have an effect on output and hence on unemployment, unlike in the orthodox school where only an adjustment in the price level will be observed. This is the central theme of Keynes's work: "changing views about the future are capable of influencing the quantity of employment."[6] These changes in output will also have a multiplier or deviation-amplifying effect throughout the economy. This is the appearance of the concept of involuntary unemployment of which the classical school denies the existence.

Relative prices

The classical analysis of the above situation is that prices are too high and when they fall the economy will re-equilibrate itself. However, this is not necessarily the case. Keynes believed that such contraction ensues because of the 'wrong' relative asset prices. Thus a general deflation would not change these relative values at all. Leijonhufvud points to the different levels of aggregation of goods between the orthodox model and Keynes's model[7]:

Orthodox Model	Keynes's Model
commodities	consumer goods
bonds	nonmoney goods
money	money
labour services	labour services

The price of nonmoney assets in terms of the wage unit determines the rate of investment. The price of nonmoney assets in terms of consumables determines the propensity to consume. It is when there is an inappropriately low price of nonmoney assets relative to wages and consumer goods there is an information failure; the 'wrong' level of investment is entered into and the system will respond to parametric disturbances in a 'deviation-amplifying manner'.

Section 2: Keynes's Policy Proposals

We have thus seen so far, that Keynes's theory gives support to the fact that persistent chronic unemployment may exist in an economy. He did not provide

[6]Keynes (1936) p.vii

[7]Table reproduced from Leijonhufvud (1967) p.302

much in the way of policy proposals in the *General Theory*, although, through Keynes's public activities at the time he was advocating a 'pump-priming' of the economy, through fiscal stimulus, in order to correct the deficient demand in the economy. Even though he did not provide these proposals in his major work (and additionally he even expressed explicit doubts as to their essential worth, as in the opening quote of this paper) it is his ideas on fiscal stimulus that gained the most attention. It may have even gained notoriety for the Keynesian school. However, I aim to show that:

- Keynes was writing at a time of great depression and thus even though he advocated 'pump-priming' of the economy, in general he was not a fiscalist.
- Those who implemented these policies were not facing such large scale depression and hence it is debatable as to whether fiscal stimulus is the appropriate policy to use. Thus, this was publicity for 'Keynesian' policies that were not, in fact, Keynesian - this served to add fuel to the anti-Keynesian fire.
- The implementation of such policies were open to abuse and misinterpretation, as we shall see in the Irish case of fiscal mismanagement, and hence government expenditure was expanded for non-Keynesian reasons in the name of Keynesian economics. Our bonfire has turned into a veritable funeral pyre.

Such views are succinctly expressed by Leijonhufvud: "Since abounding faith in fiscal measures and a withering away of interest in monetary policy was one of the most dramatic aspects of the 'Revolution', there is, I believe, a tendency to impute to Keynes himself the policy views characteristic of the New Economics in its early stages. The question is, to what extent is it warranted to do so."[8]

It is true that under conditions of self defeating expectations Keynes advocated government intervention in the form of an investment injection to stimulate demand. However, in a series of articles in 1937[9], *How to avoid a Slump,* Keynes argued against a further general stimulus to aggregate demand. This was not because the economy had reached a position of full employment (in fact it was still around 10%) but, rather, that the economic structure was too rigid to benefit from further stimulus. He believed that the problem lay in regional unemployment and thus further fiscal measures would not have the desired effect. Therefore, public works were only useful in counteracting the deviation amplifying effects of an economy 'off' full employment. Fiscal measures should not be used as a counter cyclical stabilisation weapon around full employment as this would probably introduce further instability into the system. This point is dealt with in more detail below.

[8]Leijonhufvud (1968) p.402
[9]Morgan Ch.6

Keynes was also aware of the danger when full employment becomes an orthodox and primary policy objective. One certain way to achieve such an objective is to absorb ever-increasing numbers into the public sector. These points indicate that, contrary to popular belief, Keynes was not a fiscalist, he only advocated it in particular circumstances. Unfortunately for his successors, this misinterpretation was easy to make as Keynes was writing at a time when such circumstances did prevail.

Stocks vs. Flows

Leijonhufvud also provides further theoretical support for the mistrust of the use of fiscal measures as a counter cyclical stabilisation tool[10]. As we saw earlier Keynes's writings were mainly concerned with current flows and, thus, brought about an exaggerated view of the underlying disequilibrium tendencies of an economy. By just concentrating on current flows the economy does appear to be inherently unstable. However, this is an unrealistic premise from which to begin as stocks of wealth are present in an economy, which brings more stability to the system. A fluctuation of demand in the economy may cause, for example, a firm to build up or draw on its stocks of inventories if it does not believe the fluctuation to be permanent. Thus it can be seen that the level of stability depends on the future expectations of the transactors and the level of available stocks in an economy. Once the stocks are exhausted and the current flows are affected by fluctuations, the deviation-amplifying tendencies discussed by Keynes creep back into the system.

Leijonhufvud called the region where such equilibrating forces are strong as the 'corridor' and if the fluctuations remain within its bounds cumulative contractions will not be generated. Outside this 'corridor', though, the buffer stocks are no longer able to absorb the fluctuations and the system becomes unstable. It can be shown that within this region the fiscal multiplier is small and that monetary policy could be effective in stabilising the economy. However, outside the region the extreme Keynesian position of a large fiscal multiplier and ineffective monetary policy becomes more suitable. This seems to share similar results with Keynes's view on not continuing fiscal stimulus until full employment is reached. The question arises, though, as to whether Keynes himself had such an idea in mind. However, this should not deter us from seeing its applicability to the question in hand. As Keynes himself said:

"I am more attached to the comparatively simple ideas that underlie my theory than to the particular forms in which I have embodied them, and have no desire that the latter should be crystallised at the present stage of the debate. If the simple basic ideas can become familiar and acceptable, time and experience and the

[10]ibid.

collaboration of a number of minds will discover the best way of expressing them."[11]

Irish Fiscal Mismanagement

Hopefully, I have now provided sufficient evidence to show how, firstly, Keynes himself could not be conclusively described as a fiscalist and that, secondly, extreme caution must be employed when applying such fiscal measures. As I stated before, although I think it worth mentioning again, such fiscal measures should only be used for 'pump-priming' the economy and, if used as a stabilisation policy, it will only serve to increase instability. I will look now at the case of Ireland's fiscal mismanagement, as an example of the confusion by policy makers over Keynes's policy prescriptions and as an example of the aforementioned abuse of such policies.

These policies were begun in 1950 with aims of stabilising the economy - "there was explicit recognition that demand was an inherently unstable quantity and that positive action by governments was necessary to maintain and stabilise it."[12] Such misguided policies, begun falsely in the name of Keynes, succeeded only in dismantling the disciplinary fiscal safeguard and left Ireland in a position of crisis and pessimism. This policy was far from being a once-off 'pump-priming' injection - the policy lasted through the 1950s into the 1960s, when the government to GNP ratio increased incrementally throughout the period into the 1970s. This was when the direct abuse seemed to really occur as the disciplinary fiscal safeguard was abandoned and current spending deficits emerged. Keynesian theory did not support such action - it only supported the capital budget as providing the expansionary stimulus. "Once a large current deficit had been allowed to appear, the government would find it extremely hard on political grounds ever to close the gap again, even when this course was dictated by sound economic principles."[13] Thus these badly adopted 'Keynesian' policies led Ireland struggling to escape from her fiscal situation : a situation from which we can still feel the repercussions today.

The above case, I believe, shows how not only were the policies misinterpreted, but also how what was interpreted was badly applied and abused by the politicians concerned. However, I do not believe this to be a special case: such policies are easily abused and if politicians believe they can promote such schemes as being backed by theory there is great incentive to do so. But why is it that such policies were so easily abused?

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[11]Keynes (1937) p.215
[12]Whitaker p.82
[13]ibid. p.99

The Imperfect Political Sphere

There may be a general belief that as society becomes older the scope of government will inevitably increase as explained by Skidelsky in 'Critique of the Ageing Hypothesis'. For example, he cites Adolf Wagner's Law of Increasing State Expenditure as having "helped to create a mood in which every increment of public relative to private activity tended to be accepted as inescapably in the nature of mature social life."[14] Figures will show that public activities have expanded relative to private ones over the course of the twentieth century in developed democracies, however, the belief that it was inevitable is unfounded. This, though, is not important - the point is that it is enough for people to believe that such spending increments are inevitable to create the environment conducive to the abuse of fiscal policies.

The second step in such a fiscal policy abuse must come from the politicians wrongly implementing such policy measures. Politicians and civil servants have vested interests in increasing the amount of government spending. When such economic policies are placed in the imperfect political sphere there exists a temptation for politicians to abuse them, in the name of full employment, to increase their budgets and hence the scope of power that they yield. Economic cycles do not correspond to general election cycles and thus there is the likelihood that unpopular but necessary policies will be dropped when an election is imminent.

Therefore, such fiscal measures should be confined to periods of chronic disequilibrium not only because they are not an appropriate method of fine tuning the economy, but also because of their vulnerability to abuse.

Conclusion

I agree with Leijonhufvud when he expresses his opinion that the orthodox model is an inadequate vehicle for interpreting Keynes's works. I hope that I have shown in section one that a new framework is necessary to revert this injustice that was wrought upon Keynes's work. While maybe not deserving the notoriety they achieved, Keynes's policy proposals seem to be limited in their universal applicability. I therefore contend that a reversal of the conclusions arrived at by the Keynesian-neoclassical synthesis would be closer to the truth.

This reinterpretation of Keynes's theory led a new emphasis on the role of expectations and information in the economy. Such expectations can be seen to be fragile when we analyse the large degree of uncertainty that faces individuals every time they make a decision. If we divert briefly into the world of microeconomic theory the model of perfect competition has long been considered

[14]Skidelsky p.405

a benchmark from which we can measure our other models of imperfect competition. There is nothing new in acknowledging that perfect competition does not satisfactorily describe the real world. However, in the field of macroeconomic theory we find a considerably different story. Many still cling to their neo-classical models which are based on perfectly competitive micro substructures. It is only a relatively recent development that this parallel model is seen as the macroeconomic benchmark.

While still grounding his analysis implicitly in the perfectly competitive world, Keynes did bring us a step closer to realistic modelling. It is my belief, therefore, that Keynes's greatest gift to economic theory was to have the courage to look past the elegant simplicity of the general equilibrium model and attempt to model realistically. It is testimony to his revolutionary ideas that it took over thirty years of debate to realise this.

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"Miracles, Mistakes and Misconceptions"
Irish Economic History from 1690 to 1997

Carmel Crimmins
Senior Freshman

"Those who forget the mistakes of history are condemned to repeat them." In this paper, Carmel Crimmins ponders an analysis of Irish economic history highlighting those areas where lessons have been learnt (and equally where they have not), from the time when Ireland was a colonised nation, through independence, to the present day.

"If men could learn from history, what lessons it might teach us! But passion and party blind our eyes and the light which experience gives is a lantern on the stern, which shines only on the waves behind us"

(Coleridge, Recollections)

History affords us with a simple narrative of events, a clear-cut description of lifestyles encapsulated within our distant (and not so distant) past. As most of us are aware, however, (not least historians themselves) this attractive, evenly-balanced overview can be distorted. History's unparalleled ability to fascinate, captivate, and motivate has all too often caught the attention of normative forces who seek to recreate historical events in their own image for their own purposes. Condensed, contrived, and contorted, these interpretations are often used by proponents of various ideologies to reinforce their beliefs. Nowhere is this pernicious practice more apparent then in our own land, where historical symbolism on either side of the sectarian divide plays an important role in the extension of hostilities. It is in this context that a discussion of Ireland's economic history will be undertaken.

Economic history, as its practitioners will tell you, constitutes that most noble strain of descriptive analysis; facts backed up by figures. Statistical tables, and incontrovertible numerical data enable economic history to rise above normative trivialities. Perhaps most importantly of all, economic history avoids the usual downfalls of exaggeration and hyperbole, a route well worn in an Irish context where exaggeration and hyperbole are national traits.

A study of the history of the Irish economy from 1690 right up to the present day should ensure a long run perspective. To divulge in minute detail the peculiarities of every event, significant or otherwise, that has occurred within this three hundred year time span would be foolish. So as to present a more lucid, concise study of Irish economic history I propose an analysis of events in terms of

mistakes made, and lessons learnt. Perhaps such an approach will enhance our appreciation of Coleridge's lament, and allow us to assess Galbraith's contention that as a race the Irish have failed to produce any notable economists!

Ireland as a national setting for the development of historical discourse represents a particularly interesting situation for the economic historian. The country has provided, in its time, a common setting for both British, and indigenous Irish economic policies. This factor ensures that throughout any study of Irish economic history, some comparative parallels are inevitably made between the two regimes; this essay does not claim to be any different. What I do hope however, is that all parallels drawn are done so within the parameters of objectivity.

Writers in the nationalist vein continually highlight the extent to which British hegemony over Ireland retarded our economic development. They point to the restrictive, discriminatory trade acts of the 17th century which they maintain (despite Cullen's protestations to the contrary) paralysed Irish economic growth. With such stern opposition to the implementation of protective economic legislation could one presume therefore, that the Irish themselves, upon attainment of Independence, would not indulge in such a practice? They were aware, after all, that duty free access to the English market for the linen industry had ushered in what Cullen described as "perhaps the most remarkable instance in Europe of an export-based advance in the eighteenth century". Alas for future generations, Ireland like so many student before her, failed to learn her lessons. The appearance of DeValera and the Solders of Destiny onto the political scene in the 1930s instigated what was essentially an "Economic War" with Britain, using a comprehensive system of tariffs as arsenal. Although the conclusion of this political conflict ensured an important moral victory for the Irish psyche, the economic fallout severely hampered our international competitiveness for many years to come.

The Napoleonic Wars during the 1800s should have impressed upon the Irish that the theory "England's misfortune is Ireland's gain" has an economic application quite distinct from the Republican context within which it is most often quoted. These wars evoked a desperate need for food in Britain which greatly improved our terms of trade, and agricultural incomes. Had this lesson been recalled, then perhaps Irish Shipping would have been established earlier, and England's shortage of food during the Second World War exploited to our advantage.

The Great Famine must undoubtedly rank as one of the most traumatic events in Irish history (economic or otherwise). It's causes, results and aftermath have all been subject to intense scrutiny and speculation both inside and outside the economic framework. Joe Mokyr's contention that our failure to industrialise

contributed strongly to our excess mortality rate of 3% is of paramount importance; it underlines the failure of the British authorities to prepare adequately for a situation which had happened before, (famines in 1727-30 and 1740-41) and was liable to happen again. Although the particulars of the two situations could not be more removed, the inadequate handling of the fiscal fiasco in the late 1970s and early 1980s bears all the hallmarks of a situation, which like the Great Famine, under inept management spiralled completely out of control. Just as in the context of a famine, what is often required is income support rather than mere injections of food, so also during the 1980s what the situation merited was sincere governmental commitment to fiscal rectitude rather than half-hearted attempts at cutting taxation.

The failure of the Irish economy (with the notable exception of the North-East) to industrialise during the 1880s led commentators to analyse the economy under various headings, including stock of capital, intermediary role played by the banking sector, stock of skills held by the populace, and the level of enterprise. The remarkable aspect of this analysis is not the headings chosen but the extent to which reasons for economic lacklustre in the 1880s were still relevant in the 1980s - some one hundred years later! Our stock of capital, and the cautiousness of our banking sector were deemed to be no different from other nations, while skills were certainly not lacking in the island of Saints and Scholars. What was unique to Ireland however was our low levels of enterprise. Some would argue that the pitiful levels of entrepreneurship present in 19th century Ireland had much to do with British oppression, and while this may well have been the case, having been barred from the professions and politics, the predominantly Catholic populace should have directed their energies towards trade and commerce (as indeed some did).

Instead the Beal Bocht mantle of pity has been passed on from generation to generation providing some clue as to how once removed from the land of their birth, so many Irish people reveal lucrative entrepreneurial skills. This mentality also contributes to our country's prowess as a nation of politicos rather than producers, particularly in relation to grants from the European Union.

The Cumann na nGadheal administration, populated by self-confessed "conservative revolutionaries" promoted economic policies characterised by low expenditure, low taxes, and free trade. This high level of voluntary fiscal discipline is not unlike the involuntary measures presently being honoured by the Irish government for the purpose of entry into EMU, indeed the Cumann na nGadheal government seemed to be anticipating the future in their preclusion of monetary independence in the 1920s. Ironically however, we are presently pursuing entry into a monetary union without Britain, while they were doing the complete opposite. Although the decisions are reverses, in both insistences the

public choice seemed clear-cut. In the 1920s, the notion of remaining outside a monetary union with Britain was so ludicrous as not to merit public debate, can we really view the present situation in the same light?

DeValera's utilisation of economic weapons in what was essentially a political dispute gave rise to what became known as the "Economic War", and as we have already observed the conclusion of this episode presented an important boost for the Irish psyche. Perhaps for the first time in history Ireland had asserted herself economically against Britain, it was a crucial indication of the global interdependence afforded by trade, and a practical lesson that political battles need not always be fought in conventional surroundings. Unfortunately for Ireland and more importantly for her future generations, the lessons learned were not applied. Tariff barriers remained at exceptionally high levels (protection of manufacturing reached 80% in 1966) undoubtedly contributing to our economic sluggishness in later years. Just as pre-Famine Ireland's image as a "remarkably violent country" posed as a deterrent to investors one hundred and fifty years ago. The bomb, and the bullet continue to dictate the political agenda in the North, precluding significant investment in that region.

The 1950s and 1960s may be looked upon as two sides of the same coin in terms of the pursuit of economic policies. An eventual acknowledgement of the limitations of the protectionist strategy resulted in a dramatic U-turn towards export-led industrialisation. Although the 1950s bore the brunt of the hardships associated with this painful transition, the 1960s have been exemplified as a period in Irish economic history in which the inhabitants of the island simply "never had it so good". Although much of the credit for this increase in economic growth (per capita income grew by three fifths) can be attributed to the strategy of export-led growth pursued by the government, their subservient attitude towards the foreign firms they attracted was to prove fatal. Perhaps it was an inferiority complex inherited form centuries under British domination or perhaps it was just easier and cheaper. In any case the Irish authorities chose to view the foreign industry established here as a substitute for rather than a complement to domestic industry.

Such behaviour was in stark contrast to countries such as South Korea, Taiwan who in addition to pursuing export-led industrialisation exercised a blatant preference for domestic industry. The free hand afforded the Trans-National Companies, and the conspicuous absence of a strong indigenous industrial sector was to prove hugely regretful, when in the 1980s, firms who had been footloose enough to situate themselves in Ireland, proved footloose enough to leave.

In respect to Keynesian Economics, Irish economic history from 1973 to 1987 provides a vivid account of how a misconceived debt-financed increase in current

expenditure in a small, open economy can wreak havoc with ones economic system, causing massive government debt. It is somewhat ironic that a nation founded on solid budgetary principles (the Cumann na nGadheal administration achieved a balanced budget in their first year of office despite a trebling of military expenditure during the Civil War) should narrowly escape the slide into bankruptcy only sixty years later, having failed to observe the housekeeping prowess of their predecessors.

Since 1987 the Irish government has adopted a policy of fiscal rectitude helping to reduce the level of debt which today lies at 73% of GDP. A signal perhaps that the Irish are finally learning from their mistakes? Perhaps not. In the past four years the Irish economy has experienced a miraculous expansion the likes of which we have never had before, nor may ever experience again. In 1995 for example, the economy grew by 10.1%, the fastest growth rate recorded by any European economy in modern times, while the Department of Finance has predicted that output will rise by a further 6.5% this year. In the coming year Ruairi Quinn plans to borrow 1.6% of GDP; if the borrowing rate does not fall during a boom this can mean only one thing, the Government has chosen to pursue an expansionary fiscal policy. The last time the Irish authorities behaved in this manner was in the period following the 1977 election, and we only have to cast our eyes backwards towards the previous paragraph to recall what happened then. The fiscal policy ceiling of 3% established within the EMU is surely reserved for times when the going is tough, one glance at our present situation should be enough to warn us that we should be as far away from this ceiling as possible. In order to create space for a fiscal boost if things slow down, a surplus is what we should be pursuing. The consequence of Mr Quinn's generosity may well mean headaches for future Ministers of Finance, another batch of essays written on this theme, and an endorsement of Joe Lee's observation that "The Irish of the late twentieth century have still to learn how to learn from their recent past".

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Macroeconomic Stabilisation in Central and Eastern Europe with Special Reference to Poland

Geoffrey H. Gill
Senior Sophister

The collapse of the Soviet bloc has radically transformed the social and economic landscape of Eastern and Central Europe. Geoffrey Gill assesses both the theory behind, and the success of, the reforms implemented using Poland as a benchmark against which the general experience can be measured.

"In 1989 we had but one asset. That was the enthusiasm born of the newly-won freedom. And we invested that asset in economic reform." [1]

Central and Eastern Europe in the period 1989-90 was an unstable ship, in a sea of political turmoil. Its stabilisation required radical economic reform of an unprecedented scale of which economists had little prior experience of. What was needed was more than a mere rebalancing of the economy using standard policy instruments. Indeed, the policy instruments *themselves* had to be created. 'Stabilisation' must be seen as a simultaneous approach in restructuring and rebalancing the economy involving price and foreign trade liberalisation, and fiscal, monetary, exchange rate and incomes policies. Concurrent with this were the microeconomic changes involving property rights reform, privatisation and restructuring .

This paper will analyse macroeconomic stabilisation in the region since 1989 generally, and will consider the case of Poland with respect to each of the issues involved. The Polish economy is interesting in that its 'big bang' strategy of reform, with severe stabilisation methods employed, resulted in worryingly sharp effects with a severe output contraction, yet recently it has emerged with encouragingly strong growth rates. Firstly we shall briefly consider the initial conditions at the time of reform and question why there was a need for stabilisation measures. Then macroeconomic stabilisation will be considered generally, including a discussion of price and foreign trade liberalisation. We shall subsequently examine two potentially conflicting 'models' to gain insights on the reforming economies. Poland's transition program mix will then be forwarded . We shall then move to consider the various policy options available, followed by the effects in Poland, particularly in terms of output and inflation. Of course, as alluded to earlier, microeconomic issues cannot be ignored, and it will be seen throughout that

[1] Bronislaw Geremek of Democratic Union, *Moscow News* 15-21 April 1994, p4 quoted in Jeffries (1996)

there is a severe limit to what can be achieved by macro policies alone.[2] Finally potential future issues will be addressed. This paper will adopt a general to specific methodology using Poland as a clarification mechanism.

The Initial Conditions

The countries of the CEE[3] varied significantly in their pre-reform economic conditions (see Table l). Czechoslovakia seemed to enjoy the most favourable internal and external macroeconomic balance with the highest GNP per capita, a low debt to GDP level and only a slight monetary overhang - developed later. We denote Money (M2) /GDP as a proxy for monetary overhang - this was 0.7 in Czechoslovakia - where Bruno (1992) considers 0.4 to be the 'norm'. Poland was possibly in one of the worst states with a large external debt overhang, practically no growth shown in the l980s, the lowest GNP per capita level and a significant monetary overhang of 0.9. Indeed, it seemed that Poland experienced rapidly deteriorating macro conditions at the end of l989 involving extreme disequilibria. Initial inflation ran at 259%. Although Poland always had a private agricultural sector, it did not undertake the gradual reform process that Hungary had undergone since the l960s, which left Hungary better prepared on the institutional economic front.

Table 1: Post-Reform Economic Conditions

	Hungary	Poland	Czechoslovakia	Bulgaria	Romania
GNP per capita	2,5 90	1,790	3,450	2,320	2,2 90
GNP Growth*: 1970s	4.5%	5.5%	4.6%	7.0%	9.3%
1980s	0.5%	0.7%	1.4%	2.0%	1.8%
Money (M2)/GDP (1990)	0.4	0.9	0.7	1.3	0.6
External Debt / GDP (1990)	65%	80%	19%	50%	3%

* *Average annual rate at constant prices. Adapted from Bruno, 1992*

Clearly from the above, stabilisation seems to be a necessity, particularly in Poland. Blanchard et al (1993) cite three reasons why stabilisation and price liberalisation are preconditions for a successful reform process[4]:

[2] Bruno, 1992

[3] Central and Eastern Europe: Hungary, Poland, Czechoslovakia, Bulgaria and Romania

[4] Blanchard et al ,1993, Ch. 1

1. Political : the government had to send a clear signal that it was going to balance the budget, and that it was no longer committed to extending unlimited credit to loss making firms.
2. Macroeconomic : lacking stabilisation, inflation would turn to hyperinflation with its attendant large dislocations.
3. Microeconomic : for restructuring to proceed in the right direction, prices had to be right, and firms could not avoid market discipline.

Given the necessity of imposing macro stabilisation measures in order to establish government credibility, to fight endemic inflation and as part of the reform process as a whole, it is appropriate now to consider macro stabilisation generally.

The Stabilisation Process

When communism fell in 1989, the issue in most countries was not whether to go to a market economy but rather how to get there. The debate over this question was very compressed in time - the time constraint was biting - and earlier debate (pre-1989) had concentrated on hypothetical long-term issues rather than short-term and pragmatic issues.[5] Bofinger (1994) stresses that there were no macroeconomic models that were tailored to the specific situation in transitional economies. Some have drawn comparisons with similar situations in history such as the Austro-Hungarian Empire collapse (Dornbusch, 1993) and Latin American stabilisation (Gros and Steinherr, 1995). Indeed, Balcerowicz - the architect of Polish economic reforms - commented that he believed that they should rely on 'proven models'. From this we may imply a standard IMF approach adapted to the Polish situation. The key question essentially was whether to choose a big bang or a gradualist approach in the move from pre-reform distorted equilibrium to the desired post-reform quasi-equilibrium[6]. According to Bruno "cumulative experience from episodes of hyperinflation and high inflation....only point to the clear advantage of taking the cold turkey approach at the inflation stabilisation stage." Given Poland's rapidly deteriorating macro conditions and initial disequilibria, to choose a gradualist approach for stabilisation and liberalisation would be doomed to failure. Balcerowicz describes the choice as between "an almost hopeless strategy and a risky strategy".[7] The former implied delaying stabilisation to concentrate on transformation and privatisation as Russia did (and subsequently is suffering for). Thus a big bang approach was adopted in Poland and Yugoslavia in 1990 and they were followed by Czechoslovakia, Bulgaria and Romania in 1991. Reforms needed to be radical enough and pass a certain threshold of necessary changes in order

[5] Gros and Steinherr, 1995, Ch.5

[6] Bruno, 1992

[7] Blejer and Coricelli, 1995

to be successful (and credible) i.e. they needed to achieve a certain 'critical mass' of change[8]

Concurrent and tied with the macro stabilisation policies was the need for the imposition of a rational price structure. This involved price liberalisation and foreign trade liberalisation. We will consider these in turn.

(i) Price Liberalisation

The liberalisation of prices is the foundation of all reforms. The necessary scarcity signals needed for an efficient economy can only be determined by market-determined prices. 90% of Poland's previously administered prices were liberalised with some foodstuffs, energy and housing exempted. Administered prices were set below the market clearing level in command economies, they were thus supply constrained and had excess demand (manifested in queues). Liberalising prices thus led in general to a price jump. After liberalisation in January 1990 Poland experienced a 130% initial price jump, and inflation in 1990 was 585%[9], which greatly exceeded original estimates. This initial impact on the general price level can be attributed to:

a) Monetary Overhang

This manifests itself on a macro level as a mismatch between wages and the amount of goods available at the state-controlled price level. That is, the sum of wages in the economy is greater than the available supply of goods at the price level.[10] Thus, the accounting real wage was excessive. 'Forced saving' is occurring,[11] in a sense. Prices will rise to eliminate the excess. It seems to have built up slowly over time, accelerating as perestroika proceeded in the USSR. Estimation of the effect of this is done using a Fisher equation (MV=PQ) approach.

b) Elimination of Subsidies

There is a need to accompany price de-control by an elimination of producer subsidies and consumption taxes.

c) Initial Exchange Rate Devaluation[12]

With trade liberalisation, in order to keep Purchasing Power Parity, due to the devaluation the domestic price level must rise

[8] Balcerowicz, quoted in Blejer and Coricelli, 1995

[9] Gros and Steinherr, 1995, Ch.11; Winiecki, 1993; Jeffries, 1996; (Bruno, 1992 describes it as at 249%)

[10] Gros and Steinherr, 1995, Ch. 5

[11] Although, at a micro level this may seem nonsensical due to the existence of a black market for many products

[12] Bruno, 1992

d) Monopolistic behaviour by State Owned Enterprises (SOEs)[13]
This is an attempt to capture increased profits by raising their mark-ups over costs

Price liberalisation *per se* should not be a cause for continuing inflation (which was seen). Indeed, Bruno points out that if the initial price shock is restricted to an existing monetary overhang, it would follow that a higher initial price jump would *save* the system from additional inflationary adjustments later on. Thus, there would be a positive trade-off between the initial shock and subsequent price stability. We shall explore the possible explanations for continuing inflation later on.

(ii) Foreign Trade Liberalisation

To liberalise prices without liberalising trade does not make sense in that it is a necessary condition to create a 'rational' price structure. Once trade liberalisation reveals the real pattern of comparative advantages, export expansion is expected to follow. Winiecki (1995) points out that theory predicts an import surge preceding export expansion due to the fact that it takes time to find export markets, unlike sending orders for (imported) goods that were previously not permitted. In fact, the reverse was the case in the CEE. This is even though the IMF provided funds for stabilisation to help withstand pressure on exchange reserves. In fact, export surges started quickly after transition. This can be explained by two factors: Firstly, according to Winiecki, hoarding of inputs was common in Soviet Type Economies, of which a substantial part are imports. Thus, after transition demand for imports fell. This heightens the relative effect of export increases. Secondly, the devaluation in Poland of the zloty would boost exports and decrease imports. Thus it is probable that when the effects on competitiveness were felt due to price rises, imports 'bounced back' (see Table 2).

Table 2

	Exports (as % of year before)	Imports (as % of year before)
1st half of 1990	119.7%	54.1%
(Whole) 1990	140%	106.35
1st 3 quarters of 1991	117.9%	196.5%

Source: Winiecki, 1993

Gros and Steinherr[14] outline the practical steps for trade liberalisation:

[13] Berg and Blanchard, 1994

- abolish the state monopoly on foreign trade
- unify the exchange rate so all exporters and importers transact at the same rate
- eliminate all quantitative restrictions
- moving to unrestricted foreign exchange convertibility for current account transactions

For trade liberalisation, unlike perhaps price liberalisation, one can make a good case for gradualism i.e. eliminate all quantitative restrictions but retain some tariffs. Although this is a second best solution it can be an important source of revenues and can provide a temporary source of protection for inefficient SOEs - thus preventing them from failing at the same time[15]. Of course credibility issues arise here, as it may lend itself to discretionary reversals by government. Bruno pinpoints its advantage in "the attenuation of the immediate output and employment costs, while the right price signals for long-term investment are nonetheless retained."[16]

The most common approach, and that used by Poland, to stabilisation was a multiple anchors or *heterodox* approach in relation to pegging the exchange rate and adopting wage controls or incomes policies. In this, inflationary expectations as well as actual inflation are addressed.[17] It is perhaps appropriate to point out here that stabilisation does not mean zero inflation must be achieved at any cost.[18]

Before considering Poland's specific program and later discussing the available policies to stabilise the macroeconomy, it is worthwhile to try and develop briefly an appropriate macro-model for a typical CEE country in its post reform stage.

A Model?

The difficulty of postulating a model for a transitional economy *ex ante* cannot be overestimated - inherent uncertainties of outcomes undermine any attempts to do this. For this reason most countries, including Poland adopted an 'IMF-type' stabilisation strategy, augmented to the particular needs of the economies. It is thus that we attempt to find a model that will predict the outcome that did occur, such as the major output contraction across all countries, a decline in real wages (in Poland of 40%) and a large decrease of employment.

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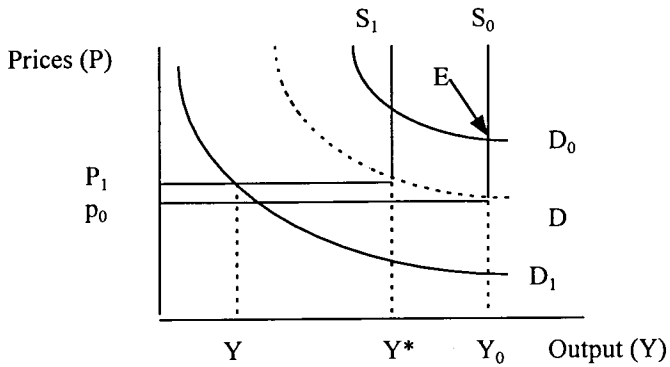
[14] Gros and Steinherr, 1995, Ch.6
[15] ibid.
[16] Bruno, 1992
[17] Winiecki, 1993
[18] Dornbusch, 1993, Ch.1

Gomulka (1992) argues the standard hypothesis - that during transition the economy switches from a supply-constrained to a demand-constrained regime. He contrasts the Structuralist view versus the Keynesian-type view of the cause of the recession. The former is allied to the Schumpeterian view of 'creative destruction', sharply rising input and output prices determining new relative prices but a slow microeconomic adjustment, implying an output loss. This, allied with the collapse of trade with the CMEA[19], would explain the output fall. Pure Keynesians, conversely, might argue that the full employment output essentially remained unchanged but a major decrease in aggregate demand occurred. These are not mutually exclusive, though, but Gomulka argues that policy makers tended towards structuralist reasons, but accepted that government policies, given the monopolistic market structure, would have a major impact on aggregate demand. A simple diagram shows this.

(Fig. 1):



E: initial pre-reform short-term equilibrium. It is on the vertical part of S_0 showing presence of excess demand and inflation.

- Removal of subsidies and price liberalisation, thus S_0 goes to S_1. This is as potential output falls from Y_0 to Y* (supply shock).
- Ideally the demand shock would have shifted to D, but suppose that it fell further to D_1. Thus ($Y^* - Y_1$) is the output fall due to excessive fall of aggregate demand.

Y* is not known, though, and only the aggregate outcome is observed.

[19] Council of Mutual Economic Assistance

Bofinger (1994) argues that under the 'classical' conditions prevailing in all transitional economies, only a supply-side explanation is adequate. He finds difficulty, though, in finding a theoretical foundation for this, although Calvo and Coricelli [20] provide some (if faulted) hope in their 'credit crunch' hypothesis. He concludes that the direct effect of monetary policy is theoretically and empirically difficult to establish. Showing macroeconomic data for Czechoslovakia, Poland and Hungary, and the similarity in their output performances despite undergoing radically different stabilisation and reform processes, he argues that only a 'classical' interpretation can be suggested, i.e. one that is inconsistent with the demand-side view.

Bofinger shows the command economy to be characterised by an aggregate supply *point* not an AS curve as output and prices were exogenous (and the labour market did not clear). A dual equilibrium was present: excess employment caused a real disequilibrium pushing production levels higher than profitable; part of this was financed by issuing money, resulting in a nominal disequilibrium. The IS curve was vertical and with rigid interest rates the LM curve was horizontal. In the transitional economy employment is now determined in the labour market (which clears) with lower employment and thus a reduction in total output. With flexible prices the AS point becomes a vertical AS curve. Although simplistic, this model can explain 'stylised facts' of the transition process, notably:

- roughly similar output falls for all three countries as disequilibria had been similar in all three
- reduction in employment and real wages
- differences in macroeconomic policies are irrelevant due to a vertical AS curve

If we introduce a 'Keynesian' element of friction in the labour market, perhaps due to governments preventing real wage falls more than is politically acceptable, we can model the gradual reduction in excess employment and why the output decline lasted from early 1990 to the end of 1992.

The Polish Reforms

Leszek Balcerowicz, Minister of Finance of Poland 1989-91, led the Polish policy-making team in the introduction of the stabilisation plan. The main points of this consisted of:[21]

- Fiscal consolidation - sharp cutback in the budgetary deficit
- Price liberalisation and substantial decrease in subsidies

[20] Calvo and Coricelli, 1992

[21] Berg and Blanchard, 1994; Gomulka, 1992

- Convertibility of the domestic currency (zloty) and expansion of international measures to protect internal convertibility, which must assume priority over price stability in the initial period
- Stabilisation of liberalised prices based on standard IMF approach - important role for nominal anchors assigned to tough incomes policy and fixed exchange rate as well as restrictive monetary policy
- Quick opening of the economy
- Structural reforms to create competitive markets, and decrease barriers to entry

The reforms were far-reaching, which the political climate at the time favoured, and it was seen as a race against time to create a new economic structure or else social support of the reforms would fade out[22]. Macroeconomic restraint was closely tied with the need for credibility especially in respect to disciplining agents accustomed to 'soft' budget constraints i.e. firms whose costs consistently exceed revenues, financed through bank credit and subsidies which ultimately leads to a budget deficit and thus inflationary pressure. External credibility was heightened in 1991 with The Paris Club reducing the Polish external debt of $33 billion by 30% with reduction of the debt by a further 20% after three more years, conditional on the successful implementation of reforms.[23]

It is now appropriate to discuss the four policy instruments available to transforming economies, notably fiscal policy, monetary policy, exchange rate policy and incomes policy. It is of interest to note that socialist economies felt that they had no need to use these instruments, thus once transition to a market economy occurred, such instruments had to be created and policy-makers had to learn how to use them.[24]

Policy Instruments

1. Fiscal Policy

Balancing the budget is vital to the success of stabilisation. Due to the fact that many governments had large external debts (apart from Czechoslovakia and Romania) it is not possible to finance a deficit through external borrowing. Capital markets have not yet been developed, so there is no market for selling government bonds. Thus the only way to finance the deficit is by obtaining credit from the Central Bank i.e. seigniorage or printing money. This of course produces inflation. Thus it is vital to keep the deficit as small as possible. For fiscal adjustment, one needs a productive tax structure and expenditure reforms. A substantial permanent reduction in

[22] Zielinski, 1993
[23] Gomulka, 1992
[24] Gros and Steinherr, 1995, Ch.7

government expenditure on subsidies was necessary and achieved, although political pressure for the retention of a social safety net was high, especially given the large percentage of pensioners.[25] Despite expectations to the contrary, Poland and Czechoslovakia ran a temporary budget surplus in the first few months after reform. This was due to a deep fall in real wages (cutting firms' costs) and the tendency for enterprises to keep large input inventories at the time of reform (bought at old prices). When prices rose, revenues increased, thus profits rose. The socialist economies relied heavily on the profit tax for revenues (15 - 20% of GDP typically), thus tax receipts were high. The profit tax element subsequently fell substantially once real wages rebounded and the temporary effects of low input costs for firms stopped, and profits were squeezed. Also, output fell generally thus reducing tax receipts. Thus a fiscal crisis emerged in Poland in 1991. Difficult expenditure cuts were needed, thus the 'residual' expenditure of investment in infrastructure suffered most (as political opposition is least), thus causing harmful long-term effects. In terms of inflation, Dornbusch argues that a tight monetary policy is not a substitute for a balanced budget.

2. Monetary Policy

Generally, restrictive monetary policy is needed to try and keep the growth rate of the money supply within reasonable limits and it must be in tandem with fiscal policy. The money supply *can* act as a nominal anchor for the economy, but severe difficulties arise with monetary policy due to the existence of soft budget constraints[26]. Borrowing inertia by SOEs is a serious problem, as they expect to be bailed out by the state if their finances are in crisis. Equally, lending inertia by banks with poor lending policies, and with creditworthiness and risk assessment abilities very poor, make the effect of monetary restraint perverse.[27] Indeed, restrictive monetary policy may lead to adverse selection, according to Winiecki, where the least efficient survive (usually the largest) who can borrow almost limitlessly, and the demise of more efficient (smaller) enterprises with reduced access to credit. There is a need to create an independent Central Bank as it is difficult to resist pressure from the government to monetize the deficit.

Calvo and Coricelli (1992) take the view that a 'credit crunch' occurred in Poland in the first quarter of 1990:

[25] Bruno, 1992
[26] Bofinger,1994
[27] Winiecki, 1993

> "Firms need liquidity in their daily operations....Insufficient liquidity/credit levels prevent firms from operating at full capacity and output is lost"[28]

Thus, firms are forced to move on their production function towards the origin. As a result the AS is shifted to the left. This correspond with Bofinger's Classical model with a supply constrained economy discussed earlier. This hypothesis is undermined by the common assertion that firms did not operate under a binding credit constraint and could counteract monetary austerity by increasing inter-enterprise credits[29]. We may conclude from this that in transitional economies monetary policy is much less powerful than in a market environment. Indeed, Bofinger goes on to assert that there is no convincing evidence for a significant real sector impact of monetary policy in the period 1990-1992 in Poland. Zielinski also comes to this conclusion in assessing whether restrictive monetary policy throttled internal demand. Additional money injections should revitalise domestic demand but tests do not show this. Gertler, though, in a comment on the Calvo and Coricelli paper, believes the 'credit crunch' hypothesis is complementary to the adverse demand shock story advanced by Berg and Blanchard and also Gomulka. He asserts that credit market friction's help propagate demand shocks in making both firms and household spending sensitive to current cash flows.

3. Exchange Rate Policy

Bruno states that given the instability of money demand, preference should be given to the exchange rate as a nominal anchor. Initial pegging of the Polish zloty to the dollar was helped by the devaluation of the dollar against all major OECD currencies during 1990.[30] The zloty was devalued by 65% to promote exports and limit imports. The Polish nominal exchange rate remained constant for 17 months from January 1990 till May 1991. If inflation persists there is pressure for the nominal exchange rate (e) to fall to retain purchasing power parity.

Thus, with domestic inflation, in order to retain competitiveness 'e' must fall. As a result of this it is necessary eventually to shift to a crawling peg tied to a weighted basket of currencies. Dornbusch points out that overvaluation is a grave risk, as although it may help to cool inflation, it invariably leads to a real and financial crisis[31]. This 'second stage' was adopted in Poland in May 1991. The decision to abandon the fixed rate is difficult, Dornbusch argues,

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[28] Calvo and Coricelli, 1992
[29] Bofinger, 1994
[30] Gomulka, 1992
[31] Dornbusch, 1993, Ch.9

because it signals the government's acceptance of inflation as something inevitable.

4. Incomes Policy

Incomes policy has been in effect since Dec. 1989 in which each firm is subject to a wage norm which initially was roughly equal to the prestabilisation wage. This has increased over time, though, due to partial indexation to inflation and the fact that the norm has been in relation to the wage bill, thus when employment decreases further proportional increases in the wage itself are allowed.[32] Incomes policy is not an absolute constraint on firms; rather, excess of wages above the norm are taxed at very high rates. This tax applies to the excess of the wage bill for the whole year above the norm, therefore if the firm pays a lower than the norm early in the year, it can pay a wage above the norm later in the year.[33] According to Berg and Blanchard, by the end of 1990, roughly two thirds of the firms in industry were willing to pay the excess wage in order to transfer some of the profits to workers. This shows clearly the power of workers' councils even after reforms.

The main justification for maintaining a wage ceiling, even though wage controls are clearly distortive, is as a support for the exchange rate anchor in combating inflation.[34] Wage-push inflation *is* a serious problem - especially in SOEs where managers do not have an incentive to keep wage increases below increases in productivity as they do not have to observe a hard budget constraint. It is clear then that alongside incomes policies is a need to harden the budget constraint and increase competition. Gomulka (1993) cites that the basic problem with the Polish stabilisation effort was that the two nominal anchors, money and incomes, were too flexible during the second half of 1990 and most of 1991 to serve as proper nominal anchors. With the exception of the first four months of the year, the effective price indexation of wage norms was nearly 100%.[35] For political reasons it was not possible introduce an incomes policy with little or no price indexation of wage norms. Bruno offers an alternative to distortive wage controls to be a social compact on incomes policy between the major sectors (government, employers and workers' unions) - of the kind used in Scandinavia. Clearly the above four policy instruments were key to the macroeconomic stabilisation efforts, yet the effects, especially initially were not altogether inspiring, thus stabilisation may

[32] Berg and Blanchard, 1994
[33] ibid.
[34] Bruno, 1992
[35] Gomulka, 1993

not be categorised as a complete success. The severe and long-lasting output decline and the continued persistence of inflation are testament to this.

Effects in Poland

1. The output decline

Contractions in output were severe across the CEE Table 3 shows this, with the largest fall occurring in Czechoslovakia in 1991 - the first year of its stabilisation program.

The main reasons proposed for the decline can be summarised as:

- Mismeasurement - figures only include enterprises of 100+ employees; fledgling private sector omitted[36]
- Anticipation of a sharp price increase stimulates hoarding which is immediately followed by a sharp decrease in demand[37]
- 'J-Curve hypothesis' - severe deterioration of economic performance due to restructuring and public-sector cuts, followed by an equally rapid and sustained improvement.[38] Portes (1993) describes this as trivially correct, though.
- Real wage and real monetary squeeze - throttled internal demand[39]
- Credit squeeze reduced firms' output - Calvo and Coricelli
- Foreign trade shock - collapse of the CMEA

Table 3: Annual rate of change of real GDP in %

	1988	1989	1990	1991
Czechoslovakia	2.6	1.3	-0.4	-16.4
Hungary	-0.1	-0.2	-4.0	-(7-9)
Poland	4.1	0.2	-11.6	-8.0

Source: Winiecki, 1993

Microfoundations e.g. 'management shock' - transformed environment where they have to make their own decisions; adopt a wait-and-see approach

2. Inflation

The causes of the initial price shock in post-reform Eastern Europe were discussed earlier, including monetary overhang, elimination of subsidies, initial exchange rate devaluation etc.. These, though do *not* explain the persistence of inflation which occurred as shown in Table 4. Inflation erodes the information conveyed by prices. It erodes the real value of taxation if

[36] Winiecki, 1993
[37] Bruno, 1992
[38] Brada and King, 1993
[39] Bruno, 1992

there is any delay between accrual and payment of taxes.[40] Dornbusch discusses how when inflation accelerates, contracts shorten, which in itself causes inflation to accelerate as there is always some group of wage earners who are still lagging behind price increases. Incomes policies can help combat this inertia.

Berg and Blanchard argue that there is no single cause for persistence of inflation in Poland - that there is no stickiness of inflation, just many shocks along the way such as the catching up of wage at the end of 1990. We can distil some significant causes, though:

1) Fiscal deficit: can only be financed through printing money
2) Wage-price spiral: due to the indexation of wages, especially if pressure for wage increases are greater than productivity increases
3) Soft budget constraint for firms - firms avoiding imposition of rational price structure

The continuation of incomes policies, tight monetary policy and fiscal restraint should help to further whittle down inflation, as will, paradoxically, the reintroduction of indexation, according to Dornbusch. Although this is seen as responsible for inflation, it can in fact help reintroduce inertia and help establish expectations of low inflation.

Table 4: Inflation in Central and Eastern Europe (and Russia) since 1991
Retail/consumer prices (end-year) - percentage change

	1991	1992	1993	1994 (est.)	1995*	1996*
Czech Republic	52	13	18	10	8	7
Hungary	32	22	21	21	28	22
Poland	60	44	38	29	22	19
Romania	223	199	296	62	28	20
Russia	144	2318	841	203	131	45

**Projected*
Source: Hare, 1996, Table 2

Current and Future Issues: Stabilisation to Growth

Poland experienced positive GDP growth in 1992 and it was the first transitional economy to achieve this. Since then growth rates have been remarkable: 6% in 1994, 7% estimated in 1995 and 6% projected for 1996. It is expected to be the first transitional economy to reach the same level of real

[40] Dornbusch, 1993, Ch.1

GDP as it had in 1989 by 1996.[41] Unemployment, though, was 16% at the end of 1994 and inflation 29% (although expected to be below 20% in 1996 - see Table 4). Net direct foreign investment has risen from $88m in 1990 to well over $600m in 1996.[42]

Emerging unemployment, the elimination of shortages and the restoration of basic monetary equilibrium are all symptoms of transforming from a supply-constrained to a demand-constrained economy.[43] A shift in the macroeconomic balance according to Gomulka is still occurring, which should imply a shift in the macroeconomic targets from anti-inflation to anti-recession - opening the way for a transition from stabilisation to recovery and growth. Thus, policy balance should shift more emphasis onto institutional reforms especially in the banking sector and financial regulation as well as structural policies e.g. privatisation - which is slow and costly.[44]

To sustain growth, there is a need to achieve high rates of investment, and so far foreign investment has been modest, so high rates of domestic savings are vital. Hare goes on to estimate that to sustain a nominal growth rate of 4% it would require domestic investment at a rate of about 20% of GDP. Accession to the EU is very important and 10 Eastern European countries (except Albania) are classed as 'Associated States', and are all actively preparing for membership.[45] There has been an increase in the region's penetration of the EU market from 2-3% in pre-reform days to 7-8% of trade flows according to Hare.

Conclusion

The central issue in Central and Eastern Europe, and particularly in Poland, has shifted away from that of stabilisation to that of policies to increase/sustain growth. The persistence of inflation and the underlying processes generating it is a problem though, and requires stabilisation-type measures. Priorities are moving from the macroeconomic to the microeconomic, which are no less and possibly more important. There is a limit as to what macro policies can do unilaterally without underlying 'grass-root' changes. Stabilisation has though in general been achieved in Poland, in really a remarkably short space of time given the titanic political and economic changes that have occurred. Poland has been seen to be a leader in economic reform, and is currently leading the charge in the drive towards growth, prosperity and a stable market structure

[41] Hare, 1996
[42] Jeffries, 1996, Ch.24
[43] Gomulka, 1993
[44] ibid.
[45] Hare, 1996

and ultimately to the fortress of the European Union. Dornbusch recognises the interdependence between countries in the region - there are spillover effects in economic and political confidence- thus it is in the countries' interests to co-operate together. Then foreign investment will be generated which will ultimately lead to the export-oriented economy the Poles are looking for.

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Inflation: The Cruellest Tax?

Alan Stuart
Junior Sophister

Inflation has become of paramount importance over the last 25 years. Its effects, real and presumed have led to it becoming, in many people's eyes public enemy number one. Alan Stuart discusses some of the welfare effects and difficulties in measuring inflation.

Inflation can be defined as a persistent rise in the average price level over time. The importance of price stability as a *secondary* policy objective lies not so much as an end in itself, but due to its implications for more *primary* policy objectives of equity, efficiency and growth.[1] In this paper I shall initially examine the social costs of inflation and problems associated with its measurement at a microeconomic level. Then inflation's macroeconomic impact on the goods, money and labour markets using the Hicksian IS-LM framework, in the context of both a closed and an open economy. Finally, given the importance of hyperinflation to many newly-industrialising and less-developed countries, I shall conclude with an investigation as to how government policy can end hyperinflation through certain fiscal and monetary policy prescriptions.

Social Costs of Inflation

Conventional approaches to analysing inflation's costs are divided into two idealised contingencies: expected and unexpected inflation, although partial anticipation is perhaps most realistic. With *perfectly anticipated* inflation all prices and wages are perfectly indexed and households and firms suffer no money illusion. Yet even under such an ideal, costs are incurred. The "shoe leather costs" involves the inconvenience of having to make more frequent withdrawals from the banks for transactions in order to minimise depreciating holdings of currency. "Menu costs" involve the difficulties with continually having to change prices and wages so as not to distort market decisions. In addition, the changing price level distorts money's function as a measure of value.

More realistic of 1990s Western Europe, *partially anticipated* inflation involves indexation with a lag effect. Problems here include the distortion to relative prices when indexation adjustments are made at different intervals. Apart from creating market allocation inefficiency, the issue of determining real capital gains for taxation purposes arises with lagged indexation.[2] Periodic transfers of wealth

[1] Hayes & McAleese, 1995
[2] Mankiw, 1994

from private sector to public sector due to lagged tax bands is another taxation difficulty.

The worst social effects, however, emerge under conditions of *unanticipated* inflation. Here, all types of arbitrary redistribution's of wealth occur. Primarily, debtors gain at the expense of creditors on fixed contracts due to the fact that repayments are in a less valuable currency. People on fixed incomes like some workers and pensioners suffer badly, and since these economic groups tend to be poorest, inflation increases inequality in society. Since high inflation is also extremely variable it is difficult for investors to calculate net present values accurately, resulting in a shortening of agents planning horizons.

Measurement Problems of Inflation

The accurate measurement of inflation is vital for indexation purposes and control by the Central Bank in the economy. Altogether three main factors affect the accuracy of price indices. This is to do with the fact that the RPI, WPI, MPI and CPI are all Laspeyres indices based on a weighted average of a fixed "basket of goods".[3] Firstly, there may be changes in the quality of goods that are not incorporated accurately in the price indices (*quality bias*), a more gradual measurement problem. The fixed "basket of goods" also doesn't allow for substitution to lower priced goods and thus only measures the "income effect" of inflation (*substitution bias*). However, the worst measurement problem lies in the fact that the sample basket is an incomplete inventory of the economy's goods and services (composition bias) which renders inaccurate the measure of an average individual's purchasing decisions.

Inflation's Effect on Keynesian IS/LM Model

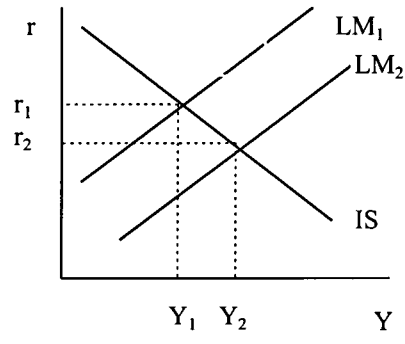
When Hicks originally adapted Keynes's ideas to the IS-LM framework, the assumption of constant prices was paramount. Thus the model does not lend itself well to analysing the effects of inflation, and many economists have only tended to study one inflationary effect in isolation. The best synthesis of inflationary effects available using an IS-LM framework is by Gowland (1991) and can be grouped into: (a) wealth effects; (b) real balance effects; (c) real interest rate effects.

Concerning wealth effects, it must be noted that an increase in wealth stock usually accompanies an increase in income flow, but here we hold income constant and examine comparative static changes in exogenous wealth. Changes in wealth affects both the IS and LM curves. With regard to the LM curve, inflation reduces household wealth by reducing the real value of all money-denominated assets, therefore leading to less money being demanded at each

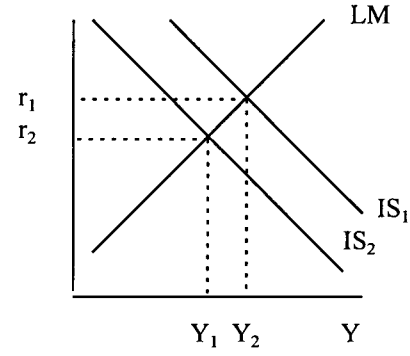
[3] Mankiw, 1994

combination of income and interest rates. The money demand schedule shall shift inwards and lead to an excess of money supply over money demand, holding the money supply curve constant. Thus, to restore equilibrium the LM curve must shift to the right, and a new equilibrium is attained at (Y_2, r_2) (see diagram (a)).

Diagram (a) & (b)

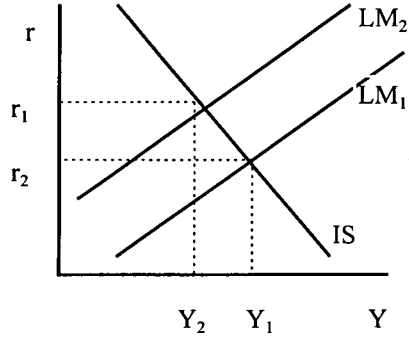


(a) Inflationary decrease in wealth shifts LM curve outwards

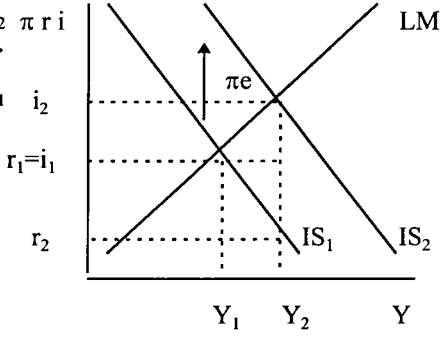


(b) Inflationary decreases in wealth shifts IS curve inwards

Diagram (c) & (d)



(c) Inflationary decrease in real balances shifts LM curve inwards.



(d) Expected inflation lowers the real rate and shifts the IS outwards

The effect on the IS curve, more intuitively, involves an inward shift.[4] A decrease in wealth induces consumers to spend less at each level of income so more is saved. Thus planned withdrawals are more at each level of income (presuming no taxation or imports), and therefore at every interest rate a lower level of income is

[4] Gowland, 1994

necessary to generate an equal quantity of planned withdrawals. The result, *ceteris paribus*, is an inward shift in the IS curve (diagram (b)).

The second inflationary effect to consider is the real balance effect of inflation. This effect, holding money demand constant, measures the decrease in the supply of real money balances due to inflation, holding the nominal money supply constant. The vertical real money supply curve shifts inwards and the excess money demand drives up interest rates to regain equilibrium, thus shifting the LM curve inwards (diagram (c)).

A third inflationary effect arises when one takes into account the real interest rate. Strictly defined, the real interest rate (r) is derived from the nominal interest rate (i) and inflation rate (π) according to the formula: $r=[(1+i)/(1+\pi)]-1$.[5] However, the Fisher Effect relationship is usually approximated to $r=i-\pi$ arithmetically.[6] If the inflation is expected, the real interest rate deviates below the nominal interest rate by the expected inflation rate (π). The reduction in the *real* interest rate for any given *nominal* interest rate stimulates the investment component of Aggregate Demand, which shifts the IS curve outwards (diagram (d)).

Therefore, from this brief analysis one can appreciate the conflicting effects of inflation on the goods and money markets. No single conclusive result can be drawn, although often attempted, regarding inflation in the IS-LM framework at a theoretical level.[7]

Effects of Inflation on Labour Markets

The effects of inflation upon the labour market also reflect conflicting ideas about inflation's effects depending upon workers' and firms' ability to anticipate price rises. For simplicity let us assume that the quantity of labour demanded and supplied is related to the real wage in simple linear relationships (L_D: $W/P=a_1-b_1L$; L_S: $W/P=a_2+b_2L$).

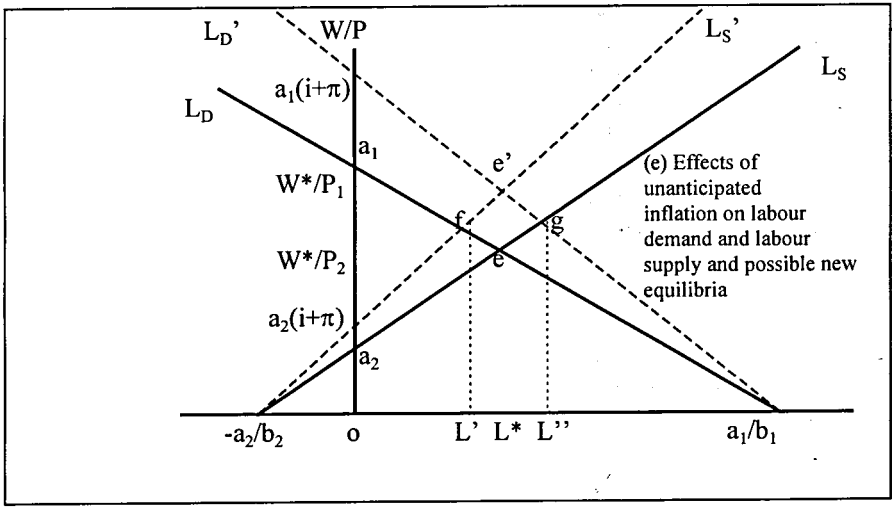
	Supply	Demand
Perfectly anticipated π:	$\frac{W(1+\pi)}{P(1+\pi)}=\frac{W}{P}=a_2+b_2L$	$\frac{W(1+\pi)}{P(1+\pi)}=\frac{W}{P}=a_1-b_1L$
Perfectly unanticipated π:	$\frac{W}{P(1+\pi)}=a_2+b_2$	$\frac{W}{P(1+\pi)}=a_1-b_1L$

[5] Hardwick, 1987
[6] Mankiw, 1994
[7] Gowland, 1994

$\Rightarrow \underline{W}=(a_2+b_2L)(1+\pi)$ $\quad\quad$ $\Rightarrow \underline{W}=(a_1-b_1L)(1+\pi)$
$\Rightarrow \underline{W}=(a_2+b_2L)(1+\pi)$ $\quad\quad$ $\Rightarrow \underline{W}=(a_1-b_1L)(1+\pi)$

With perfectly *anticipated* inflation, both wages and the price level increase by a factor of $(1+\pi)$, thus leaving the overall real wage, and demand and supply curves unchanged (i.e. $W(1+\pi)/P(1+\pi)=W/P$). However, with perfectly *unanticipated* inflation the real wage rate remains constant while only prices increase. The money illusion of workers and firms causes the labour supply curve to rotate inwards and the labour demand curve to rotate outwards around their labour-axis intercepts as is shown in diagram (e).

Diagram (e)



Thus, unanticipated inflation drives up the real wage rate to clear the market shifting equilibrium from e to e', whereas with perfect anticipation equilibrium remains at e. Output L* could only deviate towards L' or L'' if firms' and workers' perceptions about the future price differed. The locus of all market clearing equilibria covering all degrees of anticipation for workers and firms is represented by the polygon "efe'g" in the diagram. However others[8] have suspected that the presence of market imperfections due to collective wage bargaining could lead to even different equilibria, and that the "atomised" bargaining assumption I have made is unrealistic.

Effects of Inflation on Open Economies

[8] Carlin & Soskice, 1996

Effects of Inflation on Open Economies

Relaxing the assumption of autarky, the effects of inflation upon the goods and money markets in open economies shall now be examined. An effective analysis of open economy inflation should begin with a discussion of the real exchange rate or *terms of trade* (ε), defined in relation to the nominal exchange rate (e), the domestic price level (P) and the foreign price level (P') in the relationship $\varepsilon=eP/P'$. For open economies with fixed nominal exchange rates and large foreign trade to GDP ratios, their inflation rates (P), must be closely tied to those of their large trading partners (P') to maintain constant terms of trade competitiveness (ε). If import prices are increased due to external inflation, then the effect will be passed on by a rise in domestic prices (P) to maintain competitiveness.[9] Large open economies are insulated from this "law of one price" theory of inflation if foreign trade is a small part of GDP or if only minor trading partners experience inflation.[10] Alternatively the terms of trade (ε) can be held constant against foreign inflation if necessary by large and small open economies by maintaining a flexible exchange rate regime and periodically revaluing. Conversely devaluation can exacerbate foreign inflationary pressures by augmenting the cost of imports, as many Latin American countries discovered in the 1970s. A more detailed investigation of exchange rates and inflation rates can be undertaken if one considers the real trade-weighted exchange rate or *effective rate* (ε_t),[11] which weight an open economy's trade according to the significance of trade with various trade partners in the relationship:

$$\varepsilon_t=(e_1P/P'_1)w_1+(e_2P/P'_2)w_2+...(e_nP/P'_n)w_n$$

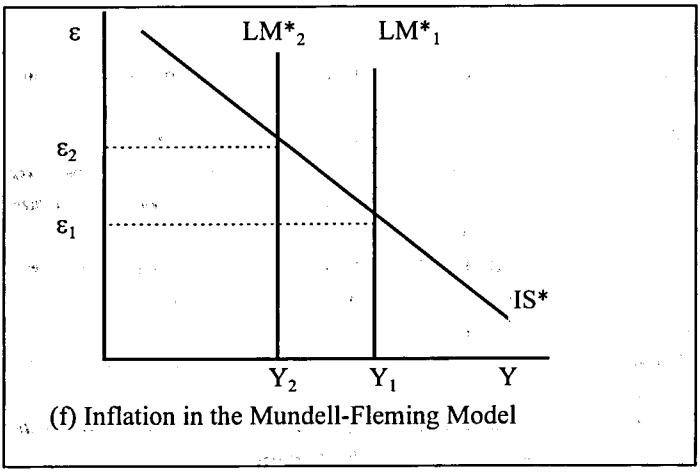
However, for simplicity we shall not differentiate between the effective rate and terms of trade, since only the latter is considered by Robert Mundell and Marcus Fleming in their open-economy adaptation of the IS-LM framework.[12] For our purposes, holding the nominal money supply, trade restrictions and government spending fixed, important results can be obtained from analysis of the inflationary impact. We shall assume a *small* open under consideration, which has no effect on the world interest rate and thus accepts a given equilibrium in the money market independent of the real exchange rate. Thus the LM curve used in the Mundell-Fleming model for an open economy (LM*) can be represented by a vertical line in relation to the real exchange rate (diagram (f)).

In an open economy, it must be remembered that net exports are another component of aggregate demand, and that it has an inverse relationship with the

[9] Hayes & McAleese, 1995
[10] Snowdon, Vane & Wynarczyk, 1994
[11] Hayes & McAleese, 1995
[12] Carlin & Soskice, 1996

real exchange rate (ε)[13]. Thus if the ratio of domestic inflation to foreign inflation increases, the real exchange rate will appreciate unless a flexible *nominal* exchange rate is allowed to adjust to keep the real rate constant. However under a fixed nominal rate regime the real exchange rate will appreciate, thus reducing net exports and causing a contraction in aggregate demand. The result of this contraction is a movement along the IS curve to a new equilibrium at Y_2. The reduction in real money balances under inflation with a constant nominal money

Diagram (f)



(f) Inflation in the Mundell-Fleming Model

supply induces the LM* curve to shift inwards under an "inverse" Pigou effect to reach a new goods and money market equilibrium at a higher real exchange rate (ε_2). The effect of a real exchange rate appreciation on a large open economy wouldn't be as severe due to its ability to influence the international interest rate, and adjust net foreign investment accordingly.[14]

Conclusion

This paper has sought to raise some important questions regarding inflation which are relevant to assessing its impact on other key economic variables. Although comparatively a modern phenomenon, there have been some major inflationary bouts throughout history. Spanish gold and silver looted from the Aztecs and Incas in the 16th century brought a huge bout of inflation to Europe, while the post-WW1 hyperinflation in Germany is a classic example that comes to mind. The description of inflation in the title leaves one in no doubt as to its malign effects. However, no two economists seem to agree upon the magnitude of these effects and to what extent they are strengthened or dissipated by indexation,

[13] Carlin & Soskice, 1996

[14] ibid.

expectations, sticky wages, market imperfections and how accurately they can be measured. Thankfully, the contemporary phenomenon of creeping inflation in the industrialised world seems to signify that policymakers believe its control to be an important policy objective. Consistent vigilance is necessary however, as casual monetary and fiscal policy can easily stimulate rapid inflation as Ireland and the U.K. discovered in the 1970s.

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Cost Benefit Analysis - Aspirations V's Reality.

Clare Mc Andrew
Senior Sophister

Cost Benefit Analysis is the primary tool for calculating the viability of projects in both the private and public sectors. However, as Clare McAndrew makes clear, like so much of economic theory, its results are only as accurate as the assumptions underlying them.

Economic theory assumes rational individuals who make decisions based on comparisons of benefits and costs. For the private agent choices between projects are relatively straightforward. However, for public sector projects the choice becomes more complex, as decision makers must consider what will best satisfy the interests and objectives of society as a whole. Cost benefit analysis (CBA) has been developed to help evaluate public policy issues, and extends this notion to the realm of government decisions by including all social benefits and costs in the process. For a given proposal, CBA attempts to identify all potential gains and losses, convert these to monetary units, and then compare them, on the basis of decision rules, to determine the project's desirability (Nas, 1996).

Welfare economics provides the theoretical foundation for the framework of CBA, as it is based on evaluating alternative economic situations from the point of view of social welfare. Within this framework, the basic criteria for deciding whether a project (any use or saving of resources) will increases social welfare, is based on the Pareto optimal criterion i.e. an action is desirable if it makes at least one person better off without making anyone worse off. A more workable rule, generally used as it justifies any reallocations as long as net benefits increase, is the Hicks-Kaldor compensation principle. This states that a project should be undertaken if it is possible 'in principle' to obtain a Pareto improvement via a set of money transfers between the gainers and the losers from the project i.e. gainers could fully compensate losers and still be better off (Sugden and Williams, 1978). Efficiency criteria ignore 'who' gains and loses, and it is the exclusion of such distributional and equity considerations that constitutes a major limitation of basic CBA, as it can only aid decision making and not replace political judgement.

The other major limitation of CBA is that the results of any calculations in a study are only as good as the estimated values of the costs and benefits incorporated in them. The following discussion will look at some of the difficulties in these valuations, along with the issue of distribution and possibilities for its resolution. Finally the costs and benefits of CBA itself will be reviewed to try to define the reality of its scope, concluding as stated by Zerbe and Dively, "...decisions are

made by decision makers, and benefit cost analysis is property regarded as an aid to decision making and not the decision itself ..." (Zerbe and Dively, 1994:2).
The basic aim and definition of CBA is to maximise the present value (PV) of all benefits less the PV of all costs, subject to specified constraints. The basic questions that need to be addressed are therefore:

- which costs and benefits to include?
- how will they be valued?
- at what rate will future costs and benefits be discounted to reflect the PV?
- what are the relevant constraints? (Prest and Turner, 1972)

The answers to these questions provide the basic principles of CBA and will be considered in turn.

Which Benefits and Costs?

In private investment appraisal consideration needs only to be given to a firm's own private benefits, or profit, and costs. However, in the arena of public investment, the scope of those affected considerably widens, including beneficiaries from the project (which may include both users and non-users who may enjoy indirect benefits), those who will incur losses, and more generally every tax paying citizen who is providing the funds for it. Hence CBA looks at overall social benefits and costs.

The main reason that these may diverge from private costs is due to the existence of externalities or 'spillover' effects on third parties. Externalities are costs and benefits from consumption or production that do not accrue to that consumer or producer, and hence are not reflected in market prices, but affect the profit, or utility of external agents (Johansson, 1992).

Mishan (1988) states that due to the limits on internalising these effects into the market, CBA must recognise, quantify and include them in project appraisals. An important distinction needs to be made between 'technological' externalities (which alter the production or consumption possibilities of others), and 'pecuniary' externalities (which operate via changes in market prices). As the latter involve transfers or distributional effects, and no real change in aggregate welfare, they are traditionally excluded from CBA. A common example is that of road improvement schemes increasing the profits of garages along their routes. (Perkins, 1994). These rises are associated with profit falls in garages on nearby and now inferior routes, hence involving no net benefits.

Therefore CBA sets out to identify all of the benefits and costs - internal / external, direct / indirect, and tangible / intangible, to measure the total impact of a project on society, excluding those that are purely pecuniary. CBA also concentrates on 'economic costs' i.e. the value that resources used in the project

could generate in their next best use, and not historic costs that have no relevance to current resource allocation decisions.

How will they be valued?

Private investors rely largely on the valuation of financial outlays and receipts at market prices in appraising costs and benefits. Although financial criteria are important in public sector investment decisions, the wide scope of costs and benefits included can present complexities and problems in evaluation. 'Tangibles' can be valued using competitive market prices, but where market imperfections exist, these may need to be corrected to reflect true social costs or benefits.

Shadow pricing is a technique used in CBA to ensure prices reflect real resource costs, and simply corrects good and factor prices in light of their opportunity cost, and attributes prices to unpriced gains and losses. Shadow prices may be derived by trying to infer prices from similar items in the economy, or the same items in other economies, or alternatively using the implications of expenditure in other policy areas to derive a price, for example, valuing 'life' or accident costs in transport studies, by government expenditure on health care (Barrett, 1982). Some market prices may need only simple adjustments, such as treating input prices net of tax in calculations, as taxes involve transfer payments and not direct societal costs, and therefore are not included in CBA calculations. Shadow pricing may also be needed in valuing the opportunity costs of imports, which may be attributed a higher than market shadow price in countries with balance of payment deficits to reflect their relative scarcity and real resource cost re exports.

A particularly problematic area is in determining the shadow price of previously unemployed labour. The opportunity cost of labour is generally viewed as the output it would have produced if the project had not been undertaken, however, if previously unemployed, a zero or even negative shadow price may be implied. Barker and Buttons (1974) see this as unsatisfactory as workers are not indifferent between being employed or not and, therefore, a better price for the formerly unemployed could be calculated by the amount that would be required to compensate for the disutility of doing the particular job (not necessarily the same as the wage rate).

Problems with valuations are compounded where no market values exist as is the case with externalities and other Intangible effects not priced in the market. Proxy measures are often used to represent these effects in CBA, however, there is considerable disagreement over appropriate evaluation methods, and their validity. A common area of contention is in valuing the cost of externalities such as noise and pollution. Hedonic prices may be used to value the pollution costs in an area, where, for example, a new industrial factory has been built. Values of

identical houses are compared in nonaffected areas, with the price differential representing the externality. However, finding identical houses, classes of property and comparable areas restricts the use of this techniques in practice. House price depreciation was used also to measure the social cost of noise in a CBA for an additional London airport. It was concluded that not only did these calculations involve complex and subjective calculations, but they also understated the social costs for residents close to the airport as, for example, if general noise levels increase everywhere overtime, absolute differences in noise levels may remain constant, but those in affected areas will obviously be much worse off (Barker and Buttons, 1974). Mishan (1988) reiterates this point, stating that loss indices such as these, may record zero social costs as noise levels increase.

Valuation of life is another very important, and much disputed, calculation in CBA, particularly concerning investments in health care and transport. Suggested methods to put a value on human lives potentially lost or saved by projects include (Barrett, 1982- Mishan, 1988):

- Gross output evaluation: discounting the present value of a person's future earnings to assess the loss to the economy on his death.
- Net output evaluation: deducting a persons consumption from the above sum to assess the losses that will accrue overtime to others due to the individuals death. Both of these output approaches, however, ignore evaluation of the losses with the grief and anxiety of potential victims and those left behind, which is undoubtedly significant, but virtually impossible to objectively measure. The net approach could also imply net benefits to society from the deaths of old age pensioners - hardly a palatable policy prescription. In fact, any project that may actually require death poses serious moral questions in establishing net benefits.
- Shadow pricing is used by calculating the value of life implied in public policy decisions re investment expenditures that do increase or decrease lives saved. However, this approach produces wide inconsistencies between different programmes and governments.
- Finally, the insurance principle uses the premiums an individual is willing to pay, and their probability of death from engaging in certain activities, to calculate their valuation on life. However, insurance policies only provide compensation to others, and so may reflect concern for family and friends rather than own life valuation.
-

Whatever methods are used, O'Hagan (1995) noted discrepancies of between £2000-£1,000,000 in values between differing countries making it difficult to use CBA comparatively.

Finally, 'time' is another important intangible often considered to be more important than financial savings in transport investments. The results of CBA's can be highly sensitive to the values placed on work and leisure time. Work time saved from, for example, a faster rail service, is often valued at the amount employers are willing to pay to save their employees time, and a common measure is therefore the appropriate portion of the hourly wage rate, plus any other overheads to employ labour. Such an approach implicitly assumes, however, that the wage rate accurately reflects employee productivity (only true in perfectly competitive labour markets) and that time saved has alternative beneficial uses. It also ignores any value that a worker may place on his journey to work, and ignores the fact that travel time may be used productively (for example, to prepare a report) and therefore should not be valued as highly as time lost to employment.

Another major contention is whether very small time savings should be added, and then aggregated, at an hourly wage rate - for example are 120x30 second time savings equal to the value of 1 hour saved. If very small time savings such as these are eliminated from calculations, rates of return are significantly reduced. Finally in valuing leisure time, travel time saved is not a cost to the 'leisure traveller'. For example, it may involve significant utility to a "Sunday driver", whereas commuters may value such savings highly. Choice studies may be used to look at the value of time implied by commuters choices between fast, expensive travel, and other slow but cheaper means, or some arbitrary fraction of worktime may be selected.

These examples show some of the problems involved in accurately valuing a range of items for CBA, implying that it cannot purport to be a solution for problems in evaluating externalities etc., and can only speed up decision making once these values can be stated (Musgrave, 1972). It is arguable, however, that the true role of CBA is in bringing a number of different effects involved in a project into the decision making process, and ensuring despite inaccuracy that they are at least considered

What discount rate?

Both public and private investments will generally involve incurring costs and receiving benefits in both current and future periods. Due to the time value of money (£1 received today is worth more than £1 received in the future as it may be reinvested in the interim), PV is often used to discount the net benefits of a project giving less weight to benefits the further in the future they are to be received. Net Present Value is used as a criteria to select or reject individual projects, as well as to rank alternatives, as it allows sums received and paid out, at different times, to be measured on a comparable basis.

The question remains as to what rate should be used for discounting in this and other selection techniques. Private firms will often use market interest rates, or institutional lending and borrowing rates, to discount their future net profit streams. For public sector projects it is argued, however, that the discount rate used should reflect the social opportunity cost of funds and resources invested in the project. Pigou (1932) stated that individuals tend to be short-sighted, and hence give less weight to interests of the future (which he coined "defective telescopic faculty"). It is argued, therefore, that to ensure intergenerational equity, a lower than market discount rate should be used to responsibly account for future interests, and allow the passing of a larger stock of investment to future generations. This may be particularly important in considering our current natural resources. However, counter arguments also suggest that future generations will in fact have greater capital stock available to them, and so a lower discount rate may in fact reduce welfare as it creates a bias away from present preferences, and also in favour of public and capital intensive projects (Barrett, 1982).

A suggestion from Eckstein(1958), is to assume that a tax cut represents an alternative to public investment. Therefore by asking different income groups how they would hypothetically use these receipts, and obtaining a weighted average rate of return a socially just discount rate can be calculated. In practice, however, rates often are just based on those prevailing at the time for similar private investment, and often laid out in government guidelines for CBA - for example, in the US the budget office sets a guideline for all CBA to be based on Net Present Value with a real discount rate of 7% (the current average pre-tax rate of return on average private investment) (Nas, 1996).

Finally, risk and uncertainty must be allowed for in forecasting future costs and benefits. A risk premium could be attached to the discount rate to allow for remote benefits to be discounted more than near and more certain ones, or alternatively the time horizon of the project could be limited to reduce risks of changes in supply and demand conditions. Crude adjustments and educated guesses are often used, although, more sophisticated techniques are also available. Sensitivity analysis calculates Net Present Values based on differing sets of likely, pessimistic and optimistic assumptions, allowing the analyst to see how forecasts can change when key factors such as the discount rate or shadow prices are altered. Based on this, they can decide whether the risk implied in the most pessimistic outcome is small enough to justify undertaking the project. However, wide divergences in these three forecasts often make meaningful comparisons difficult. Alternatively, "gaming theory" allows the setting up of decision rules based on the decision makers outlook. A cautious analyst will select projects with the maximum, minimum Net Present Value (the maximin criteria), whereas the Optimist will go for projects with the highest Net Present Value's (the minimax

criteria) (Johansson, 1992). Again relying on a decision maker's temperament is a highly subjective way to account for uncertainties.

What constraints?

Once projects are valued, the final step in appraisal involves considering the constraints on decision making. All decisions will be constrained to some extent by external/physical, legal, and administrative factors. The funds constraints for a private firm will be set out and determined by their finance departments, however, public sector investment decisions are often within constraints of national budgeting.

The suggestion in the introduction that choices can be made between projects using purely economic criteria, as gainers may compensate losers, is rarely applied in practice, and hence, more recent literature on CBA has increasingly considered distribution issues, and how they may be dealt with. Traditional economics is based on assumptions that welfare will increase with any net increase in consumption (measured by willingness to pay), irrespective of the income levels of those who benefit or pay for it. Brent (1996) describes the need for 'social CBA' to undertake social, rather than merely economic evaluations, to include distribution as well as efficiency effects in public sector decisions. Little (1957) suggested reformulation of the Hicks-Kaldor criterion to accept a project only if it has a positive Net Present Value and does not cause any deterioration in income distribution.

As government projects will often have more diverse objectives than purely commercial ones, including in some cases the redistribution of income to target groups or regions, techniques have developed such as attaching weights to the costs and benefits of a project, depending on the income level of the donor or recipient (Perkins, 1994). Deciding on appropriate weights, however, brings yet another stream of complexities into the decision making process. Barker and Buttons (1974) suggest that an inverse scale of progressive tax could be used, as this might provide some indication of the weight society places on income redistribution. However, if the tax system does accurately reflect these views, there would be no need to account for distribution, as the system would automatically adjust to an optimum outcome (suggesting in fact that they don't, and so have little value as weights.)

They also suggest alternative methods to account for distribution such as using a common average value for time savings regardless of income levels, which would favour lower income groups, who may be less willing to pay for time saved or value it less. This involves a questionable assumption that willingness to pay relates directly to utility.

The United Nations (1972) makes the important point that CBA provides a rational framework for project choice, but that decisions must be ultimately made within national parameters, involving the goals, objectives, and value judgements chosen and set out by governments. They suggest that weightings such as these are beyond the realm of the analyst, and should be treated as unknowns in analysis, and presented to relevant political leaders forcing them to reveal their value judgements. In doing this, 'political decisions' are put in the hands of those who are politically responsible and accountable to their electorate, and project analysis cannot 'pretend' to be an apolitical, technical exercise.

Conclusion

Finally, to establish the differences in the aspirations of CBA, and what it can practically do, it is useful to review its limitations and advantages. The discussion reviewed some of the limitations of CBA, looking at issues such as the accuracy of benefit and cost estimates, and the effects of the choice of measurement of, for example, intangibles, on outcomes. It also discussed problems in choosing appropriate discount rates, with the essentially Pigovian assumption that these would diverge from private rates due to far sighted governments, along with selection of appropriate time horizons and dealing with risk and uncertainty. Frost (1971) also points out that when the outcomes of CBA are in dispute with expert opinion, it may be unwise to assume the expert is wrong, as many factors in CBA are open to omission, wrong inclusion or wrong interpretation, and hence cannot replace intuitive dynamic analysis. There is also the consideration of the costs of CBA itself in investigations, computations etc., which may involve considerable time money (although this may be often a lot less than the potential losses from uneconomical decisions).

Williams states that: "...cost-benefit analysis one of the techniques most prone to misunderstanding and misapplication in the hands of the uninitiated - not to mention the unscrupulous..." (Williams, 1973:31). Whilst government appraisals using CBA must make value judgements for 'the common good', with the assumption that they know what this is, failure to make these judgements would prevent the achievement of any solution at all.

CBA as a decision making tool is systematic (in principle involving a comprehensive search for all costs and benefits), quantitative (expressing these in common monetary units for comparative analysis), takes a 'long' view - looking at repercussions in the far as well as near future, and is based on comprehensive theory with clearly stated assumptions. CBA cannot aspire to be objective in principle or practice, as value judgements are inevitable, and should be made explicit and themselves subject to consistent analysis.

CBA does not aspire to make choices or justify them. Its aspirations and objectives are to provide assistance in choice, and when used in this manner it provides an invaluable tool in decision making.

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Is Game Theory redundant?

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Erasmus

Why do people bother studying game theory? Are they merely misinformed about its relevance or are they anticipating the natural scepticism of mainstream economists when faced with a new theory? Stephen Nepal argues that they might be acting rationally after all....

> "Game theory is largely redundant. For the most part it formalises over-simplistic and unrealistic economic problems and even, where the problems may be interesting and relevant, the results are either inconclusive or so intuitive that they could have been known in advance."

Introduction

Game theory is the theory of rational, strategic interaction. The notion that it is redundant could already be rejected on a very abstract level: no theory is redundant as it always has either the potential of explanatory progress or it indicates that no progress can be made in a specific direction of research (if it is already falsified). The above statement, however, deserves consideration in more concrete terms as it reflects a common prejudice against theorising in general and game theory in particular. Therefore the two allegations that are expressed in the quotation will be examined and factual deficiencies of game theory contrasted with its merits.

Are game theoretic problems over-simplistic and unrealistic?

As with most theories game theory helps us describe, investigate, explain, predict and prescribe. Abstraction and simplification - as they allow us to focus on a specific area of reality - are essential for this achievement. A 'realistic' map of Dublin would be a copy of it and could neither help describe Dublin, nor could one better find one's way with its help.

The notion that the problems game theory deals with, or the reduced-form models, which are typically analysed, are over-simplistic, merely is an opinion. But that it simplifies and abstracts from reality is, in contrast, a fact. Game theory forces real world interaction into a mould which is determined by the present state of the theory. If one takes into account the relatively short history of game theory - the link between its mathematical core and economic theory was only established in 1944 by Oskar Morgenstern and John von Neumann - one has to acknowledge that this mould is already quite flexible. Von Neumann and Morgenstern achieved a major breakthrough with their discussion of two-person zero-sum

games, but today's game theory deals with much broader classes of games which include many more realistic ones. The example of auctions of broadcasting rights with very different success in New Zealand and the USA clearly demonstrates that game theory can be of practical use, and can promote economic efficiency[1].

Still, many crucial assumptions on which game theory is built are not realistic. The restriction to rational economic agents is especially simplistic. Though we may be subjected to a sort of economic evolution that will, perhaps, one day turn Earth into an entirely rational planet most individuals very often do not behave rationally in the sense of game theory, or only when big sums of money are at stake[2]. Their behaviour is influenced by past experience in other 'games' with other 'players', by social conventions, by limited and individually different intellectual abilities. People do not decide according to a well-defined, well-behaved von Neumann-Morgenstern payoff or utility function most of the time. The whole definition of rationality applied by game theory is simplistic and arbitrary. 'Rationality' is philosophically disputed, not necessarily being the maximisation of expected utility subject to certain constraints - it could be Kant's categorical imperative instead.

Neither are there many single-shot games in reality (because of experience, reputation, etc.), nor can stable rules of games be taken for granted. Often enough rules are the dynamic outcome of an earlier stage of the 'game' or even another 'game'. But, even if the situation of real prisoners is nowhere as simple as in the Prisoners Dilemma - they may be friends, want to be a hero, are tired ...- one can still learn a lot from it. Simple examples are usually more instructive than complicated ones. For example, the Prisoners Dilemma or the Problem of the Commons are most illustrative of the effect of externalities. They show that inefficient outcomes can arise through rational behaviour - but also that the evolution of co-operation amongst rational agents is possible in repeated versions of the games[3]. They provide a serious argument for state intervention as a co-ordinator of economic activity and demonstrate how a probable future and its relative importance influence people's behaviour. Credibility and reputation are addressed by concepts like sub-game perfection (time-consistency), which produce new insights into the role of monetary policy. Phenomena of real time

[1] see for example: McMillan (1994)

[2] Consider the following simple ultimatum game: You are offered £100 to share with the author of this essay. You offer me a certain part of the money. If I reject your offer, none of us will get anything. How much would you offer me to get my consent? If I were to move first and offered you a share of £1 only, would you accept? Would you accept, when £100,000 were at stake and I offered you £1,000?

[3] Axelrod (1984)

are successfully investigated when the impacts of first-mover advantage, patience and outside options on the outcome of a bargaining process are made distinguishable. Simple, non-realistic examples which still capture the characteristic feature of a more complicated problem can be very helpful to understand the complex reality.

Even the fact that certain predictions of game theory have been empirically falsified is instructive, and extends knowledge. As game theory is more liable to empirical refutation than the competing neo-classical orthodoxy, game theory can be considered more of a science than the orthodoxy, and many even more religion-like fields, in economic theory. Contrasting game theory with neo-classical microeconomics also shows that game theory is, in fact, a move towards more realistic, less simplistic economic theory. It takes into account the agents' knowledge, what they think about other agents' knowledge and how they expect them to use it. Thus, it is not restricted to the problems of monopoly and perfect competition - which are, in fact, rarer in reality than the problems game theory deals with.

Game theory formalises, and it also simplifies and abstracts from reality. But we can not call the problems and the theory dealing with them over-simplistic and too unrealistic to be of use.

Is Game Theory inconclusive, its results basically intuitive?

The second common allegation, as expressed in the above quote, is more specific to game theory than the first one which could have been directed at most strands of economic theory. In fact, game theory does not provide a universally valid criterion of choice in the case of *multiple equilibria* (e.g. in simultaneous-offer bargaining or Battle of the Sexes[4]) and very often only predicts a mixed-strategy equilibrium (e.g. in the Welfare Game) which can be considered equally inconclusive. The whole notion of equilibrium can be regarded as arbitrary, like the several refinements that serve to rationalise almost any Nash equilibrium outcome or even non-equilibrium outcomes.

But one must not neglect that the replacement of the concept of rational outcome from the individual's point of view with that of strategic equilibrium by John Nash in 1950 has opened game theory to a much broader class of problems. The Nash theorem, demonstrating the existence of at least one such equilibrium in the most relevant classes of games, is a very conclusive result. Equilibrium refinements like weak dominance, subgame perfection[5] or that of trembling-hand

4 for normal or extensive form presentations of mentioned games see for example: Rasmussen (1994)

5 Selten (1965)

perfection[6] have strengthened the power of game theory as an analytical tool. They allow us to formalise intuitive behaviour like backward-induction to identify non-credible threats, spontaneous and counter-theoretical actions, decisions based on independent events outside the game (concept of correlated equilibrium) and players' reaction to incomplete information (concept of Bayesian equilibrium[7]). If intuition is formalised it can be taken further and applied in new contexts and to more complicated problems. Thus game theory frequently overtakes intuition - who could solve the Rubinstein sequential-bargaining game in an optimal way merely by intuition? The different approaches to bargaining made by Nash[8] and Rubinstein[9] may highlight "known facts", e.g. that more patience, a better outside option or favourable *status quo*, high bargaining skills and risk-neutrality lead to a bigger share of the surplus from trade. But these results give useful insight and conclusive predictions. The incorporation of private information can even produce a rational explanation of strike and conflict occurrence. Very conclusive results and recommendations are also provided by the game-theoretic analysis of auctions[10].

Even when the predictions of basic intuition and refined game theory coincide this does not make game theory redundant. It provides a mutual test of the explanatory power of game theory and the economic reliability of intuition. Certain results may be intuitive to common people, but not to economists, and *vice versa* - and game theory can provide a link between them. Still, predictions of game theory can very often appear to be inconclusive, for example in games of co-ordination, where focal points are a somewhat arbitrary solution to the problem of *multiple equilibrium*, or when the existence of an optimal strategy in chess is proved but this strategy cannot actually be formulated. But this mainly reflects the nature of these problems, not serious flaws in the theory. Game theory can only be used to solve certain, suitable problems. Just like one cannot go fishing with Petri nets, one should not expect game theory to solve poker.

As game theory produces conclusive and better-than-intuitive results in many cases, the problems described are not sufficient to call the theory redundant or largely redundant.

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6 Selten (1975)
7 Harsanyi (1967-8)
8 Nash (1950b)
9 Rubinstein (1982)
10 see for example: Milgrom (1989)

Merits of Game Theory

As a theory which is claimed to be useful should provide more than merely a tolerable amount of deficiencies, it is convenient to remind oneself that game theory does so. Game theory is of use, and therefore not redundant, because

- it offers a new language (hence a new perspective) and powerful tools,
- its mathematical structure invites logical testing and establishes explicit links between assumptions and predictions,
- it predicts where economic behaviour tends to,
- it improves the strategic behaviour and also the intuition of its students[11],
- it illustrates the role of information and externalities in economic activity and helps to design mechanisms that deal with the associated real-life problems effectively,
- it provides an alternative to the neo-classical school of microeconomics and the neo-Walrasian approach,
- it invites fruitful exchange between economists, psychologists and sociologists,
- it is constantly evolving - opening itself to broader, more realistic, less simplistic problems - and providing more refined results.

Conclusion

The quoted statement is correctly pointing at problems and limitations of game theory. Its conclusion to call game theory redundant is based on ignorance of the merits of this relatively new analytic tool. Having both merits and defects in mind, I personally consider game theory useful and in no way redundant, in addition to the general remark made in the Introduction. Game theory is subject to ceaseless progress. Focusing, for example, on trial-and-error learning processes of agents with bounded rationality can make it still a lot more realistic and less simplistic - though results might then become less straightforward and determined. Game theory should also produce a clearer idea of what it can do and cannot do at the present state. This would probably help to avoid hectic judgements like the one that was dealt with in this essay.

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Macroeconomic Stabilisation in Central and Eastern Europe with Special Reference to Poland

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The collapse of the Soviet bloc has radically transformed the social and economic landscape of Eastern and Central Europe. Geoffrey Gill assesses both the theory behind, and the success of, the reforms implemented using Poland as a benchmark against which the general experience can be measured.

"In 1989 we had but one asset. That was the enthusiasm born of the newly-won freedom. And we invested that asset in economic reform." [1]

Central and Eastern Europe in the period 1989-90 was an unstable ship, in a sea of political turmoil. Its stabilisation required radical economic reform of an unprecedented scale of which economists had little prior experience of. What was needed was more than a mere rebalancing of the economy using standard policy instruments. Indeed, the policy instruments *themselves* had to be created. 'Stabilisation' must be seen as a simultaneous approach in restructuring and rebalancing the economy involving price and foreign trade liberalisation, and fiscal, monetary, exchange rate and incomes policies. Concurrent with this were the microeconomic changes involving property rights reform, privatisation and restructuring .

This paper will analyse macroeconomic stabilisation in the region since 1989 generally, and will consider the case of Poland with respect to each of the issues involved. The Polish economy is interesting in that its 'big bang' strategy of reform, with severe stabilisation methods employed, resulted in worryingly sharp effects with a severe output contraction, yet recently it has emerged with encouragingly strong growth rates. Firstly we shall briefly consider the initial conditions at the time of reform and question why there was a need for stabilisation measures. Then macroeconomic stabilisation will be considered generally, including a discussion of price and foreign trade liberalisation. We shall subsequently examine two potentially conflicting 'models' to gain insights on the reforming economies. Poland's transition program mix will then be forwarded . We shall then move to consider the various policy options available, followed by the effects in Poland, particularly in terms of output and inflation. Of course, as alluded to earlier, microeconomic issues cannot be ignored, and it will be seen throughout that

[1] Bronislaw Geremek of Democratic Union, *Moscow News* 15-21 April 1994, p4 quoted in Jeffries (1996)

there is a severe limit to what can be achieved by macro policies alone.[2] Finally potential future issues will be addressed. This paper will adopt a general to specific methodology using Poland as a clarification mechanism.

The Initial Conditions

The countries of the CEE[3] varied significantly in their pre-reform economic conditions (see Table l). Czechoslovakia seemed to enjoy the most favourable internal and external macroeconomic balance with the highest GNP per capita, a low debt to GDP level and only a slight monetary overhang - developed later. We denote Money (M2) /GDP as a proxy for monetary overhang - this was 0.7 in Czechoslovakia - where Bruno (1992) considers 0.4 to be the 'norm'. Poland was possibly in one of the worst states with a large external debt overhang, practically no growth shown in the l980s, the lowest GNP per capita level and a significant monetary overhang of 0.9. Indeed, it seemed that Poland experienced rapidly deteriorating macro conditions at the end of l989 involving extreme disequilibria. Initial inflation ran at 259%. Although Poland always had a private agricultural sector, it did not undertake the gradual reform process that Hungary had undergone since the l960s, which left Hungary better prepared on the institutional economic front.

Table 1: Post-Reform Economic Conditions

	Hungary	Poland	Czechoslovakia	Bulgaria	Romania
GNP per capita	2,5 90	1,790	3,450	2,320	2,2 90
GNP Growth*: 1970s	4.5%	5.5%	4.6%	7.0%	9.3%
1980s	0.5%	0.7%	1.4%	2.0%	1.8%
Money (M2)/GDP (1990)	0.4	0.9	0.7	1.3	0.6
External Debt / GDP (1990)	65%	80%	19%	50%	3%

* *Average annual rate at constant prices. Adapted from Bruno, 1992*

Clearly from the above, stabilisation seems to be a necessity, particularly in Poland. Blanchard et al (1993) cite three reasons why stabilisation and price liberalisation are preconditions for a successful reform process[4]:

[2] Bruno, 1992

[3] Central and Eastern Europe: Hungary, Poland, Czechoslovakia, Bulgaria and Romania

[4] Blanchard et al ,1993, Ch. 1

1. Political : the government had to send a clear signal that it was going to balance the budget, and that it was no longer committed to extending unlimited credit to loss making firms.
2. Macroeconomic : lacking stabilisation, inflation would turn to hyperinflation with its attendant large dislocations.
3. Microeconomic : for restructuring to proceed in the right direction, prices had to be right, and firms could not avoid market discipline.

Given the necessity of imposing macro stabilisation measures in order to establish government credibility, to fight endemic inflation and as part of the reform process as a whole, it is appropriate now to consider macro stabilisation generally.

The Stabilisation Process

When communism fell in 1989, the issue in most countries was not whether to go to a market economy but rather how to get there. The debate over this question was very compressed in time - the time constraint was biting - and earlier debate (pre-1989) had concentrated on hypothetical long-term issues rather than short-term and pragmatic issues.[5] Bofinger (1994) stresses that there were no macroeconomic models that were tailored to the specific situation in transitional economies. Some have drawn comparisons with similar situations in history such as the Austro-Hungarian Empire collapse (Dornbusch, 1993) and Latin American stabilisation (Gros and Steinherr, 1995). Indeed, Balcerowicz - the architect of Polish economic reforms - commented that he believed that they should rely on 'proven models'. From this we may imply a standard IMF approach adapted to the Polish situation. The key question essentially was whether to choose a big bang or a gradualist approach in the move from pre-reform distorted equilibrium to the desired post-reform quasi-equilibrium[6]. According to Bruno "cumulative experience from episodes of hyperinflation and high inflation....only point to the clear advantage of taking the cold turkey approach at the inflation stabilisation stage." Given Poland's rapidly deteriorating macro conditions and initial disequilibria, to choose a gradualist approach for stabilisation and liberalisation would be doomed to failure. Balcerowicz describes the choice as between "an almost hopeless strategy and a risky strategy".[7] The former implied delaying stabilisation to concentrate on transformation and privatisation as Russia did (and subsequently is suffering for). Thus a big bang approach was adopted in Poland and Yugoslavia in 1990 and they were followed by Czechoslovakia, Bulgaria and Romania in 1991. Reforms needed to be radical enough and pass a certain threshold of necessary changes in order

[5] Gros and Steinherr, 1995, Ch.5

[6] Bruno, 1992

[7] Blejer and Coricelli, 1995

to be successful (and credible) i.e. they needed to achieve a certain 'critical mass' of change[8]

Concurrent and tied with the macro stabilisation policies was the need for the imposition of a rational price structure. This involved price liberalisation and foreign trade liberalisation. We will consider these in turn.

(i) Price Liberalisation

The liberalisation of prices is the foundation of all reforms. The necessary scarcity signals needed for an efficient economy can only be determined by market-determined prices. 90% of Poland's previously administered prices were liberalised with some foodstuffs, energy and housing exempted. Administered prices were set below the market clearing level in command economies, they were thus supply constrained and had excess demand (manifested in queues). Liberalising prices thus led in general to a price jump. After liberalisation in January 1990 Poland experienced a 130% initial price jump, and inflation in 1990 was 585%[9], which greatly exceeded original estimates. This initial impact on the general price level can be attributed to:

a) Monetary Overhang

This manifests itself on a macro level as a mismatch between wages and the amount of goods available at the state-controlled price level. That is, the sum of wages in the economy is greater than the available supply of goods at the price level.[10] Thus, the accounting real wage was excessive. 'Forced saving' is occurring,[11] in a sense. Prices will rise to eliminate the excess. It seems to have built up slowly over time, accelerating as perestroika proceeded in the USSR. Estimation of the effect of this is done using a Fisher equation (MV=PQ) approach.

b) Elimination of Subsidies

There is a need to accompany price de-control by an elimination of producer subsidies and consumption taxes.

c) Initial Exchange Rate Devaluation[12]

With trade liberalisation, in order to keep Purchasing Power Parity, due to the devaluation the domestic price level must rise

[8] Balcerowicz, quoted in Blejer and Coricelli, 1995

[9] Gros and Steinherr, 1995, Ch.11; Winiecki, 1993; Jeffries, 1996; (Bruno, 1992 describes it as at 249%)

[10] Gros and Steinherr, 1995, Ch. 5

[11] Although, at a micro level this may seem nonsensical due to the existence of a black market for many products

[12] Bruno, 1992

d) Monopolistic behaviour by State Owned Enterprises (SOEs)[13]
This is an attempt to capture increased profits by raising their mark-ups over costs

Price liberalisation *per se* should not be a cause for continuing inflation (which was seen). Indeed, Bruno points out that if the initial price shock is restricted to an existing monetary overhang, it would follow that a higher initial price jump would *save* the system from additional inflationary adjustments later on. Thus, there would be a positive trade-off between the initial shock and subsequent price stability. We shall explore the possible explanations for continuing inflation later on.

(ii) Foreign Trade Liberalisation

To liberalise prices without liberalising trade does not make sense in that it is a necessary condition to create a 'rational' price structure. Once trade liberalisation reveals the real pattern of comparative advantages, export expansion is expected to follow. Winiecki (1995) points out that theory predicts an import surge preceding export expansion due to the fact that it takes time to find export markets, unlike sending orders for (imported) goods that were previously not permitted. In fact, the reverse was the case in the CEE. This is even though the IMF provided funds for stabilisation to help withstand pressure on exchange reserves. In fact, export surges started quickly after transition. This can be explained by two factors: Firstly, according to Winiecki, hoarding of inputs was common in Soviet Type Economies, of which a substantial part are imports. Thus, after transition demand for imports fell. This heightens the relative effect of export increases. Secondly, the devaluation in Poland of the zloty would boost exports and decrease imports. Thus it is probable that when the effects on competitiveness were felt due to price rises, imports 'bounced back' (see Table 2).

Table 2

	Exports (as % of year before)	Imports (as % of year before)
1st half of 1990	119.7%	54.1%
(Whole) 1990	140%	106.35
1st 3 quarters of 1991	117.9%	196.5%

Source: Winiecki, 1993

Gros and Steinherr[14] outline the practical steps for trade liberalisation:

[13] Berg and Blanchard, 1994

- abolish the state monopoly on foreign trade
- unify the exchange rate so all exporters and importers transact at the same rate
- eliminate all quantitative restrictions
- moving to unrestricted foreign exchange convertibility for current account transactions

For trade liberalisation, unlike perhaps price liberalisation, one can make a good case for gradualism i.e. eliminate all quantitative restrictions but retain some tariffs. Although this is a second best solution it can be an important source of revenues and can provide a temporary source of protection for inefficient SOEs - thus preventing them from failing at the same time[15]. Of course credibility issues arise here, as it may lend itself to discretionary reversals by government. Bruno pinpoints its advantage in "the attenuation of the immediate output and employment costs, while the right price signals for long-term investment are nonetheless retained."[16]

The most common approach, and that used by Poland, to stabilisation was a multiple anchors or *heterodox* approach in relation to pegging the exchange rate and adopting wage controls or incomes policies. In this, inflationary expectations as well as actual inflation are addressed.[17] It is perhaps appropriate to point out here that stabilisation does not mean zero inflation must be achieved at any cost.[18]

Before considering Poland's specific program and later discussing the available policies to stabilise the macroeconomy, it is worthwhile to try and develop briefly an appropriate macro-model for a typical CEE country in its post reform stage.

A Model?

The difficulty of postulating a model for a transitional economy *ex ante* cannot be overestimated - inherent uncertainties of outcomes undermine any attempts to do this. For this reason most countries, including Poland adopted an 'IMF-type' stabilisation strategy, augmented to the particular needs of the economies. It is thus that we attempt to find a model that will predict the outcome that did occur, such as the major output contraction across all countries, a decline in real wages (in Poland of 40%) and a large decrease of employment.

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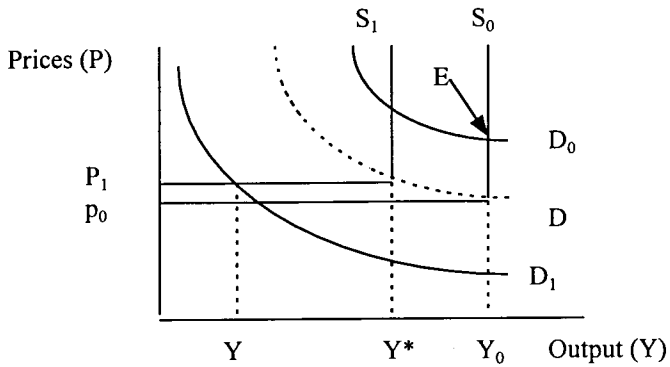
[14] Gros and Steinherr, 1995, Ch.6
[15] ibid.
[16] Bruno, 1992
[17] Winiecki, 1993
[18] Dornbusch, 1993, Ch.1

Gomulka (1992) argues the standard hypothesis - that during transition the economy switches from a supply-constrained to a demand-constrained regime. He contrasts the Structuralist view versus the Keynesian-type view of the cause of the recession. The former is allied to the Schumpeterian view of 'creative destruction', sharply rising input and output prices determining new relative prices but a slow microeconomic adjustment, implying an output loss. This, allied with the collapse of trade with the CMEA[19], would explain the output fall. Pure Keynesians, conversely, might argue that the full employment output essentially remained unchanged but a major decrease in aggregate demand occurred. These are not mutually exclusive, though, but Gomulka argues that policy makers tended towards structuralist reasons, but accepted that government policies, given the monopolistic market structure, would have a major impact on aggregate demand. A simple diagram shows this.

(Fig. 1):



E: initial pre-reform short-term equilibrium. It is on the vertical part of S_0 showing presence of excess demand and inflation.

- Removal of subsidies and price liberalisation, thus S_0 goes to S_1. This is as potential output falls from Y_0 to Y* (supply shock).
- Ideally the demand shock would have shifted to D, but suppose that it fell further to D_1. Thus ($Y^* - Y_1$) is the output fall due to excessive fall of aggregate demand.

Y* is not known, though, and only the aggregate outcome is observed.

[19] Council of Mutual Economic Assistance

Bofinger (1994) argues that under the 'classical' conditions prevailing in all transitional economies, only a supply-side explanation is adequate. He finds difficulty, though, in finding a theoretical foundation for this, although Calvo and Coricelli [20] provide some (if faulted) hope in their 'credit crunch' hypothesis. He concludes that the direct effect of monetary policy is theoretically and empirically difficult to establish. Showing macroeconomic data for Czechoslovakia, Poland and Hungary, and the similarity in their output performances despite undergoing radically different stabilisation and reform processes, he argues that only a 'classical' interpretation can be suggested, i.e. one that is inconsistent with the demand-side view.

Bofinger shows the command economy to be characterised by an aggregate supply *point* not an AS curve as output and prices were exogenous (and the labour market did not clear). A dual equilibrium was present: excess employment caused a real disequilibrium pushing production levels higher than profitable; part of this was financed by issuing money, resulting in a nominal disequilibrium. The IS curve was vertical and with rigid interest rates the LM curve was horizontal. In the transitional economy employment is now determined in the labour market (which clears) with lower employment and thus a reduction in total output. With flexible prices the AS point becomes a vertical AS curve. Although simplistic, this model can explain 'stylised facts' of the transition process, notably:

- roughly similar output falls for all three countries as disequilibria had been similar in all three
- reduction in employment and real wages
- differences in macroeconomic policies are irrelevant due to a vertical AS curve

If we introduce a 'Keynesian' element of friction in the labour market, perhaps due to governments preventing real wage falls more than is politically acceptable, we can model the gradual reduction in excess employment and why the output decline lasted from early 1990 to the end of 1992.

The Polish Reforms

Leszek Balcerowicz, Minister of Finance of Poland 1989-91, led the Polish policy-making team in the introduction of the stabilisation plan. The main points of this consisted of:[21]

- Fiscal consolidation - sharp cutback in the budgetary deficit
- Price liberalisation and substantial decrease in subsidies

[20] Calvo and Coricelli, 1992

[21] Berg and Blanchard, 1994; Gomulka, 1992

- Convertibility of the domestic currency (zloty) and expansion of international measures to protect internal convertibility, which must assume priority over price stability in the initial period
- Stabilisation of liberalised prices based on standard IMF approach - important role for nominal anchors assigned to tough incomes policy and fixed exchange rate as well as restrictive monetary policy
- Quick opening of the economy
- Structural reforms to create competitive markets, and decrease barriers to entry

The reforms were far-reaching, which the political climate at the time favoured, and it was seen as a race against time to create a new economic structure or else social support of the reforms would fade out[22]. Macroeconomic restraint was closely tied with the need for credibility especially in respect to disciplining agents accustomed to 'soft' budget constraints i.e. firms whose costs consistently exceed revenues, financed through bank credit and subsidies which ultimately leads to a budget deficit and thus inflationary pressure. External credibility was heightened in 1991 with The Paris Club reducing the Polish external debt of $33 billion by 30% with reduction of the debt by a further 20% after three more years, conditional on the successful implementation of reforms.[23]

It is now appropriate to discuss the four policy instruments available to transforming economies, notably fiscal policy, monetary policy, exchange rate policy and incomes policy. It is of interest to note that socialist economies felt that they had no need to use these instruments, thus once transition to a market economy occurred, such instruments had to be created and policy-makers had to learn how to use them.[24]

Policy Instruments

1. Fiscal Policy

Balancing the budget is vital to the success of stabilisation. Due to the fact that many governments had large external debts (apart from Czechoslovakia and Romania) it is not possible to finance a deficit through external borrowing. Capital markets have not yet been developed, so there is no market for selling government bonds. Thus the only way to finance the deficit is by obtaining credit from the Central Bank i.e. seigniorage or printing money. This of course produces inflation. Thus it is vital to keep the deficit as small as possible. For fiscal adjustment, one needs a productive tax structure and expenditure reforms. A substantial permanent reduction in

[22] Zielinski, 1993
[23] Gomulka, 1992
[24] Gros and Steinherr, 1995, Ch.7

government expenditure on subsidies was necessary and achieved, although political pressure for the retention of a social safety net was high, especially given the large percentage of pensioners.[25] Despite expectations to the contrary, Poland and Czechoslovakia ran a temporary budget surplus in the first few months after reform. This was due to a deep fall in real wages (cutting firms' costs) and the tendency for enterprises to keep large input inventories at the time of reform (bought at old prices). When prices rose, revenues increased, thus profits rose. The socialist economies relied heavily on the profit tax for revenues (15 - 20% of GDP typically), thus tax receipts were high. The profit tax element subsequently fell substantially once real wages rebounded and the temporary effects of low input costs for firms stopped, and profits were squeezed. Also, output fell generally thus reducing tax receipts. Thus a fiscal crisis emerged in Poland in 1991. Difficult expenditure cuts were needed, thus the 'residual' expenditure of investment in infrastructure suffered most (as political opposition is least), thus causing harmful long-term effects. In terms of inflation, Dornbusch argues that a tight monetary policy is not a substitute for a balanced budget.

2. Monetary Policy

Generally, restrictive monetary policy is needed to try and keep the growth rate of the money supply within reasonable limits and it must be in tandem with fiscal policy. The money supply *can* act as a nominal anchor for the economy, but severe difficulties arise with monetary policy due to the existence of soft budget constraints[26]. Borrowing inertia by SOEs is a serious problem, as they expect to be bailed out by the state if their finances are in crisis. Equally, lending inertia by banks with poor lending policies, and with creditworthiness and risk assessment abilities very poor, make the effect of monetary restraint perverse.[27] Indeed, restrictive monetary policy may lead to adverse selection, according to Winiecki, where the least efficient survive (usually the largest) who can borrow almost limitlessly, and the demise of more efficient (smaller) enterprises with reduced access to credit. There is a need to create an independent Central Bank as it is difficult to resist pressure from the government to monetize the deficit.

Calvo and Coricelli (1992) take the view that a 'credit crunch' occurred in Poland in the first quarter of 1990:

[25] Bruno, 1992
[26] Bofinger,1994
[27] Winiecki, 1993

> "Firms need liquidity in their daily operations....Insufficient liquidity/credit levels prevent firms from operating at full capacity and output is lost"[28]

Thus, firms are forced to move on their production function towards the origin. As a result the AS is shifted to the left. This correspond with Bofinger's Classical model with a supply constrained economy discussed earlier. This hypothesis is undermined by the common assertion that firms did not operate under a binding credit constraint and could counteract monetary austerity by increasing inter-enterprise credits[29]. We may conclude from this that in transitional economies monetary policy is much less powerful than in a market environment. Indeed, Bofinger goes on to assert that there is no convincing evidence for a significant real sector impact of monetary policy in the period 1990-1992 in Poland. Zielinski also comes to this conclusion in assessing whether restrictive monetary policy throttled internal demand. Additional money injections should revitalise domestic demand but tests do not show this. Gertler, though, in a comment on the Calvo and Coricelli paper, believes the 'credit crunch' hypothesis is complementary to the adverse demand shock story advanced by Berg and Blanchard and also Gomulka. He asserts that credit market friction's help propagate demand shocks in making both firms and household spending sensitive to current cash flows.

3. Exchange Rate Policy

Bruno states that given the instability of money demand, preference should be given to the exchange rate as a nominal anchor. Initial pegging of the Polish zloty to the dollar was helped by the devaluation of the dollar against all major OECD currencies during 1990.[30] The zloty was devalued by 65% to promote exports and limit imports. The Polish nominal exchange rate remained constant for 17 months from January 1990 till May 1991. If inflation persists there is pressure for the nominal exchange rate (e) to fall to retain purchasing power parity.

Thus, with domestic inflation, in order to retain competitiveness 'e' must fall. As a result of this it is necessary eventually to shift to a crawling peg tied to a weighted basket of currencies. Dornbusch points out that overvaluation is a grave risk, as although it may help to cool inflation, it invariably leads to a real and financial crisis[31]. This 'second stage' was adopted in Poland in May 1991. The decision to abandon the fixed rate is difficult, Dornbusch argues,

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[28] Calvo and Coricelli, 1992
[29] Bofinger, 1994
[30] Gomulka, 1992
[31] Dornbusch, 1993, Ch.9

because it signals the government's acceptance of inflation as something inevitable.

4. Incomes Policy

Incomes policy has been in effect since Dec. 1989 in which each firm is subject to a wage norm which initially was roughly equal to the prestabilisation wage. This has increased over time, though, due to partial indexation to inflation and the fact that the norm has been in relation to the wage bill, thus when employment decreases further proportional increases in the wage itself are allowed.[32] Incomes policy is not an absolute constraint on firms; rather, excess of wages above the norm are taxed at very high rates. This tax applies to the excess of the wage bill for the whole year above the norm, therefore if the firm pays a lower than the norm early in the year, it can pay a wage above the norm later in the year.[33] According to Berg and Blanchard, by the end of 1990, roughly two thirds of the firms in industry were willing to pay the excess wage in order to transfer some of the profits to workers. This shows clearly the power of workers' councils even after reforms.

The main justification for maintaining a wage ceiling, even though wage controls are clearly distortive, is as a support for the exchange rate anchor in combating inflation.[34] Wage-push inflation *is* a serious problem - especially in SOEs where managers do not have an incentive to keep wage increases below increases in productivity as they do not have to observe a hard budget constraint. It is clear then that alongside incomes policies is a need to harden the budget constraint and increase competition. Gomulka (1993) cites that the basic problem with the Polish stabilisation effort was that the two nominal anchors, money and incomes, were too flexible during the second half of 1990 and most of 1991 to serve as proper nominal anchors. With the exception of the first four months of the year, the effective price indexation of wage norms was nearly 100%.[35] For political reasons it was not possible introduce an incomes policy with little or no price indexation of wage norms. Bruno offers an alternative to distortive wage controls to be a social compact on incomes policy between the major sectors (government, employers and workers' unions) - of the kind used in Scandinavia. Clearly the above four policy instruments were key to the macroeconomic stabilisation efforts, yet the effects, especially initially were not altogether inspiring, thus stabilisation may

[32] Berg and Blanchard, 1994
[33] ibid.
[34] Bruno, 1992
[35] Gomulka, 1993

not be categorised as a complete success. The severe and long-lasting output decline and the continued persistence of inflation are testament to this.

Effects in Poland

1. The output decline

Contractions in output were severe across the CEE Table 3 shows this, with the largest fall occurring in Czechoslovakia in 1991 - the first year of its stabilisation program.

The main reasons proposed for the decline can be summarised as:

- Mismeasurement - figures only include enterprises of 100+ employees; fledgling private sector omitted[36]
- Anticipation of a sharp price increase stimulates hoarding which is immediately followed by a sharp decrease in demand[37]
- 'J-Curve hypothesis' - severe deterioration of economic performance due to restructuring and public-sector cuts, followed by an equally rapid and sustained improvement.[38] Portes (1993) describes this as trivially correct, though.
- Real wage and real monetary squeeze - throttled internal demand[39]
- Credit squeeze reduced firms' output - Calvo and Coricelli
- Foreign trade shock - collapse of the CMEA

Table 3: Annual rate of change of real GDP in %

	1988	1989	1990	1991
Czechoslovakia	2.6	1.3	-0.4	-16.4
Hungary	-0.1	-0.2	-4.0	-(7-9)
Poland	4.1	0.2	-11.6	-8.0

Source: Winiecki, 1993

Microfoundations e.g. 'management shock' - transformed environment where they have to make their own decisions; adopt a wait-and-see approach

2. Inflation

The causes of the initial price shock in post-reform Eastern Europe were discussed earlier, including monetary overhang, elimination of subsidies, initial exchange rate devaluation etc.. These, though do *not* explain the persistence of inflation which occurred as shown in Table 4. Inflation erodes the information conveyed by prices. It erodes the real value of taxation if

[36] Winiecki, 1993
[37] Bruno, 1992
[38] Brada and King, 1993
[39] Bruno, 1992

there is any delay between accrual and payment of taxes.[40] Dornbusch discusses how when inflation accelerates, contracts shorten, which in itself causes inflation to accelerate as there is always some group of wage earners who are still lagging behind price increases. Incomes policies can help combat this inertia.

Berg and Blanchard argue that there is no single cause for persistence of inflation in Poland - that there is no stickiness of inflation, just many shocks along the way such as the catching up of wage at the end of 1990. We can distil some significant causes, though:

1) Fiscal deficit: can only be financed through printing money
2) Wage-price spiral: due to the indexation of wages, especially if pressure for wage increases are greater than productivity increases
3) Soft budget constraint for firms - firms avoiding imposition of rational price structure

The continuation of incomes policies, tight monetary policy and fiscal restraint should help to further whittle down inflation, as will, paradoxically, the reintroduction of indexation, according to Dornbusch. Although this is seen as responsible for inflation, it can in fact help reintroduce inertia and help establish expectations of low inflation.

Table 4: Inflation in Central and Eastern Europe (and Russia) since 1991
Retail/consumer prices (end-year) - percentage change

	1991	1992	1993	1994 (est.)	1995*	1996*
Czech Republic	52	13	18	10	8	7
Hungary	32	22	21	21	28	22
Poland	60	44	38	29	22	19
Romania	223	199	296	62	28	20
Russia	144	2318	841	203	131	45

**Projected*
Source: Hare, 1996, Table 2

Current and Future Issues: Stabilisation to Growth

Poland experienced positive GDP growth in 1992 and it was the first transitional economy to achieve this. Since then growth rates have been remarkable: 6% in 1994, 7% estimated in 1995 and 6% projected for 1996. It is expected to be the first transitional economy to reach the same level of real

[40] Dornbusch, 1993, Ch.1

GDP as it had in 1989 by 1996.[41] Unemployment, though, was 16% at the end of 1994 and inflation 29% (although expected to be below 20% in 1996 - see Table 4). Net direct foreign investment has risen from $88m in 1990 to well over $600m in 1996.[42]

Emerging unemployment, the elimination of shortages and the restoration of basic monetary equilibrium are all symptoms of transforming from a supply-constrained to a demand-constrained economy.[43] A shift in the macroeconomic balance according to Gomulka is still occurring, which should imply a shift in the macroeconomic targets from anti-inflation to anti-recession - opening the way for a transition from stabilisation to recovery and growth. Thus, policy balance should shift more emphasis onto institutional reforms especially in the banking sector and financial regulation as well as structural policies e.g. privatisation - which is slow and costly.[44]

To sustain growth, there is a need to achieve high rates of investment, and so far foreign investment has been modest, so high rates of domestic savings are vital. Hare goes on to estimate that to sustain a nominal growth rate of 4% it would require domestic investment at a rate of about 20% of GDP. Accession to the EU is very important and 10 Eastern European countries (except Albania) are classed as 'Associated States', and are all actively preparing for membership.[45] There has been an increase in the region's penetration of the EU market from 2-3% in pre-reform days to 7-8% of trade flows according to Hare.

Conclusion

The central issue in Central and Eastern Europe, and particularly in Poland, has shifted away from that of stabilisation to that of policies to increase/sustain growth. The persistence of inflation and the underlying processes generating it is a problem though, and requires stabilisation-type measures. Priorities are moving from the macroeconomic to the microeconomic, which are no less and possibly more important. There is a limit as to what macro policies can do unilaterally without underlying 'grass-root' changes. Stabilisation has though in general been achieved in Poland, in really a remarkably short space of time given the titanic political and economic changes that have occurred. Poland has been seen to be a leader in economic reform, and is currently leading the charge in the drive towards growth, prosperity and a stable market structure

[41] Hare, 1996
[42] Jeffries, 1996, Ch.24
[43] Gomulka, 1993
[44] ibid.
[45] Hare, 1996

and ultimately to the fortress of the European Union. Dornbusch recognises the interdependence between countries in the region - there are spillover effects in economic and political confidence- thus it is in the countries' interests to co-operate together. Then foreign investment will be generated which will ultimately lead to the export-oriented economy the Poles are looking for.

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Ireland and Monetary Union - For Better or for Worse?

Alexis Murphy
Senior Freshman

The Monetary Union debate is frequently conducted on the plane of politics and nationalism with the economic consequences of such a move reduced to playing second fiddle. Alexis Murphy sets out the purely economic arguments for and against Ireland's participation in the planned Monetary Union.

Introduction

The central focus of this essay is on European Monetary Union (EMU). Other important events which have paved the way towards a more integrated Europe include the abolition of exchange controls, the creation of the single market and the effects of various community funds, of which Ireland is one of the largest net recipients. However the move towards monetary union is by far the most radical move in European politics of this decade. This essay will discuss entry into EMU from an Irish perspective. I will begin with the theoretical argument as to why Ireland should join EMU. Then I will ask whether in this context Ireland is ready for EMU. Finally I will summarise the possible benefits and disadvantages of joining EMU for Ireland.

The working hypothesis of this essay is that Ireland will be accepted under the Maastricht convergence criteria to join the first wave of EMU. It is assumed that the UK will not participate in EMU, while France, Germany, and the Benelux countries will join. Although there are many other possible scenarios, to envisage these would involve political speculation, while the aim of this essay is to put forward the main economic arguments regarding Ireland's participation in EMU.

Optimal Currency Area Theory

A useful framework for analysing the conditions under which Ireland should join EMU is contained in Robert Mundell's pioneering paper "A Theory of Optimum Currency Areas"[1]. The crux of the argument is that countries should participate in an Optimum Currency Area (OCA) in a situation where the benefits outweigh the costs of joining in terms of sacrificing exchange rate autonomy and monetary policy. Furthermore the countries which join a currency area should on the whole have similar economic characteristics.

Mundell says "In a currency area comprising different countries with national currencies the pace of employment in deficit countries is set by the willingness of surplus countries to inflate. But in a currency area comprising many regions and a

[1] American Economic Review, September 1961.

single currency, the pace of inflation is set by the willingness of the central authorities to allow unemployment in deficit regions." Here, he outlines the problems associated with regions which suffer from asymmetric shocks in an OCA. In a situation where one country suffers an asymmetric shock, in the absence of exchange rate policy, three mechanisms should be in place to avoid the adverse effects of the shock:

1. Wage/price flexibility.
2. Internal factor mobility.
3. A Centralised budgetary policy.

If Ireland suffered a loss of competitiveness vis-à-vis Britain, in the absence of the exchange rate option, prices and wages would have to bear much of the burden of the loss. The ESRI[2] suggests that Irish nominal prices take three to four years to adjust to an exchange rate shock while wages take closer to four years. In the interim, Irish output and employment would fall.

When a region of an OCA is hit by an adverse shock, the people who become unemployed should be able to move to a region which is more prosperous. This is the case in America - in Europe, however, geographical mobility of labour is much weaker, due to cultural and linguistic barriers between the countries. Traditionally, the Irish labour force has been very mobile towards America, the UK, and other English speaking countries. Unfortunately, as Mundell pointed out, in an OCA, internal mobility must be encouraged, not external mobility. The argument being that migration out of the OCA would represent a loss in human capital: in Ireland this is most apparent with young university graduates. Occupational mobility is also crucial when a whole industry in the OCA suffers an adverse shock. It is important that the labour force be capable of retraining in order to shift from ailing sectors to thriving sectors of the economy.

Finally, a centralised fiscal system like the US federal budget is necessary for the success of a currency area. Such a system would ensure that a region which is under-performing would pay less taxes while receiving more from the central budget, albeit at the expense of more prosperous regions. This helps to reduce possible disequilibrium between the regions. So far, no provisions have been made for such a system.

Costs of a Single Currency

In the light of the Mundell framework, the problem still remains that our main trading partner, the UK, would not belong to the currency bloc. France, Germany and the Benelux countries only account for 26% of Ireland's trade. Most of our

[2] Honohan et al., 1996.

indigenous, high employment sectors still depend on Britain, both as an export market and an import market for manufacturing inputs. In the manufacturing sector, which employs over 200,000, foreign owned multinationals account for half of net output, whilst only employing 26,000 people. These multinationals mainly target EU and world markets. While it could be argued that participation in EMU will encourage Irish trade to diversify away from the UK, in the short term EMU participation without the UK could have devastating effects for indigenous Irish industry and employment.

If we consider a situation whereby sterling devalued against the Euro, in the absence of exchange rate policy, Irish exports would fall because of their relatively higher cost in the UK market. In addition, imports could increase because they would be relatively cheaper and thus substitute for many nationally produced goods. The decrease in exports and increase in imports would cause unemployment and, in the absence of the three above mechanisms, Irish output would suffer considerably.

In the case of a negative asymmetric shock to the Irish economy, prices and wages would have to fall relative to the rest of the EU, while real interest rates would increase relative to the rest of the EU. The higher interest rates would reduce investment and exacerbate Ireland's problems.

The NESC, in a recent report, stressed the need for an EU fund to compensate for such a loss of competitiveness. If this did not materialise, the Irish economy would suffer further from the fiscal restrictions of Maastricht, which effectively prevent the possibility of Keynesian demand-side management.

The situation in which sterling devalues with respect to the Euro is the most commonly used example of the possible shocks faced by Ireland. However, if sterling appreciated in terms of the Euro Ireland may also face problems. The increase in exports resulting from such an appreciation would increase output and employment. However, depending on whether the economy was working at full capacity, this could increase inflation and reduce real interest rates relative to Europe. It is questionable whether such an imbalance between Ireland and the other members of EMU would be favourable.

As Jim O'Leary puts it, "Membership of EMU without the UK will expose Ireland in an unprecedented way to the risks associated with sterling volatility"[3], both in terms of depreciation and appreciation of sterling relative to the Euro. These effects will carry through to competitiveness of trade and to the volatility of inflation.

[3] Dublin Economics Workshop, October 19th, 1996.

Ireland's dependence on the UK in terms of trade implies that the Irish economy does not have similar characteristics to the core European economies participating in EMU. In addition to this, the Irish business cycle tends not to move in tandem with the mainland European economies. In terms of growth from 1950 to 1970, the Irish economy consistently under-performed relative to mainland Europe. In the 1990's, Ireland has falling unemployment and high growth performance, while the opposite is the case for both France and Germany. Problems associated with unsynchronised business cycles can be seen in the Maastricht criteria. Although at the moment we will probably qualify for entry into EMU, we are at the top of the business cycle while the core European economies are undergoing a recession.

Benefits of a Single Currency

The most commonly stated advantages of EMU include the elimination of transaction costs between participating countries and a reduction in exchange rate hedging. Ireland's participation in EMU without the UK may encourage more foreign investment from multinationals that need an English speaking country which they can use as a foothold to enter the EU market. Another considerable advantage would be the elimination of the premium on Irish interest rates caused by the risk of devaluation associated with the punt. However the belief that the euro would have low interest rates rests on the assumption that the European Central Bank (ECB) would follow a similar monetary policy to the highly independent Bundesbank. If countries other than Germany have power in the ECB they may wish to pursue a less restrained monetary policy.

Conclusion

Despite the possible advantages of EMU, the issue as to whether Ireland should join remains contentious. Optimal currency area theory would suggest that if the Irish economy is not similar to the other participants, if the mechanisms necessary for an OCA are not in place, and if the business cycles of the EMU participants are not synchronic, Ireland should not participate. Furthermore it can be argued that Ireland's participation in EMU with a small group of participating countries could, far from promoting European integration, drive a wedge between the EMU countries and the rest of the EU, most notably the UK.

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"The Good Old Days"
An historical plea for economic austerity, free trade, and European Integration.

Micheal Jennings
Senior Freshman

The process of European Integration represents the third great chapter in the continent's twentieth century history. Michael Jennings places Ireland's planned participation in the recent moves towards monetary union in the economy's interwar experience and argues for fostering a more outward looking culture.

This essay is not, in essence, a discussion of the economic history of Ireland, but rather of its economic future. It would seem logical to look to the future, whether one is an economist, a government or a concerned individual, intent on ascertaining what is best for Ireland and its people. It is just as logical to look to the future motivated by the past, and a study of the economic history of this small open polity may give us important insights into causations and mistakes, and ways ahead. This essay aims to look ahead considering the topics of economic austerity, free trade and European Integration, which in essence encompasses both of the former. It does not aim, however, to provide specific causational models and highly technical accounts of these topics, but rather argues for them based on some of Ireland's past experiences and their ultimate necessity based on common sense.

Section 1: Fiscal Policy

If we are to evaluate the evolution of economic policy in regard to the fiscal stance of the government, it is best to compare the period of fiscal 'recklessness' in the 1970s and early 1980s, and its consequences, with the remedy that followed it, namely fiscal austerity

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In 1973 the oil shock, in which the OPEC nations quadrupled the price of oil, led to a change in Irish economic policy. Before the 1970s, planned budget deficits were not entertained, and government borrowing was used purely for capital spending, so as to ensure austerity. However, with a depression looming and perceiving the deflationary effects of the crisis, the Irish government followed the lead of many other Western economies and began countercyclical spending, increasing the budget deficit, in order to boost demand. According to Keynesian theory, this was the right response. Theory suggests that as a recession recedes the national debt should be curtailed by curbing government spending. Initially this happened, with the current budget deficit dropping to 3.5%. However, one year later the Fianna Fail government started spending pro-cyclically, fearing high unemployment. This returned the deficit to a high level, of 6.1%. Up until 1982

unemployment. This returned the deficit to a high level, of 6.1%. Up until 1982 public sector borrowing increased and after that remained at a very high level until 1986. During this time, government debt increased substantially with the current budget deficit at nearly 8% p.a. in some years. The costs of this 'experiment' were horrendous. Debt was enormous, reaching 129% of GDP, at one stage the servicing of this accounted for almost all of personal income tax revenue. Furthermore, inflation rose, unemployment figures rocketed, and investor confidence in the stability of the punt plummeted. During this period, no coherent policy was introduced to counter these effects, and they remained until 1986, when the paper "A Strategy for Development" prescribed a stringent fiscal policy. It was clear that there would be no debt write off as there had been in the 1930s, and so salvation had to be sought by curtailing and controlling public spending. The government's strong stance and realism helped set targets and lowered the national debt, reducing the current budget deficit to 1.6% by 1988, and setting the scene for the consistently low Irish deficit throughout the 1990s.

.History however has taught us a lesson, and the consequences of procyclical expansionary fiscal policy in the past are universally recognised. The disastrous period described above serves more as a reminder than an outright lesson, as there is no government today considering a similar policy to the one pursued in the 70s. Although the circumstances may also not reappear in that way, the qualitative deductions still hold true: fiscal expansion creates both inflation and government debt, and the temptation to increase government spending sharply must be resisted. In light of the convergence criteria prescribed by the Maastricht Treaty, such a mistake would be potentially more costly than it was in the 1970s.

Section 2: The importance of Free Trade: *Lessons from the 1930's*
The argument for free trade and economic integration begins here, and the following description of the situation in the 1930s provides the basis for the rest of the essay.

Although we could plausibly look at how positive free trade has been for Ireland in later years, I feel that the message becomes clearest if we concentrate on a negative example, similar to the above discussion of the 1970s. Although it is said that people remember the good times rather than the bad, in economics this is not usually the case. For this purpose the period from 1932 to 1939 presents itself, and it is valuable to look at the years before that in comparison.

From independence until the Fianna Fail government took over in 1932, the Irish economy was characterised by the fact that the state did very little. In essence, it emphasised free trade, removing tariffs on many products and slowly and reluctantly granting protection to a few, nonessential industries. It also retained parity with Sterling, so as to further facilitate free trade. Although the parity with

Sterling was a contentious issue (as we shall see later), this strategy worked well, and the Irish economy, especially the industrial sector, profited from free trade.
The shift in 1932 was a paradigmatic one. Eamonn de Valera came to government with two main economic objectives: greater self-sufficiency and the refusal to pay the land annuities owed to Great Britain.. Although it has been argued that his motives were not so much economic as cultural and of course political, obviously the economic element of the self-sufficiency was important and is relevant for this discussion. The world wide recession had led to protectionism becoming *en vogue,* and the Fianna Fail government was no exception. In May of 1932 the Finance Act imposed *ad velorem* duties from 15% to 75 % on 38 classes of goods. Tariffs reached a maximum of 45% in 1936, and were applied in a haphazard and piecemeal fashion in a drive to protect Irish industry and gain more independence from Britain.

The tariffs were also a direct result of the economic war between Ireland and Britain. In various Land Acts, the British government had arranged to provide funding for Irish tenant farmers to purchase their holdings from their landlords. The land annuities then considered due to the Britain were disputed by the new Irish government, and De Valera refused to pay them. The dispute over roughly £5 million lead to a sudden and severe reaction by Britain. It imposed *ad velorem* duties on Irish agricultural exports, and other quotas and restrictions soon followed. Ireland responded with equally harsh measures, and the fight continued until abating from 1936 onwards, finally ending in 1938 with the Defence, Financial and Trade agreements. During this time, much damage had been done to the Irish economy. While industrial output initially rose very fast due to the protectionist measures, it had stagnated by 1936. Unemployment rose fivefold between 1931 and 1934, with a stable population. The total cost of protection is estimated to have been between £7 and £8 million. These figures are debated, and it is argued that the £90 million write-off of foreign debt and the treaty ports, both gained from the agreement with Britain at the end of the economic war, alleviate the negative effects of the protectionist period. I find it impossible to consider this a successful period, however. The 'advantages' were a one-off situation, and do not subtract from the basic argument that protectionist measures in themselves are wrong. Furthermore, the period was to have repercussions into the next decades. Fitzgerald argues that the real effects of the 1930s did not become visible until protectionism ended. Ireland found itself reorienting to export markets in a period in which the world economy was booming. However, much of Irish economy had only been able to survive as a result of the favourable environment that had been created for it, and therefore was ill equipped for reorientation. The economic inefficiencies bred by protection to some extent caused the sluggishness of the 1950s.

The lessons for the 1990s

There are a number of reasons why greater export growth will lead to faster economic growth. One is that exports constitute an important part of demand for a small open economy such as Ireland, and expansion of exports increases output both directly and indirectly. Increased trade and an open market economy bring in new technical inputs, capital stock and human resource that will raise the production function and thereby output. Although exports are not a sufficient condition for growth in an economy, they are an important necessary one.

Trade increases the range of consumption goods available to the consumer, allowing them to purchase finished products that would otherwise not be available on the free market. Also, free trade creates efficiency, as each country explores its comparative advantage in a more competitive environment fostering a higher degree of specialisation.

Section 3: Europe and EMU

This essay concentrates on issues that are as much political as economic, and it is at this point that it most certainly becomes strongly political. This is unavoidable, as much of politics is economic in nature, and, in policy making at least, the converse also holds. It has been argued that the history of European Integration has been a history of 'economic solutions to political problems', and it is the latest 'economic solution' that I now discuss, under consideration of the point made above.

Ireland and Europe

Ireland is a small open economy on the periphery of Europe. It has been linked to its nearest neighbour, Britain, for a large part of its more recent history, and is still closely linked to it. However, for almost a quarter of a century, Ireland has been forging ever closer links beyond Great Britain and towards mainland Europe.

When Ireland joined the EU along with Britain and Denmark, it became part of a customs union that was not yet completed. The 1968 union had been an industrial one, leaving a number of questions unresolved. These were (i) fiscal barriers resulting from differing tax arrangements, (ii) physical barriers due to continued customs checks and administrative costs resulting therefrom, and (iii) technical barriers, created through differing regulations and stipulations, as well as state monopolies and barriers to entry protecting the home market from 'foreign invasion'.

The '1992 Programme', or the Single European Act (SEA), was to remove these constraints on free trade, and create a true customs union. Although Jaques Delors had originally hoped to progress further towards EMU in the SEA than actually happened, a number of barriers named above were removed, and brought a number of significant changes for Ireland.

Negative aspects were put forward as being the convergence of taxes, both VAT and excise, that would become necessary after the SEA. However, for a number of reasons these measures were not adopted, and Ireland's revenue base remained assured. Looking to the future, EMU will bring this convergence, and can be viewed as a negative effect of future integration.

There were, however, many positive effects that should continue to be positive when the next stage of economic integration goes ahead. Due to Ireland's high, and constantly rising propensity to export, the free movement of goods and services as well as capital *could* be viewed as positive for the Irish economy in that they made Ireland the 'gateway to Europe'. Due to the reduction of costs in accessing the European market from Ireland, it was more likely that firms would consider investment in Ireland, due also to other positive factors, such as an English-speaking, educated workforce.

Structural Funds

The importance of structural funds and funding in general to Ireland from the EU cannot be underestimated. In order to alleviate some of the greater inequities in the European Union, the transfers under the EAGGF, the ERDF the ESF and the cohesion fund were conceived to aid the poorer regions of Europe in supporting agriculture and building up infrastructure. It is important to note that although Ireland was one of the four poorest member states when the funds were installed, this is no longer the case, and this should have implications that we will return to later.

Irish experience in the EMS- exchange rate problems

The Irish and British currencies were amalgamated in 1826, and remained so until Independence. Even when the new Irish pound was introduced in 1928, it remained at exact one-to-one parity with sterling. Ireland was effectively in a monetary union with Britain for 153 years. Linking to a major currency has the advantage of warding off speculative attacks on the currency of small open polities. Until 1979, there had been no alternative for Ireland but sterling. The EMS provided the alternative many people had been looking for. There were a number of reasons given not to join, most notably that it would be folly to relinquish the stable exchange rate with Ireland's largest trading partner. However, the possibility of escaping the soaring British inflation was too tempting, and Ireland broke the parity with sterling and entered the EMS. The theory of purchasing power parity dictates that the inflation rate of a small economy moves with the inflation rate of the currency it is linked to, and Ireland hoped to lower inflation by linking to the strong German mark.

The problem created by this was that trade links to Britain remained too strong, and the Irish exchange rate continued to mirror the UK's. This led to an overvalued real exchange rate, which harmed Irish price competitiveness. The adjustment was very slow, which harmed the Irish economy immensely in terms of output and employment. Irish authorities were therefore forced to devalue twice in 1983 and 1986 in order to remain competitive. From 1987 to 1992, the Irish real exchange rates stabilised, and Britain joined the ERM in 1990. This was a smooth period for Ireland, as all its main trading partners (besides the US) were now in the EMS.

At the end of 1992, however, Britain was forced to leave the ERM. Again, Ireland faced severe difficulties as the Irish pound once again became overvalued against sterling. In a show of determination, Ireland resisted devaluation, desiring to break the dependence on the UK. The undertaking was doomed, though, and under intense speculative pressure Ireland was forced to devalue once again in January 1993.There are a number of lessons to be learned from this recent period of Irish economic history. Showing the inevitability of devaluation if wages and prices are not sufficiently flexible.

And The Future....

The currency crisis experience would seem to show that Ireland cannot enter a European Monetary Union without the UK. The trade links are too strong, and there would be no possibility of devaluation with a single currency. The loss of sovereignty would also constitute a large cost for the larger countries in the EU, especially France and Germany. These can use exchange rates as policy instruments and also control money supplies. These options however are becoming increasingly unpopular even in the larger economies, and are not really an option in Ireland. Small economies have little control over the money supply, and it is debatable whether exchange rate policies have a real long term effect. The converse is that due to Ireland's say in the running of a European Central Bank, it may be able to increase its monetary sovereignty through participation in EMU. There are further possible costs for Ireland in particular related to trade in the EU after EMU. It is argued that the Irish trade share will drop due to the 'Golden Triangle Effect', which basically states that due to economies of scale firms will divert production away from the periphery and into the centre of the EU with predictable consequences for Irish production. EMU offers many benefits to Europe as a whole and Ireland in many ways. First, importers and exporters will no longer encounter currency-related transaction costs, and therefore avoid bank charges. Second, exchange rate risk will be reduced, encouraging trade within the EU due to less uncertainty. Finally, a single currency should enhance competition by highlighting price differentials and help to promote the spirit of the single market.

History would seem to instruct policy in so far that many have used it to argue for Ireland to remain outside of EMU. However, this is not necessarily true. It is argued that the constant devaluations of the Irish currency against sterling would not have been necessary if the right measures could have been adopted to counter the loss of competitiveness. With devaluation not an option, measures must be taken to increase the flexibility and competitiveness of the Irish economy. The problems must be perceived, and wages and prices adjusted accordingly. This is, in fact, a strategy that is important for the whole of Europe. In Germany, for instance, Chancellor Kohl is asking for moderation in wage settlements to increase competitiveness. A recent National Economic and Social Council (NESC) report supports this, stating that "*the debate should now focus on how to manage the economy within EMU, rather than concentrating on arguments about whether or not we should join.*"[1]

"Ireland out, UK out"

To complete the jigsaw we must finally consider the alternative scenario, and ultimately return to the historical motivations described at the beginning of this essay. Assuming that the UK is going to remain outside of EMU, what are the implications if Ireland chooses to remain outside as well? Obviously, the above exchange rate problem is solved, and Irish competitiveness in comparison with Britain is assured.

There are many costs, however, which are often referred to as the 'costs of non-Europe'. These basically amount to forsaking the advantages named above, and it is here that I return to the 'precedent' of the 1930s. I propose that the stance Britain is taking now is a 'protectionist' one. The UK fears for the European economy, and is not willing to relinquish its economic sovereignty. Britain would be divorcing itself from the European market and European integration by remaining outside EMU, and Ireland would be following this lead if it remains outside also.

If we accept that history can instruct policy, then Ireland should learn from past mistakes. We looked at the 1930s, and saw that the Fianna Fail government rejected free trade then. They tried to protect Ireland from a hostile world market, believing the time was right for self sufficiency. Although the motivations were undoubtedly different, the effects of action should be much the same. If Ireland remains outside of EMU it is forsaking a process that has brought it better and freer trade in favour of a perverted form of protectionism that many label 'prudence'. The continental countries tired of Britain's 'prudence' a long time ago, and it is doubtful whether they will continue to entertain it- a 'Fortress Europe' seems much more likely. If Ireland finds itself outside of this having

[1] *Irish Times,* 20th February 1997

bowed to the fear of exchange rate problems, it will simultaneously find itself with many difficulties regarding trade with what is now its biggest trading partner- Europe.

In the 1930s, the drive for self-sufficiency and subsequent protection of fledgling Irish industry fostered a loss of drive in the same, as there was no competition. Ireland would again be shying away from competition if it joins Britain outside of EMU. The effect of 1930's protectionism on Irish industry and economy became apparent as Ireland eventually had to adjust to the global economy in the 1950s. It is doubtful that even Britain can stay out of EMU forever if it becomes a success. If Ireland then enters late with the UK, it will face similar adjustment problems as in the 1950s. The concept of a two speed Europe is admirable, but how is the slower vehicle supposed to catch up if it is already behind? Furthermore, many large companies have hinted that British abstention from EMU would not be viewed positively, and may discourage further investment. The same could then be true for Ireland.

By taking the step and entering, even without Britain, Ireland is committing itself not necessarily to uncompetitiveness, but merely to the challenge of increasing the flexibility of Irish industry. It is also certain that the EU is willing to help with this process. Ireland, for instance, retains its low corporate tax until 2010, and it is possible that other comparative advantages can be arranged. Ireland has a well-educated, English-speaking workforce, and co-operation between employers and employees and rational appraisal of the exchange rate situation could lessen the negative effects of a further 'dealignment' with Britain.

Conclusion

We have seen that the study of economic history can be important for a number of reasons, the most important of which to a modern day economic policy maker is that history may instruct policy. Irish economic history in the twentieth century is especially valuable for this purpose, and I gave two negative example reminding us of two important topics for any country: fiscal/economic austerity and free trade, with the 'precedents' being the 1970s/1980s and the 1930s respectively.

I argue that if we are to learn from history, Ireland's policy must be to take the route that best serves free trade, and this is EMU and the single currency. It should not return to any form of protectionism- the example from the 1930s showed this, and although the conditions are different, the qualitative deduction remains the same. Ireland should not give up the opportunity of joining a collective that is greater than the sum of its parts both economically and politically for no other reason than the fear of change itself.

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A Critique of the Leontief Paradox.

Diarmaid Smyth
Senior Sophister

The exploitation of comparative advantage is one of the central tenets of classical trade theory. When Leontief found evidence of a lack of applicability to the real world, a flurry of research was begun to explain these results. Diarmaid Smyth discusses the apparent paradox and explains how the gap between theory and practice was eventually bridged.

Introduction

The Heckscher-Ohlin (H-O) theorem is one of the most celebrated theorems of International economics. According to the theorem, countries will tend to have a comparative advantage (CA) in the production of those goods that make intensive use of their abundant factor of production. Therefore, a nation will seek to export those goods that use its abundant factor relatively intensively in return for imports of those goods that use its scarce factor relatively intensively. In 1953, Wassily Leontief, using an input-output matrix, sought to test the validity of the theorem with respect to American trade in 1947. At the time, US workers visibly worked with more capital per capita than all other nations, so in accordance with the theorem it was predicted that the US would have a CA in the production of capital intensive goods and should, therefore, export these. However, Leontief's startling results cast huge doubt on the H-O theorem as US imports were found to be more capital intensive than its exports. This famous conclusion was labelled as the Leontief paradox.

The purpose of this paper is to explain why, in fact, the paradox occurred, by primarily focusing on what are known as the natural resource and human capital explanations before going on to discuss the critical importance and modern day relevance of the factor content of trade approach.

The Paradox

As has been mentioned, Leontief's 1953 report on US trade patterns revealed that US exports were less capital intensive than its imports. Table 1 shows Leontief's actual figures, whereby the capital to labour ratio employed in the production of $1m of US imports was 1.3 times as large as the corresponding ratio used in the production of $1m worth of US exports.

Table 1. United States trade - Empirical Investigations.
Capital and labour requirements per million dollars of United States exports and import substitutes:

Leontief:	1947 US Trade	Exports	Imports	Imports/exports
	Capital	$2,550,780	$3,091,339	
	Labour (man-years)	182	170	
	Capital per man	$14,010	$18,180	**1.30**
	1951 US Trade			
	Capital	$2,256,800	$2,363,400	
	Labour (man-years)	174	168	
	Capital per man	$12,977	$13,726	**1.06**
Baldwin:	1962 US Trade			
	Capital	$1,876,000	$2,132,000	
	Labour (man-years)	131	119	
	Capital per man	$14,200	$18,000	**1.27**

Sources: Baldwin (1971) & Leontief (1953).

Leontief's initial result was further reinforced by subsequent studies of US trade in 1951 and 1962. Furthermore, studies examining Canadian, Japanese and Indian trade also revealed the existence of the paradox. For example, Bharadwaj's survey of Indian trade showed how Indian exports to the US were capital intensive despite the overwhelming abundance of labour in India. Even as recently as 1990, the massive gulf between the capital labour ratios in America and India still existed. Thus arguments in defence of the factor proportions theorem on the grounds that Leontief's data was unrepresentative do not hold any weight in light of these subsequent findings. Therefore, how can we account for the existence of the paradox ?

Leontief's results led to a wealth of empirical testing and research, as economists sought some answers to the paradox. A number of theoretical but ultimately fallacious arguments emerged. For example it was argued that demand reversals could have caused the paradox whereby US consumers' tastes might have been overly biased in favour of capital intensive goods, and consequently US imports would have been more capital intensive than US exports. However there is a complete lack of evidence behind such an argument and if anything US consumers had a stronger preference for labour intensive goods. Similarly, the factor intensity reversal explanation of the paradox holds little or no weight, in the sense that although a reversal can exist, it is highly unlikely that factor intensity

reversals could fully account for the paradox. Finally, although Heckscher-Ohlin assumed free trade, it has been argued that because the US economy was so heavily protected in 1947, that this may have caused foreign producers to export capital rather than labour intensive goods to the US. However such an argument has also proved to be wholly inadequate and it in fact defies logic upon closer examination.

Thus, I will seek to explain Leontief's results by referring to what are known as the human capital and natural resource explanations, which are basic extensions to the H-O model. These approaches will show how Leontief's two factor test (homogeneous labour and physical capital) of the theorem was in fact too aggregative and over simplified to such an extent that it obscured many underlying trends.

Natural Resources

A glaring omission from Leontief's two factor test of US trade in 1947 were natural resources (NR)s. Thus, subsequent tests sought to take account of NRs and their importance in determining a country's CA and hence their trade patterns. Jaroslav Vanek (1959), was perhaps the leading pioneer of the NR approach. Vanek sought to investigate the NR content of US trade and discovered that the US had become increasingly reliant upon the imports of NR intensive products from less developed countries and Canada in particular. As recently as 1992, the US imported $12.2 billion worth of fuels from Canada while exporting a modest $1.3 billion in return (Table 3). In addition, Vanek argued that physical capital and natural resources were complementary inputs in production, "we can observe a strong degree of complementarity between capital and natural resource requirements."[1] In other words, the extraction and transportation of NR products, such as coal and petroleum, required a very large capital investment, and the use of highly capital intensive techniques. As a result, America was indirectly importing capital intensive products because of her reliance on NR imports. As Vanek concluded ". . . it may well be that capital is actually a relatively abundant factor in the United States. Yet relatively less of its productive services is exported than would be needed for replacing our imports, because resources, which are our scarce factor, can enter productive processes only in conjunction with large amounts of capital"[2]

The importance of natural resources in US trade was further confirmed by Baldwin (1971), in his examination of the factor requirements of US exports and imports for 1962. Using the simple two factor Leontief test, the paradox still existed, with a higher net capital to labour ratio for imports than exports.

[1] Vanek, J., p152, 1959.
[2] Ibid.

Baldwin, however, taking account of the heavy degree of complementarity between NR products and capital in production, excluded NRs from the data and found that the paradox virtually disappeared, as the import/export ratio fell from 1.27 to a mere 1.04.

Table 2. International trade between the United States and Canada.
Canada's International trade, 1992 (billions of US dollars).

	Exports to the US	Imports from the US
Fuels	12.2	1.3
Other primary goods	4.9	2.3
Agriculture	12.1	6.1

Source: Ethier (1995) Modern International Economics, page 38.

Thus studies such as Vanek's and Baldwin's brought home graphically the significance of NRs in US trade and that it is why it is argued that Leontief's simple test which excluded NRs oversimplified matters to an unacceptable level. Some economists such as Hartigan (1981) have gone so far as to say that when NR intensive industries are excluded from empirical tests, a paradox rarely exists. However Baldwin' s extensive study of US trade showed that although in themselves significant, NRs were insufficient to fully account for the paradox. As a result, further explanations are required.

Human Capital

As all economists will testify, labour is far from a homogenous factor and in reality labour skills, educational standards, training programs etc., differ markedly both across and within nations. Countries and particularly wealthier nations invest vast amounts not only in physical capital but also in human capital. However, Leontief's measure of capital failed to take account of this. Therefore, several economists, such as Kenen (1965), Keesing (1966) and Baldwin (1971) recognised that it was essential that one took into account the differing skill levels of labour, or more generally, human capital. It was hypothesised that because America's labour force was so highly educated that the US should export skilled labour intensive products.

Kenen (1965), remarked on the enormous magnitude of sums spent in the US every year in training and educating the labour force and that such investments had outpaced investment in physical capital.[3] By 1957, measured investment in labour was valued at $880 billion or two-thirds as large as physical capital. Kenen obtained a measure of human capital and found that by adding this to physical capital, that the paradox was reversed. In other words, America was found to be

[3] Kenen, P., p441, 1991

abundant in skilled labour and consequently exported skilled labour intensive products, very much along H-O lines.

Keesing (1966), adopted a similar approach, dividing the labour force into eight distinct categories according to skill levels. The highest skill category was category one which consisted of scientists and engineers, whereas the other end of the scale, category eight, consisted of unskilled and semi-skilled labour. Keesing then examined the composition of these labour skills in export and import competing industries. He discovered that "The United States ... has the most skill-intensive exports and, generally, shows signs of having the greatest abundance of hard-to-acquire skills, notably professionals, and especially scientists and engineers."[4]

Thus, Americans CA arose in those industries that required a high proportion of professional labour and a low proportion of unskilled and semi-skilled labour. As Keesing noted "... in 1962 the United States exported manufactures (in forty-six industries) worth $14, 219 million and imported manufactures worth $8, 067 million. ... 34, 430 scientists and engineers were required to produce the commodities exported compared to 9, 762 who would have been required to replace the imports. This leaves a net balance of 24, 668."[5] Thus, Keesing's work explicitly demonstrated the inappropriateness of Leontief's two factor test.

Baldwin's (1971) exhaustive study of US trade in 1962, confirmed that the paradox still existed using a two factor (capital & labour) test, showing how the net capital to labour ratio was higher for imports than exports. However, when one accounted for natural resources and human capital, the paradox succumbed, as the import - export ratio fell to 0.97. In accordance with Keesing's conclusions, the US was found to be exporting highly skilled intensive produce, and what is more, US exports were also discovered to embody a much higher proportion of labour with nine years or more education, whereas in contrast, import competing industries had a higher proportion of labour with eight years or less of education.

Baldwin noted that "the relatively abundant supply of engineers and scientists is an important source of the United States' comparative advantage position, ... This abundance of highly trained labour gives the United States an export advantage, in products requiring relatively large amounts of such labour."[6]

Even as recently as 1980, evidence showed that the US still maintained quite a significant CA with respect to the export of skilled and technology intensive

[4] Keesing, D., p254, 1966.
[5] Ibid.
[6] Baldwin, R., p142, 1971.

products. In fact Table 3 (a & b), reveals that the US had 50.7% of the world's supply of research & development scientists and 27.7% of skilled labour.

Table 3 Part (a):
Factor Endowments of the leading industrial countries, as a percentage of the world total in 1980.

Country	Physical Capital	R&D Scientists	Skilled Labour	Semi-skilled Labour	Unskilled Labour
US	33.6%	50.7%	27.7%	0.19%	19.1%
Japan	15.5	23.0	8.7	0.25	11.5
W. Germany	7.7	10.0	6.9	0.08	5.5
France	7.5	6.0	6.0	0.06	3.9
UK	4.5	8.5	5.1	0.09	4.9
Canada	3.9	1.8	2.9	0.03	2.1
The rest	27.3	0.0	42.7	99.32	53.0
	100.0	100.0	100.0	100.0	100.0

Part (b):
Export / Import Ratios in the Leading Industrial Countries in 1979.

Product	US	Japan	W. Germany	France	The UK	Canada
Tech. Intensive	1.52	5.67	2.40	1.38	1.39	0.77
Services	1.47	0.73	0.80	1.32	1.19	0.50
Standardised	0.39	1.09	0.84	1.03	0.76	1.38
Labour intensive	0.38	1.04	0.59	0.86	0.71	0.20
Primary products	0.55	0.04	0.29	0.52	0.81	2.21

Source: International trade theory, pages 118 & 124.
Note: An export / import ratio above one, indicates that the country is a net exporter of the product, i.e. the country has a comparative advantage in production.

Baldwin's results reaffirmed a belief in the H-O model as America was shown to "....indirectly export professional and technical labour as well as skilled craftsmen and foremen which were in relatively abundant supply" and to ". . . indirectly import semi-skilled and unskilled (non-farm) labour, both of whom are usually considered to be comparatively scarce in the United States."[7]

[7] Baldwin, R., p143, 1971.

In summary, Keesing, Vanek, and Baldwin's findings were consistent with a multi-factor application of the H-O theorem (as the paradox was reversed). These economists showed that it was vitally important to extend the two factor model as Baldwin concluded " . . the labour force must be divided into various skill groups and the notion of relative differences in human capital taken into account."[8] As a result we tend now to treat different types of labour as distinct factors.

However, the problem with approaches such as that of Keesings, was that as (developed) countries become more and more alike, both in terms of factor endowments, technology and tastes, simply dividing labour into eight distinct categories may well prove insufficient, in terms of identifying where a comparative advantage or disadvantage lies. Webster (1993) noted that such approaches tend to "... ignore the possibility that international differences in endowments of specific types of skill may also be a cause of international specialisation. This is particularly likely where, as in the case of the UK, much trade is conducted with economies with broadly similar endowments of human capital in general."[9] In other words, Webster is stressing the need for a factor content approach to trade.

The Factor Content Approach.

The factor content approach (FCA) to international trade is the most modern and recent application of the factor proportions theory and is referred to as the Heckscher-Ohlin-Vanek theorem. This states that the relative factor abundance of a country is revealed through the factor services embodied in a country's trade flows, i.e. if a particular nation is found to be in relative abundant supply of a factor service, its trade flows will reflect the net export of that particular factor's service. Thus the FCA provides a measure of each nations excess endowment of each factor. As Webster remarks regarding UK trade: "...assessing the extent to which the UK specialises in industries intensive in particular types of skills is a way of revealing where the UK is in relatively scarce or abundant supply of a particular skill."[10] This means that countries will not just simply specialise because of a relative abundance of human capital but that they will tend to specialise according to specific types and forms of human capital. According to Webster, "The primary pattern of specialisation tends to be with respect to broad levels of human capital (for example professional labour) but there is also considerable evidence of specialisation according to certain specific skills."[11].

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[8] Ibid.
[9] Webster, A., p143, 1993.
[10] Ibid.
[11] Webster, A., p156, 1993.

Webster applied the FCA to UK net exports in 1984, emphasising human capital. He compared and contrasted a more traditional approach (such as that of Keesings), using five categories of labour, with an FCA, where he decomposed labour into thirty-five different occupational categories. Using the latter approach, Webster noted that the UK was relatively well endowed with professional, managerial, clerical, sales and service labour, whereas (skilled and unskilled) manual labour was revealed to be relatively scarce. However, the FCA provided a far more specific, detailed, and precise analysis of the UK's comparative advantage.

Webster's FCA decomposed professional labour, for example, into occupations such as lawyers, accountants, engineers, economists etc. It quickly became evident that the UK's relative abundance in professional skills were not nearly as marked, as a more traditional approach would have indicated.

Although the UK still had a CA in the export of the services of non manual and professional labour, the FCA revealed that there was considerable variation and heterogeneity within each occupational group. Thus, by use of a more aggregative approach, one could easily have concluded that the UK was a net exporter of skilled labour, while ignoring the stark reality, as the FCA revealed, that the UK is actually quite a heavy net importer of the services of a number of skilled occupations such as those of economists, statisticians, and both electronic and mechanical engineers (to name but a few). As Webster reports "The dis-aggregated analysis reveals many professional skills that are apparently relatively scarce in the UK compared to almost all other types of labour."[12]

Economists aim to be as scientific as is possible and by use of more dis-aggregated analysis such as the FCA, we can quickly highlight, precisely where a country's comparative advantage or disadvantage lies. Thus the FCA is a major addition to the international economist's armoury.

Conclusion.

The Leontief paradox has been referred to as much-ado-about nothing and undoubtedly a more dis-aggregated or a multi-factor application of the H-O model does eliminate the controversy that surrounded Leontief's celebrated 1953 results. Nevertheless, the paradox was an important milestone in economics, in the sense that it led to a flurry of activity and research among economists into the actual determinants of comparative advantage and trade. Four decades on from Leontief's unorthodox conclusions, we are left with a much better understanding of how trade patterns emerge and evolve.

[12] Ibid.

In addition, the paradox has been very influential in that it inspired and led to the search for newer trade theories. Consequently, one of the major recent developments has been the application of imperfectly competitive models of competition to international trade. As a result, economists have become aware of the modern day significance of intra-industry trade (I-I-T) and economies of scale in determining a nations trading patterns. I-I-T is a particularly significant phenomenon, roughly accounting for one-quarter of world trade, and is also extremely important in a European context (especially trade in manufactures).

Some of the more recent trade theories continue to emphasise the importance of expenditures on research and development, as a source of CA, and therefore, for example, nations such as Japan and America with their abundant supply of scientists and engineers continue to be heavy net exporters of high technology goods and services. Clearly this is consistent with a modern day application of H-O. However, I-I-T does not reflect the simple H-O comparative advantage at all, and what is more, increasing returns and monopolistic competition in particular have a lot of modern day relevance. Consequently the patterns of trade that emerge can be quite unpredictable and often the result of history, accident, and good fortune.

To conclude, although the Leontief paradox is to all intents and purposes a closed book, it has been extremely influential in the sense that it was the catalyst that lay behind the development of newer and revamped theories of international trade.

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Population Growth - a Child-Cost Perspective

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One of the principle concerns of developing countries is the exponential growth in their population size since World War Two and the ensuing environmental and social pressures it has caused. Ronnie O'Toole surveys the history of population growth and discusses the concept of "child-costs" as an explanatory factor behind the process of fertility determination.

I Introduction

And God blessed them, saying: Increase and multiply, and fill the earth, and subdue it, and rule over the fishes of the sea, and the fowls of the air, and all living creatures that move upon the earth: Genesis

And so they did. In fact, they continued to do so with such an evangelical zeal that the world's population increased by a factor of 10,000 over the space of 10,000 years. The principal cause of this can be attributed to populations undergoing the "fertility transition" - i.e. from the point where there is a drop in the death rate due to greater institutional organisation and improved technology to the time when the benefits of development start to reduce the fertility rate.

I will start by placing the current experience of lesser developed countries (LDC) in relation to the fertility transition in perspective by examining the history of its development in the western world. I will then show what effect the current wave is having on world population and what particular problems that the explosion in population over the last half century is causing.

In the second section I will focus on the concept of "child costs" as a useful framework to try and explain many of the causes of perpetually high fertility and what factors ultimately lead to its demise. While this concept does not capture all factors, it does provide a useful analytical tool to give vague notions a more concrete and ultimately measurable dimension. However, the largest advantage of the "child costs" method is that the factors that it explains tend to lend themselves more readily to direct external intervention, presumably by the government. As economists our goal must ultimately be to advise policy in a practical way.

Finally I will briefly examine some population control measures and comment on their success (or otherwise) and try to suggest what might have been done differently.

II A Brief History of the Fertility Gap

The colonisers....

What is fascinating about this phenomenon is the degree to which the experience of countries as regards the fertility transition has varied. Among some early developing counties there was virtually no gap between the decline in death and birth rates (indeed, in some countries falling fertility preceded a fall in mortality). This could be ascribed to "frontier conditions" whereby fertility was high at the outset and fell as the process of settlement proceeded. This group includes the US, Canada, Argentina, Chile, Australia, New Zealand and the Russian empire.

....and the rest

On the other hand, a large swathe of other early developers had a much more protracted fertility transition. The reduction in fertility in England and Wales only became pronounced 75 years after the sharp fall in mortality witnessed in the early 1800's. Interestingly, this period was one in which the balance of power shifted somewhat away from capital in favour of labour with the delegalisation of trade unions, the regulation of factory conditions, and perhaps most critically, the Reform Bills of 1832 and 1867 which gave the vast majority of adult males the vote. Similarly, the Scandinavian countries spent over a century in demographic quarantine to emerge at roughly the same time as the British.

An interesting example is that of Japan whose sustained fall in fertility only took place following defeat in WW II. Prior to this, however, birth-rates were noticeably low (only 23 per thousand in the early 1870's compared to 41, 47 and 35 in the US, Russia and the UK respectively). This is despite the fact that the modern Japanese economic miracle only began to take root following the signing of the treaties opening the country to external influences, the first of which was signed in 1854 under pressure from Americas "envoy" Commodore Matthew C. Perry. Subsequently during the Meiji and Taisho eras (1868 - 1925) birth rates rose considerably, though all this data must be treated with some caution given the possibility of prior under-registration of births and infant deaths. The decline in the birth rate since 1945 has also been particularly sharp, falling to 9.6 per thousand in 1995. The Japanese experience would seem to confirm the intuitive belief in the importance of institutional factors (e.g. religion) in fertility determination, which act independently of the level of development.

The Third World Experience

The third chapter in the history of the fertility lag is the one that currently preoccupies development economics - the third world experience. What differentiates the current wave from the earlier developers is the fact that the lag in the fertility fall in LDCs is much more common and the resultant rate of natural population increase much larger than was previously the case.

The sociological problems identified with this increase (poverty, malnutrition, etc.), coupled with the increased awareness of the probable effects of development on the global environment have combined to intensify the urgency with which the population problem is considered. The problem is exacerbated by "population momentum" whereby high population growth will continue for a significant period after the fall in birth rates, as (simplistically) the last of the large generations reach and pass child bearing age.

It is rare that an examination of faceless statistics gives the reader a true sense of the scale and impact of a phenomenon: population growth, due to the explosive course it has followed since the turn of the century, is one of those exceptions.

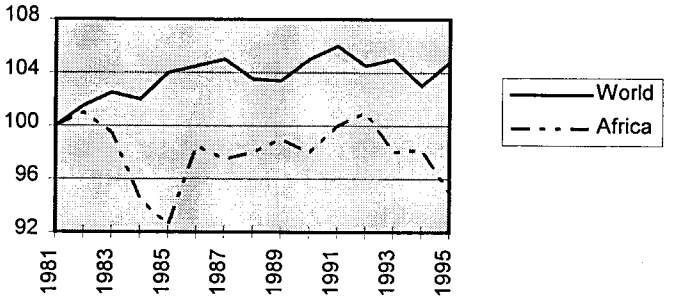
Year	Estimated World Population	Estimated Annual % increase
	in 000,000's	
10,000 B.C.	5	
1	250	0.04
1650	545	0.04
1750	728	0.29
1800	906	0.45
1850	1,171	0.53
1900	1,608	0.65
1950	2,576	0.91
1970	3,698	2.09
1980	4,448	1.76
1990	5,292	1.73
2000	6,260	1.70

This level of population growth has obvious repercussions:

- **Food Supply:** Currently there are 840 people suffering from chronic hunger or malnutrition. While food production per person has been

rising, distribution remains an ongoing problem. In Africa, it is estimated that 43% of the population is undernourished.

Food Production (per person index)



- **Unemployment:** It is estimated that 1 billion people or 30% of the world's workforce are either jobless or underemployed. With a heavily skewed demographic profile due to the population explosion, the world's economies are having difficulty providing jobs for a large number of the new entrants onto the market (net of the relatively small number of exits due to increases in life expectancy). The whole question of the degree of urbanisation due to population growth also merits mention.
- **Child Labour:** Child Labour has recently been estimated at 250m. While most working children are in Asia (153m), the highest incidence is in Africa where 40% of all children work. Irrespective of the causative effects of large population growth on the incidence of child labour (which is debatable), the raw absolute figures in themselves must be a cause for concern. Even more worrying, a survey in the Philippines found that 60% of working children are exposed to chemical and biological hazards, and 40% experienced serious injuries or illnesses.

III The Main Causes of Population Growth

Introduction

The concept of "child cost" is a means of explaining changes in levels of fertility in a peculiarly economic mode of analysis. In essence, the idea is that as children are perceived to become more expensive due to either an increase in costs (such as education) or a reduction in the child's ability to earn income (such as an increased number of years in schooling) then parents will reduce their desire for offspring.

As would be expected, empirical confirmation or refutation of the results of such an analysis is a virtual impossibility given the need for time-series investigations. This, by the very nature of population growth (a long term phenomenon) and lesser developed countries (poor historical data due in part to the change over time in the degree of infiltration of a standard unit of account[1]) is problematic. The principal means employed by economists, therefore, has been the use of piecemeal surveys which by their nature are also quite unsatisfactory. For this and other reasons I will only present the logic behind child-cost analysis rather than present a set of results as a fait accompli.

This mode of analysis can be used to examine a number of factors thought to influence demand for children, namely:

1) Female/child participation in the work force
2) The desire for support in old age
3a) Opportunity cost: Other consumer goods
3b) Opportunity cost: Capital accumulation
4) Costs of education

But first, a caveat....
At this stage it must be admitted the child cost analysis does not pretend to cover all aspects of fertility determination. Some of the factors that are not included are:

- Given a family's desire for a particular number of children they must have access to family planning education and contraceptives so as to realise their preference.
- The effect of reducing infant mortality is not considered. This might be important due to risk aversion - parents are concerned with the number of 'lives' rather than the number of actual births. In a world of high infant mortality, this might manifest itself by people having more births than was necessary as an insurance policy against an unusually large number of deaths (in practice, this does seem to be a very real phenomenon).
- At the household level, differences in fecundity are not considered.

Perhaps a more fundamental flaw is that child cost analysis is microeconomic by design. If a society's need for children is less than the collective sum of the need of all households (as with a country in the process of development) then it might evolve socio-economic mechanisms of a non-economic nature to

[1] In its broadest sense.

influence decisions on fertility. Such defence mechanisms could only be possible to detect on the macro level.

Two alternative, though complementary, angles on the whole issue of fertility determination can be identified as follows:

- The threshold of economic consciousness: This early model suggests that before a certain (and generally unspecified) threshold, the only upper bound on family size is the traditional norms as regards intercourse, breast-feeding, etc., and that *Homo economicus* does not emerge until afterwards. Price movements and incentives are simply not perceived.
- A slight refinement on the above is that, prior to a threshold, children are supply-determined, subject only to social and biological constraints. As development progresses, a point is reached where fertility increases due to relaxed marriage restrictions, improvements in fecundity and lower child mortality. Only when demand falls below potential supply can it be said that the threshold has actually been reached.

Child Costs and Fertility Determination

To aid brevity, the discussion to follow will occasionally make use of two polar societies as comparisons:

Type I: A stagnant, traditional, agrarian society with very low marginal productivity of both capital and labour - i.e. very early stages of development.
Type II: A progressive community with growing income, growing demand for labour and capital and where tastes are being developed for a wider range of consumer goods - i.e. more mature state of development

Most LDCs could be placed somewhere in the continuum between these two extremes.

1) Female/child participation in the work force

As a society moves from Type I to Type II, the effect of an extra child on total costs depends on:

- The status of women/children: There might be, in classical parlance, an income effect with development making manual labour more or less socially acceptable.
- Wage rate and the labour market: The price effect whereby the higher wage might overcome the income effect for women and/or children.

Tautologically, one of four circumstances will pertain as development proceeds:

Labour Effect	Child Cost Effect	Conclusion	Example
Case 1.			
Mothers Work Less	Lowers Child cost		
Children Work More	Lowers Child cost	Lowers child cost	Egypt
Case 2.			
Mothers Work Less	Lowers Child cost		
Children Work Less	Increases Child cost	Ambiguous	Taiwan in 60's
Case 3.			
Mothers Work More	Increases Child Cost		
Children Work More	Lowers Child Cost	Ambiguous	?
Case 4.			
Mothers Work More	Increases Child Cost		
Children Work Less	Increases Child Cost	Increases child cost	Ireland

Therefore the effect that development has on child costs depends on the stage of development, the structure of the labour market, social institutions (education, child benefit, etc.), cultural norms and the past education opportunities for women (see part 4.).

2) The desire for support in old age

The desire for children as a safety net in old age would imply a low (or possibly negative) discount rate due to the fact that the high costs incurred in the child's early development would be offset by the benefits of support many years hence. The argument goes that there are two ways to accumulate the reserve required to provide old age security - by the state, through coercive taxation, or by the household itself. In the absence of state involvement, a household in a Type I society cannot readily accumulate capital by investment in water pumps, irrigation, etc. (see section 3b). The only means open to them is capital accumulation by investment in additional children.

However, can this logic, which is widely accepted among development economists, stand up to closer examination? There are a number of reasons why I think not.

Firstly, it must be remembered that this discussion focuses on additional children over and above the first two or three whose production is wholly non-economic in nature (as the limiting case of modern western society attests) due to the basic (Darwinian?) desire to propagate the species. The first three children are not significant for our purposes either - it is the additional children which create the problem. How much additional children can add to old age support is surely quite restricted.

One of the principal means by which it is restricted is societal inheritance norms. If land is typically inherited by the first male and parents live on that same plot until death, then the desire for children over and above three would not be significantly welfare enhancing in old age. In Ireland at the time of the famine this "first-born" inheritance trend was evident across the economic spectrum, from small farm owners (< 5 acres) to the landed gentry. To stress the point, it should be remembered that emigrants from Ireland in the 1840's were disproportionately composed of younger children. With increased migration flows in LDCs from rural to urban centres, this point might be equally relevant to the third world. While admittedly there were large transfers from the US to Ireland by expatriates, the income differential between urban and rural regions of LDCs is generally not as pronounced[2], therefore limiting the extent of intergenerational wealth transfers.

There are also two good reasons why additional children might detract from old-age welfare. Firstly, it could be argued that additional children (and thus additional grandchildren) could be seen as competitors for limited resources when old age is reached. Secondly, the tradition of the dowry is still prevalent in many LDCs, and having additional children increases the risk of a large payout at a time when the parents would be approaching retirement.

Why then has the research that has been carried out which shows consistent support for the idea of old age security as an important factor in fertility determination wrong? The evidence shows that when asked what the advantages of having children (note, not *additional* children) were, the old age security response fell as income rose. However, the introduction of old age security in many countries was only one of many measures introduced. The respondents' answers merely reflect the 'state of things' which depends on the capabilities of a society at a particular point in time. It takes a huge leap of faith to interpret from this as evidence of a causal relationship between old age security and the actual deterministic process of choosing family size by young couples. A more practical problem with many of these surveys is that they are frequently conducted in the presence of the children making it in the parents interest to stress the importance of old age security. This seems like a very basic error on the part of the researchers but, in practice, it is frequently unavoidable given the extent of co-habitation and the fact that the interviews are conducted orally due to wide spread illiteracy.

[2] Noting in particular the belief that an increase in urban employment in LDCs will result in a substantially larger increase in urban unemployment due to the attraction of the new jobs to rural dwellers. The Irish were never in a position to swell the ranks of the US labour market to a significant extent.

In conclusion, I doubt whether the need for protection in old age is a factor which young couples consider as significant when deciding optimal family size.

3a) Opportunity cost: Other consumer goods

For a Type I community, the range of consumable alternatives to children is very limited. As the community progresses to Type II, where real income and productivity are substantially higher, the possible alternative bundles of consumption rise in quality, quantity and range. Therefore the opportunity cost of children has also risen.

There is some disagreement as to whether this factor should be measured as absolute child costs (i.e. in terms of £'s and time foregone) or as a relative concept. The latter has the attraction that it goes some way to isolating the effect of changes in relative price as a determining factor. The former is the most commonly employed, however, given that it is easy to measure and that direct comparison between quantities (both resources and time), as well as prices, is sometimes a necessity. Absolute cost is affected more directly by the quality of child a couple feel they must have.

3b) Opportunity cost: Capital accumulation

As has already been noted, households of Type I have few (if any) potential investments into which capital can be accumulated other than children. As development proceeds, a farmer has the option of investing in fertiliser, irrigation, etc., and an additional child becomes a competitor for such resources. In essence, the opportunity cost of a child rises due to the new found alternative investments whose discount rate might significantly exceed that of a child. Note that capital accumulation *per se* is treated differently than the desire to provide for a specific event (e.g. for old age) due to the former being essentially a passive phenomenon.

4) Costs of Education

The costs of education are one of the key factors that raise child costs as development proceeds. They can be more precisely identified as:

a) Loss of child working hours: This should be further subdivided into work inside and outside the home. In relation to the latter, this will only become significant at a fairly advanced level of development (Type II) as only when education becomes common after age 10 - 12 will outside work be adversely affected. The former, however, will affect household income at all stages of development as outside work by the mother may have to be sacrificed to allow for time lost due to the children's schooling. The relevant importance

of this factor depends on the wage rate which the mother and the child could command in the outside world.

b) Fee Cost: A factor that is sometimes easy to overlook but which can in itself be a significant burden on the family (Kenya would be a good example).

c) Higher Future earnings: If the reasons for parents to have their children educated are purely economic then the higher earnings they might command would obviously be of critical importance to the decision of whether to send children to school or not. The importance of this can be related back to the discussion on old age security and more specifically the extent of inter-generational wealth transfers in practice.

While the education of girls in particular is not of real relevance to the child cost debate, it is in itself of crucial importance, and therefore merits mention. The education of girls is often neglected due to the traditional male bias of many societies, a fact that has obvious repercussions as these girls reach child bearing age. In India, for example, female adult illiteracy is almost double that of males. In response to this, a scheme called the District Primary Education Programme (DPEP) has been introduced at a cost of $1.2bn over six years with the aim of both improving education standards for both sexes and reducing gender inequality. It plans to do the latter by both updating the curriculum and starting community based projects to educate people as to the benefits of female education.

Perception vs. Reality?

As an aside, all this logic presupposes a strong link between real and perceived costs. It would be unreasonable to assume that every family could calculate with actuarial rigour all future possibilities - a calculation that would necessitate an ability at economic projection beyond that of most economists. The gap dividing the two can be explained by the temporal and psychic weightings that people ascribe to particular costs or benefits.

The following points are of interest in relation to this 'reality gap':

- Do parents act rationally or adaptively when determining family size?
- Given the relative infancy and limited scope of active government in many LDCs, are their actions perceived as being permanent or transitory?
- Do violent short to medium term fluctuations in prices - a typical state of affairs for many agrarian societies - in any way blur the underlying trend, hence resulting in a shortening of agents planning horizons?

IV. Conclusion

As has already been mentioned, it would be virtually impossible to validate the above argument empirically. However we can broadly say that that there are a number of policies which would seem to be advisable on the basis of common sense.

a) Create employment opportunities for women outside the home: As in the example of the DPEP programme in India, this factor is of crucial importance in that having additional children greatly reduces the household's income. At a more short term level, limiting maternity leave to a maximum of 2 children (as in Singapore) and reducing tax relief on additional children will encourage women already in employment not to have further children.
b) Old age security: The widespread belief in old age security as one of the key planks in reducing fertility should be re-examined. The scarce resources that it uses up might be better directed at education, health or infrastructural spending.
c) Minimum-age child labour laws: As an objective this is clearly desirable, especially in light of the ILO survey (see page 3). Care must be taken, however, to ensure that the medium term prosperity of the country is not endangered by the imposition of over rigorous controls in a very short time period. The use of such an argument as a trade weapon (as is currently being witnessed through the WTO) should also be avoided.

Action aimed at reducing population growth should also vary according to the stage that has already been reached. Some determining factors will exhibit "diseconomies of scale" (e.g., the old age security added by the seventh child is very small relative to that added by the first) while others will have a constant level of importance (e.g. a child's ability to earn income outside the home). Put simply, the medicine prescribed should reflect the extent of the symptoms.

In conclusion, the success or otherwise of non-economic attempts to reduce fertility will ultimately founder if the basic reasons why people choose to have large families are not tackled. Quite apart from its relative efficacy, using economic incentives is a more humane way of controlling population than direct coercive methods such as enforced sterilisation. Perhaps a close examination of the Chinese experience over the next ten years will, if not answer all the questions, at least provide ever greater clues.

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The Effects of India's Economic Liberalisation and the Uruguay Round on Trade Relationships Between the European Union.

Ruth Dowd
Senior Sophister

One of the most populace and poorest countries in the world, India, has undergone a liberalisation in an attempt to reproduce the success of its Asian neighbours. Ruth Dowd surveys India's attempts at deregulating the bureaucratic structure which has in the past hampered the country's development, emphasising the growing EU-India links as a source of future benefit for both parties.

During the past ten years Asia has become the focal point of the trading world. India stands on the precipice of becoming one of the world's great trading nations and in pursuit of this objective the country has embarked upon a policy of extensive economic liberalisation. This involved surmounting years of economic protection, bureaucratic regulations and corruption, all of which dominate India's economic profile. The active participation of India in the GATT Uruguay Round intensified this democratic nation's ambition to become a major concern in world economic affairs.

In this paper I will examine India's policies of liberalisation in the context of the Uruguay Round. I will present the considerable effects in terms of the opportunities they have presented for both the EU and India. I will also briefly explore some of the difficulties that must be overcome before these opportunities can be fully exploited.

The Liberalisation of the Indian economy

India's program of economic reform began out of necessity. In 1991 inflation reached 10% and both substantial external borrowing and the collapse of the USSR caused India to nearly default on its external debt. Emergency measures were taken which included devaluing the rupee and organising a twenty month standby arrangement with the IMF. An indication of the seriousness of the situation is the fact that the country's gold reserves had to be used as collateral.

This crisis led the government to establish its New Industrial Policy. The measures included:

- The abolition of industrial licensing in all but fifteen industries.
- The amendment of the anti-trust legislation to allow for greater competition.
- Liberalisation of the foreign investment rules.
- The number of industries reserved solely for the public sector were reduced from eighteen to five.
- A commitment was made to privatise 50% of public sector enterprises. (Business Monitor International, 1995 Country Report)

These measures are also a consequence of the government's recognition of the growing importance of services and industry in the Indian economy over the last decade. Growth in agriculture has been increasing on average by only 3% while industry has had a 4% growth rate and services have had three times that of agriculture with a 6% growth rate. Statistics show the changes in GDP of each of the three major sectors over the last fifteen years emphasising the declining importance of agriculture. (European Commission, 1996) The Indian governments' policies have given very positive signs to the EU of the enormous potential and opportunity available in the country. In April 1992, the Rao government followed these reforms with an eight year plan setting the macroeconomics goals at a GDP growth rate of 5.6% and a current account deficit of 1.6%.

Public Sector

The public sector has always had a record of poor performance in India. Steps have been taken to try and rectify this situation, with a decrease in budgetary support for the sector. The National Renewal Fund has been established to offset the negative effects due to the closure of non-competitive firms.

Foreign Investment Policies

Major changes have occurred in this area. A foreign investment promotion's board has been established. There has been automatic approval of 51% of proposed foreign investment schemes in 34 high priority industries. Limits on foreign equity participation in power industries have been removed. The 1973 Foreign Exchange Relations Act was amended in 1993 to remove discriminatory treatment of businesses with more than 40% foreign equity. The government also signed the Multilateral Investment Guarantee Agency Protocol. An early indication of the advances made is given by the recent entry of firms such as Coca-Cola, Proctor and Gamble, Kellogg's, Reebok and Sony.

Capital Markets

Progress has also been achieved within India's capital markets. The government has decreased reserve requirements to 40%. There is no longer extensive control of lending rates and the deposit ceilings have been lowered, steps which are hoped to encourage both competition and efficiency. In May 1995 financial sector businesses took measures to allow foreigners to own 24% of their shares. This is in line with the World Trade Organisation practises. Policies such as these across a broad spectrum send positive signals to EU investors and governments with regard to India's desire for investment.

General Agreement on Trade and Tariff's - Uruguay Round.

As the world's eleventh largest economy India played a major part in the Uruguay Round of the GATT talks. This 20,000 page agreement holds major implications for both the EU and India and will affect their trade interaction well into the future. The abolishment of the world's most well known voluntary export restraint, the Multi - Fibre Agreement (MFA) and tariff reduction is of greatest consequence for the relationship.

The Multi - Fibre Agreement

Textiles and clothing represent 20% of India's industrial output. Of these exports 8.2% were constrained by the Multi-fibre agreement which limited the amount of textiles that India could export (Business Monitor International). The MFA meant that India was voluntarily restricting the amount of textiles and clothing it exported to the EU. During the past few years the industry has been restructured to deal with the phasing out of the MFA. Great strides have been made in improving the quality of the goods and their image on the international market. India has the advantage of a very low cost production base and is able to engage in intense specialisation that has resulted in a substantial growth in exports. In 1994 the clothing industry had grown by 21%.

Tariffs

GATT also resulted in the reduction of many of the world's tariff's. In India the maximum tariff has come down from over 300% to 50%. Given the partial consensus behind the GATT, these changes are confidently believed to be permanent, a factor which is extremely important for European exporters. Businesses do not wish to spend valuable time and money building up trade relations with India if the possibility of them raising their tariffs again is available. Tariff revenue has always represented an important part of the Indian government's revenue and the inevitable future contraction will necessitate the raising of finance through other sources (Business Monitor International 1996).

Corporation tax still remains at a very high rate of 55%, which does little to encourage investment. An examination of the 1995/96 budget gives an indication of the governments' intentions towards taxation. Although there were no reductions in the corporation tax, strong moves were made, particularly in high technology areas (Source; India Business Intelligence 1996).

General System of Preferences (GSP)

India is also to be graduated from the EU GSP system which gives preferential tariff treatment to developing countries. India has maintained a 9% share of the GSP scheme. This is yet another sign to investors of India's strengthening position. Other positive signs include India's commitment to the General

Agreement on Trade in Services (GATS) which is a commitment not to increase protection in the services sector. They also signed the TRIP's which will extend the coverage of intellectual property rights to include India.

According to estimates by the World Bank, developing countries will gain between $55 and $90 billion US dollars as a result of the Uruguay Round. A study by a London group of economists (Davenport and Hewitt 1991) estimates that the benefits for India to be as follows: manufactured goods are to benefit by US$26m, textile and clothing by up to US$189m and fishing by US$42m, not to mention the above stated tax revenue.

Trade between the European Union and India

The liberalisation of the Indian economy and the country's participation in GATT have resulted in much closer relations between the Republic of India and the EU. This culminated in a co-operation agreement between the two countries in December 1993 on Partnership and Development. This agreement has been in operation since 1994 and since then numerous institutions have been established to further the cause of economic interaction. These include:

- The EU-India Joint Statement on Political Dialogue.
- The EU-India Cross Cultural Programme.
- A European Business Centre in Bombay.
- Asia-Urbs: An agreement to encourage co-operation between the local authorities between the EU and India.
- 3SE: This involves co-operation in Information Technology issues.

In addition, the majority of EU countries have set associations to increase awareness of Indian trade benefits such as the Ireland - India Business and Economic Association.

All these groups play a major part in promoting interaction in political and cultural areas as well as in the economic sphere. Understanding a country's culture and political ethos is vital to the promotion of good trade relations. Political adherence to the new measures in India is vital. The words of the present prime minister H. D. Deve Gowda that India "cannot give up liberalisation" are welcomed by EU investors.

However, India provides a valuable new market for EU producers in the form of a newly emerging consumer class consisting of 150 million people. India's financial system is good relative to its Asian neighbours and despite regulation its private sector is reasonably well developed. The potential is great for EU producers who face maturing markets at home. India is potentially the second greatest export market in the developing world (European Commission 1996).

The loss of the USSR as one of India's major economic partners has heightened India's interest in the EU. Links had been forged since as early as 1964, so EU - India relations are not a novel thing. As stated in a recent European Commission paper, *"It is in the EU's interest to help Asia play a more prominent role on the world stage."* The value of the EU to Indian trade is easily identifiable. The EU accounts for over 20% of total world trade and is India's most important trading partner as can been seen below (Central Statistics Office 1996).

In 1995 India's exports to the EU accounted for 33% of its external trade and 35.7% of it's imports. In nearly all cases there are substantial increases in exports and imports from India's main EU trading partners from 1994 to 1995 (European Commission and CSO 1996). However, India still only accounts for 1.3% of EU trade despite being the second most populous country in the world. There is obviously plenty of room for expansion of these figures. The EU has maintained a trade surplus but this has been declining strongly since India's change of policies in 1991.

Direct Foreign Investment (DFI)

Policy changes have led to large increases in the amount of direct foreign investment from the EU. The EU represents 18.4% of all foreign investments in India. The commerce minister Dr. B.B. Ramaiah told The Irish Times in a recent article that India is seeking foreign investment in four main areas. These are:

- Post harvest technology-processing, packaging and preservation of agricultural and marine products.
- The electronics and telecommunications equipment sector.
- Engineering industries.
- The chemicals and plastics' industries.

The UK received the most approvals in 1994 with 414 approvals. This figure was more than double than that of the previous year. Germany followed with 182 proposals, a huge increase on the 17 that were approved for the country in 1991. Italy also received a large number at 122 which was also a huge increase from the 39 it received the year before.

The Public Sector

The public sector has long been an area of chaos in India, burdened with excessive regulation and bureaucracy. This could not continue in a country in such dire need of basic infrastructure requirements. At the GATT talks it was agreed that the public sector should be open to public procurement. The EU has already played a substantial part in India's development with its aid programs. EU donations represent 16% of the total and India is the largest recipient of EU aid in

the developing world. The EU is also India's largest grant donor representing 60% of the total. As at June 1995, the total amount of projects to be funded by the EU in India came to 740 million ECU. The EU demonstrates through these commitments its recognition of India's growing importance in world trade. The state has ended its monopoly in telecommunications and it is expected that laws will be passed to allow the private sector to compete in post, air, rail and roads.

India is also taking positive steps to improve relations with its Asian neighbours. It is intent on joining the Asia- Pacific Economic Co-operation (APEC). It is also on increasingly good relations with the US, Japan and China. These are positive signs for the EU as they increase India's political and economic stability.

Steps have also been taken to curb inflation which has remained high but has begun to decrease over the last year. It has fallen 2.5% since 1992 to 7.5% in 1996. Bank credit for non-bank financial institutions have been curtailed. Bridge loans have been banned and the maximum deposit rate has increased from 1% to 12%.

Challenges For the Future

The outlook for India looks very positive indeed. However there are issues which must be acknowledged when considering India. India is still behind many other Asian nations in terms of its growth and development. Its pace has been much slower than that of China for example (European Commission 1996).

Social issues cannot be ignored as poverty touches some 210 million people in the country. Communication is extremely poor in terms of telephones, road's railways, etc,. Another major point of contention in the future will be the pressure from developed countries for India to comply with both environmental and labour standards. A major problem is also bureaucracy. This is having a major effect on the actual implementation of DFI approvals.

Declared amounts of DFI glow with optimism. However the reality is not as confidence inspiring. Implementation is bound by a mass of regulations and red tape. A survey by the Centre of Monitoring the Indian Economy (CMIE) covering 3000 foreign and domestic projects found that while approvals grew by 46% actual implementation grew by only 4.4%.

Another issue to consider is the problem of corruption. A bloated civil service and public sector breed corruption. In many parts of Indian society corruption is considered normal practice. Industrialists running inefficient companies fear the eradication of tariff's and therefore the protection enjoyed by their firm's. They have a large amount of influence - extortion and bribes continue to play a huge

part in industry. This is emphasised by the fact that former Prime Minister Narashima Rao faced three court cases of corruption when he left government.

Seventy per cent of the Indian population are farmers who are relatively very poor by western standards. The government focus on liberalisation seems to benefit only business people who are already far more prosperous than the farmers themselves. These people still expect government support and no government wants to explain to 70% of the voting population that money will not be forthcoming. Thus the government have continued to provide agricultural subsidies which have negative effect on the budget deficit. Trade Unions continue to strongly oppose any government intentions to relax the labour laws. This prevents the essential downsizing that is so desperately needed in the public sector.

Perhaps the most dangerous consequence of these issues is the potential fall off in India's liberalisation policies. Although prime minister Gowda publicly advocates the liberal economic stance it seems he is having second thoughts. In October 1996 he stated that *"Those who believe economic liberalisation will usher a miracle are either living in a fool's paradise or trying to mislead their countrymen.... Nobody comes to India to do charity, everybody comes for profit."* Regressive comments have also been made by the Federation of Indian Chambers of Commerce and Industry. (FICCI). These comments are little helped by the fact that in the first five months of 1996 exports grew by just 9.8% compared with previous levels of 20%. India cannot afford to slip back into the old habits of regulation and bureaucracy.

Conclusion

The main points that can be extracted from this analysis of the Indian economy are summarised below:

- Liberalisation has lead to growth in all areas of the Indian economy.
- The most positive signals are coming from the countries foreign investment policies, capital markets and the public sector.
- India's participation in the Uruguay Round has been crucial for reform.
- EU - Indian trade relations will continue to grow in strength, despite some slackening of the enthusiasm shown earlier in this decade.

However let this last cautionary note not deter us from the potential of India - EU trade relations. Recent government publications such as "India Means Business" and "Opportunity India" are indications of India's appetite for stronger trade links with Europe. India has a buoyant, dynamic economy and is an immense nation with ascending expectations. The continuation of the policies of the last five years

will ensure that both these expectations and those of the rest of the world are accomplished.

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An investigation of the effects of taxation on Irish unemployment

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A frequently cited explanation for Ireland's persistently high unemployment is the tax burden borne by the labour market. Diarmaid Smith examines the disincentive effects of taxation and the incidence of Irish taxation. He concludes with a discussion of possible reforms.

With 182,000 people currently out of work in Ireland (according to the labour force survey), and over twenty million in Europe, unemployment remains the central concern in economics. The purpose of this paper is to outline how taxation has contributed to the rise in Irish unemployment since the 1970s. In order to proceed along these lines, I will begin by briefly examining why unemployment is of such importance, before going on to critically assess the significant impact of taxation on the growth of unemployment over recent decades.

High, and in particular, long term unemployment is extremely costly in the sense that it signifies a waste of resources, forgone output, income, tax revenues and consequently often severe budgetary implications. In fact, the outstanding feature of Irish unemployment has been its extraordinary persistence, with over 60% of unemployed people out of work for more than one year. This is particularly damaging in the sense that the long-term unemployed suffer from both de-skilling and de-motivation as well as being stigmatised in the eyes of potential employers as being unproductive. As a direct consequence of this, the probability of leaving unemployment declines considerably with time spent unemployed. There is a great danger, therefore, that a "dependency culture" can emerge and, because unemployment is typically widespread in disadvantaged areas, it can frequently result in a self-perpetuating cycle of deprivation and poverty, with inevitable far-reaching social ramifications such as crime, drug abuse, etc.

The average rate of unemployment in Ireland from 1960 to 1975 was a modest but stable 5.2%, but by 1979, unemployment had spiralled upwards towards 7.2%. The 1980s was a particularly bleak decade for the economy as unemployment soared to 17.3% by 1985 (see Table 1).

Table 1: Numbers employed, Numbers unemployed, the size of the Labour force and the percentage unemployed.

Year	Employed (1,000's)	Unemployed (1,000's)	Labour Force (1,000's)	% Unemployed
1975	1073	85	1158	7.3
1980	1156	91	1247	7.3
1985	1079	226	1305	17.3
1990	1126	179	1305	13.7
1991	1125	208	1334	15.6
1992	1125	225	1350	16.7

Source : McGettigan & Browne (1993).

This increase in unemployment, and the consequent decline in living standards (real GNP in 1987 was lower than in 1980) was caused by a combination of adverse world economic shocks and internal factors, coupled with growing legal and institutional rigidities in the labour market (which resulted in permanent rather than temporary unemployment). The external, and hence exogenously imposed, factors which contributed to a decade of economic stagnation were:

- The jump in real commodity prices caused by the OPEC oil price shocks.
- The deterioration in the UK economy whereby disinflationary macroeconomic policies resulted in British unemployment soaring from 4.5% in 1979 to an epic 11.8% in 1986.
- Real interest rates became strongly positive in the 1980s, whereas they had been overtly negative in the 1970s.

The above factors helped to depress demand and output, and curb emigration (initially) in Ireland, thus causing job losses. Although we had no control over these factors, domestic macroeconomic policy unquestionably proved to be the major cause of Ireland's rising unemployment. This can be seen through the Government's attempt to pursue a strongly expansionary fiscal policy in the late 1970s, in a desperate attempt to mitigate against the adverse affects of the oil price shocks and a worsening world economic environment. Although such a policy was moderately successful in the short run in averting a wide-scale recession, it inevitably led to the build-up of a huge national debt as government deficits spiralled out of control in the 1980s. Consequently, fiscal policy was forced to become strongly contractionary from 1982 onwards, and thus both the unemployment rate and the tax burden soared. In fact, over the period 1979-1986, with the sole exception of Spain, Ireland had the worst performance in the OECD, in terms of both job creation, and unemployment prevention.

The 1980s were thus marked by pitifully low economic growth, rising unemployment and emigration, and a seemingly continual rise in the tax burden. As Tansey eloquently remarks: "The years of economic stagnation had been associated with increasing rates of government spending, accompanied by a sharp and continuous increase in the burden of taxes"[1]. As governments sought to finance the mounting deficits, the yield from income taxes and PRSI tripled in the 1980s, increasing their share of GNP from 16.3% in 1980 to 23% in 1987. Employees were particularly adversely affected as total employee income taxes soared from £1,163m in 1980 to £3,653m in 1990.

There were four main reasons why effective tax rates on labour became so high and penalising in Ireland, thus greatly contributing to unemployment by lessening work incentives. Firstly, the sub-indexation of basic tax allowances meant that an increasing proportion of workers' gross incomes were subject to taxation and, in addition, discretionary allowances and mortgage interest relief were cut back. Secondly, tax bands were squeezed, resulting in taxpayers paying increased rates of tax for relatively modest additions to their incomes (the phenomenon of "bracket creep"). In effect, the government used inflation as a hidden tax or, as Tansey points out, "inflation acted as a phantom tax collector for the exchequer"[2]. Thirdly, although improvements were made in reducing tax rates in the late 1980s, effective rates of tax remained excessively high and Ireland's starting income tax rate of 30% in 1990 was the second highest in the industrial world. Finally, further taxes on labour were introduced in the form of new levies, in addition to a rise in existing PRSI rates from 3.5% in 1980 to 6.75% by 1991.

The huge rise in the burden of taxation, which came in many forms, both direct and indirect, was a consequence of the expansionary policies pursued in the 1970s, and the negative impact on unemployment proved to be severe, "the unemployment of the 1980s has been to a significant extent a consequence of the fiscal mismanagement of the 1970s, when inappropriate policies were pursued, the tax base eroded and the national debt built up."[3] Undeniably, therefore, Ireland's exceptionally high levels of taxation contributed directly to the rise in unemployment, primarily, as we shall see, through the effects of the tax wedge on the workings of the labour market.

The tax wedge is the difference between what it costs an employer to hire a unit of labour (the product wage) and the real purchasing power that an individual derives from his post-tax income (the consumption wage). The wedge is of particular concern because it adversely affects the labour market on both the supply and

[1] Tansey, P., 1991, p.7
[2] Ibid. p.31
[3] Barry, F. & Bradley, J., 1991, p.278

demand sides, as a wedge is driven between the cost of labour to the employer and the returns from work, leading to unemployment. Thus, it distorts the labour market, by disturbing the price mechanism; in fact, Tansey (1991) stresses that employers and employees no longer speak the same language when it comes to wage negotiations, since they respond to distinctly different sets of price signals, because of the myriad of taxes that they encounter.

It is estimated that the cost to the employer of granting a £1 increase in net income rose from £1.82 in 1980 to £2.58 in 1985. The tax wedge ensures that pay increases to workers are quite small in real terms, whereas the cost to the employer can be substantial. In fact, the OECD reported that, between 1979 and 1986, real labour costs rose by over 20% whereas real post-tax wages fell by more than 10%! The magnitude of the wedges' distortionary effects depends positively on the elasticity of labour supply and demand, both of which are relatively elastic in an Irish context, given the "openness" of the economy and the propensity of labour to emigrate.

In Ireland, the consensus among economists is that the incidence of any increase in income taxation is shared evenly between employers and employees, thus Barry (1991) reports that 50% of any increase in the wedge is passed onto employers in the form of increased wage demands, in the medium to long term.[4] In the early 1980s, for example, many indigenous and British industries based in Ireland were forced to close down, partly because of the deterioration in cost competitiveness as a result of the tax wedge and the increase in the real exchange rate by over 30% between 1974 and 1989.[5] Thus, these industries experienced heavy employment losses, as unit-labour costs spiralled ever upwards, a fact which is borne out by the evidence; *"a major driving force behind the competitive loss has been the upward pressure on wage demands induced by the dramatic rise in the tax burden during the 1980s. The tax/GNP ratio grew faster in Ireland than in any other OECD country in this period."*[6]

In 1987, Murphy estimated that a 1% increase in the tax wedge would reduce employment by between 0.2% and 0.25%. In addition, the NESC reported that the wedge rose by 27.3% between 1980 and 1985, thus causing at least a 7% fall in employment. This sharp and continuous rise in the wedge was a direct consequence of government economic policy, and a major cause of Ireland's traumatic employment experience in the 1980s. Indeed, the Barry & Bradley (1991) and Browne & McGettigan (1993) reports both reached the same conclusion - that domestic policy (and not external or demographic factors), was

[4] Barry, F., 1991, p.108
[5] Browne, F. & McGettigan, D., 1993, p.17
[6] Barry, F., 1991, p.108

primarily responsible for the rise in Irish unemployment, as Table 3 demonstrates. Barry summarises that, "domestic policy in the 1979-1986 period, operating primarily through tax increases, accounted for 4.4 percentage points of the 10.2 percentage point increase in unemployment."[7] According to Tansey, "large public sector deficits and heavy tax burdens were associated with job destruction rather than job creation."[8]

Table 3.: *Decomposition of Unemployment Changes : 1979-86.*

	Barry/Bradley	Browne/Mc Gettigan
External Factors	3.00	2.6
Domestic Policy Factors	4.41	4.5
Demographic Factors	0.60	1.8
All Factors Combined	8.44	8.9
Historical Data	10.2	10.2

Source : McGettigan & Browne (1993).

The tax wedge was also partly responsible for the huge increase in emigration during the 1980s, whereby over 200,000 people fled the country in search of employment and presumably lower tax regimes. In particular, young, highly-qualified, single people have continued to vote against the Irish tax system by emigrating. Such a trend adversely affects both the future skill base and dynamism of the economy. A further negative side-affect of our taxation policy has been the creation of a flourishing tax avoidance industry whereby entrepreneurial flair, guile and ingenuity have been devoted to searching for tax loopholes, rather than creating employment.

During the 1980s, an unemployment trap emerged on a large scale, as a direct result of both the tax and social welfare codes. Consequently, many of the long-term unemployed, in particular, have no financial incentive to search for employment, because effective tax rates and replacement ratios are so high. For example, the effective marginal tax rate for single people on average industrial incomes was over 55% in 1992. In the 1980s, expenditure on social welfare tripled, increasing its share of GNP from 10% to 13% and, as the Central Bank reported, *"relatively high replacement ratios and the indefinite duration of unemployment welfare payments is an institutional feature of the Irish labour market."*[9] In 1991 for example, the Minister for Finance reported that an entitlement to social welfare of £58 per week could be worth more than an earned income of £231! (Leddin & Walsh, 1995). Thus, for many, there is simply no

[7] Ibid.
[8] Tansey, P., 1991, p.88
[9] Browne, F. & McGettigan, D., 1993, p.27

incentive to seek work and, hence, there has been an increasing tendency for those in short-term unemployment to become long-term unemployed.

Another worrying feature of the Irish taxation system, has been its considerable bias in favour of capital over labour, whereby capital tax rates have been extremely low, and supplemented by various capital grants, subsidies and allowances, compared with the tax treatment of labour. The OECD concluded that, "no other OECD country has a tax system as biased against the use of labour as the Irish."[10]

Although, there have been recent improvements to encourage work via tax cuts, effective rates of tax remain considerably higher in the 1990s than in the 1970s, particularly for those on lower incomes; therefore, urgent and radical reform to both the tax and welfare systems is required.

Reforms

Integration of both the tax and social welfare systems would certainly help to alleviate both the unemployment and poverty traps, possibly through some form of negative income tax. At the very least, such an amalgamation would help the two codes to pull in the same direction, which was certainly not the case in the 1980s, when welfare payments were increased, seemingly without any reference to the tax system. Furthermore, the tax system continues to remain overly progressive at relatively low levels of income and overly biased against single people, for no economic reason. Marginal rates of tax must be reduced in order to both reward and promote work. Such reductions could be financed by cutting public expenditure and/or by abolishing many of the reliefs, exclusions and exemptions which exist at present (often to the benefit of the most affluent), all of which mean that marginal tax rates are higher than they need to be. Certainly, reductions in average rates of tax, especially for those on lower incomes, would help to extend the gap between unemployment payments and post-tax income.

The tax system should also be simplified by having one single system of tax rates, allowances and bands as opposed to the present plethora of levies, PRSI rates, etc. Increases in other forms of taxation (e.g. corporate and indirect taxation), would further help to spread the tax base as wide as possible, thereby facilitating tax rate cuts, which remains the pressing concern in Ireland, given the size of dead-weight losses associated with our taxation system, as Honohan and Irvine stressed, "the Irish taxation system is noteworthy for the narrowness of its base: much of income and expenditure is either effectively tax free or taxed at very low rates. This means that rates of tax on other goods or incomes have to be higher to obtain a

[10] Tansey, P., 1991, p.37

given level of revenue. These are reasons for supposing the excess burden of taxation in Ireland to be very high."[11]

Conclusion

For almost two decades, unemployment has remained at a persistently high level, with the phenomenon of 'hysteresis' now firmly entrenched in European labour markets. For many young people growing up, high levels of unemployment have become very much the norm. However, while the unemployment problem in Ireland is chronic, it is curable. Although it might be naive of us to believe that governments can directly cut unemployment by significant amounts via monetary and fiscal policy, they can, by appropriate measures, help to create an economic environment which fosters employment growth. Unquestionably, a pro-jobs taxation policy must be an integral part of any reform, as high taxation on labour is not, and never will be, the requisite response to high and persistent unemployment.

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[11] Honohan, P. & Irvine, I., 1987, p.16

Is Unemployment Here to Stay ?

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European-wide recession has pushed unemployment and trade union activities to the forefront of both the political and economic agenda. Fraser Hosford reviews the concept of unemployment as portrayed by standard neo-classical theory.

"The patrimony of a poor man lies in the strength and dexterity of his hands; and to hinder him from employing this ... is a plain violation of this most sacred property"

- Adam Smith, The Wealth of Nations

Introduction

High unemployment is now a common feature of society in many Western European countries. The dramatic rise in unemployment in the 1980s and 1990s, and its subsequent persistence, has led to a certain fatalism about these levels of joblessness. However, there are solutions available, and perpetually high unemployment need not be the fate of a modern economy. In this paper, the three main ways in which European governments can, and should, attack unemployment are outlined. Primarily, Europe needs to reverse the continual rise in its natural rate of unemployment by reforming its labour markets. Secondly, European tax levels need to be reduced, and this requires control of its escalating public expenditure. Finally, the declining international competitiveness of European industry and commerce needs to be reversed. European industry has been consistently losing world market share to both the US and Japan.

According to standard classical macroeconomic theory, all unemployment is voluntary. As the real wage adjusts in the long run, the labour market will clear at the equilibrium rate, where everyone who wants a job will get one. Therefore, if governments refrain from intervention, market forces will ensure the desired outcome. The rate of unemployment will be the natural rate, or the non-accelerating inflation rate of unemployment. This is the single rate of unemployment consistent with a stable rate of inflation in the long run. The present unemployment rate of 5.8% in the US is deemed by many to be the country's natural rate, in Europe the figure is higher, estimated to be around 8%. This level of unemployment, which is described as frictional unemployment, is necessary to ensure the efficient functioning of the economy, and to subdue inflationary pressures. However, during the 1960s the natural rate and the actual unemployment rate in Europe were thought to be about only 3%. The increases in this natural rate since the 1960s indicates that it may be possible to bring the rate back to these low levels. Thus, the primary focus of this essay are the causes and

remedies of this high natural rate, and the sclerotic nature of European labour markets in general.

The Social Security Trap

The social security trap is generally promoted as a major cause of high unemployment in modern, industrialised societies. High levels of unemployment benefit reduce the opportunity cost of unemployment, thereby reducing the incentive for individuals to find employment. Some people refuse to accept low paid jobs, as the pay may only be marginally above the unemployment benefits, a phenomenon known as a high replacement ratio. Many argue that the lower NAIRU (Non-Accelerating Inflation Rate of Unemployment) in the US is due to the lower level of benefits available there, which in any case stop after six months. In their sophisticated econometric research into unemployment, the British economists Layard, Nickell and Jackman said that "the unconditional payment of benefits for an indefinite period is clearly a major cause of high European unemployment." [1] No one wishes to point a finger at those who are jobless by choice, but for many people safety nets have undeniably become hammocks. Chancellor Kohl said that "about a third of those on welfare rejected jobs offered to them", and noted that construction sites around Germany are filled with foreign workers, while Germans sit idle.[2] Burda also finds a strong positive relationship between the generosity of the benefit system and long term unemployment rates across countries.

A greater emphasis, therefore, must be placed on active labour market policies. While dampening the disincentive problem that is inherent with social security, this approach will assist the unemployed in effective job search, increasing the rate at which they are successfully matched with available job vacancies.. The OECD, who are advocates of such an approach, concede that some of these policies have been ineffectual. They propose enhanced co-ordination between the different functions of benefit administration and these active strategies as a solution.[3] This would facilitate the monitoring, and support, of the job search activities of those receiving benefits. It would reduce the risk that staff dealing with placement activities and benefit administration would aid different clienteles. Those placing the unemployed can lose touch with the long term unemployed in particular, and those on benefit administration have no incentive to reduce the level of benefits paid out. There is also the possibility of encouraging competition from the private sector in job search activities and counselling. However, a number of difficulties arise with this, most notably whether the government provide subsidies for start-up costs, how to define and monitor successful

[1]Layard, P.R.G., Nickell, S. and Jackman, R.
[2]Branegan, J. (1996)
[3]Employment Outlook (1995)

outcomes, and how to set fees so as to maximise incentives without generating large rents.[4]

With high and persistent unemployment, emphasis should be placed on active labour market policies to increase the numbers taking on part-time work. Periods of training and short term jobs are needed to maintain the skills of the unemployed, to boost their motivation, thus hopefully preventing the drift into long term unemployment. Training is essential in the labour market question. David Soskice has identified four key areas.[5]

- Close links need to be developed between schools, the system of vocational training, and companies. This is to enable young people to see clearly the route from education to stable employment, via training.
- Training needs to lead to marketable skills, not just company specific skills. This also provides a signal to the right sort of inward investment.
- There is a need for some EU-wide system for standardising and approving qualifications.
- Local labour markets need good systems for retraining those who have been made unemployed.

However, while the aforementioned social welfare system is undoubtedly an inhibiting factor, it cannot account for levels of unemployment of 11% and 12% by itself. The European welfare state did not suddenly become more generous in the 1970s, and as such cannot be the sole reason for the rise in unemployment. It does, however, help to explain the persistence of high unemployment long after the transitory disturbances have disappeared.[6] Yet, Charles Bean of the LSE concedes that "we really don't know enough about the causes of Europe's high unemployment to know exactly how to cure it".[7] Despite this, numerous efforts and studies have taken place which can lead us in the right direction.

Minimum Wage Theories

Minimum wages have always been propounded as damaging policies by economists, yet the social concerns of politicians, and some say naivety of the electorate, have resulted in their continued existence. If a worker can only offer productivity worth £3 to you as an employer, but the minimum wage states he must be paid is £4, would you employ him? Despite the obvious logic, new approaches suggest that a minimum wage may even create employment. The most popular one is the notion of monopsony in the labour market, where

[4]OECD Employment Outlook (1995)
[5]Soskice, D. (1995)
[6]Bean, C. et al. (1995)
[7]Branegan, J. (1996)

employers have monopoly power as buyers of labour.[8] Theoretically it can boost employment, but the usefulness of the idea for policy is very limited. To act on it without running the risk of losing jobs, the government would have to fine tune the minimum wage continuously, according to the type of worker, area by area, industry by industry, and even firm by firm. From a practical point of view, the idea is unworkable. The figures speak for themselves, one in six workers in the US are paid less than the French minimum wage.[9] Those who would lose their job as a result of a minimum wage are the very ones it would aim to benefit, the less productive, unskilled and uneducated workers. Furthermore, a law against offering one's labour services under a set wage is a direct attack on one's economic freedom. The OECD believes one of the most vital strategies would be to lower minimum wages so the young and the unskilled could price themselves into jobs. This would also hope to encourage greater wage flexibility among companies, industries and even different regions of a country.[10] However, implementation of such strategies can be very problematic, for example, a 1994 French government proposal for a lower youth minimum wage was withdrawn due to a wave of student protests.

Insider-Outsider Model

The Insider-Outsider model is commonly cited to explain situations of less than full employment. The basic assertion of this model is that wages are set by bargaining between employees and employers. Unemployed outsiders play no role in the setting of wages. It is the employees, or unions acting on behalf of employees, known as insiders, who determine wages, whilst securing their own employment. Economists have always been wary of the power of trade unions, who may protect the wages of their members, at the expense of those who would work for lower pay. Within a corporatist system, where the bargaining process takes place at a national level, institutions are unable to pass on their wage increases to others, because each represents a large element of the total workforce. The experience of Germany, in particular, seems to show that this system has worked well, as unions are forced to acknowledge the impact of pay rises on unemployment.

The Corporatist System

However, the efficiency of the labour market may be impaired by the placing of uniform wage agreements on different sectors of the economy. In a corporatist system, wage differentials may be imposed in a rigid manner, irrespective of changes in economic activity, and this can affect unemployment. It can lead to a situation where workers' wages will not equal their marginal product - an

[8] "The Economist", Sept. 10th 1994
[9] "The Economist", Nov. 19th 1994
[10] Branegan, J. (1996)

inefficient allocation of labour. Then there will be no incentive on a worker's part to move to firms where they will be more productive. Workers may be let go in a situation where productivity increases by less than the average, as firms will be paying too much for them. There is no guarantee, however, that firms whose productivity has been growing at a faster rate than its wage bills, will take on more workers.

The German model is stumbling at present, and many blame its overly rigid corporatist wage bargaining system. The trade unions who are famed for their responsibility, were the reason for its early successes. However, new firms are not signing up to industry-wide agreements, because they want the freedom to tailor wage deals to their own conditions. It is sustainable for large firms, who can afford settlement by demanding huge price cuts from their subcontractors, however, these subcontractors cannot afford them because they are forced to pay the same industry wide wage deal. The Mittelstand (minor contractor) is thus picking up the bill for social solidarity, and as international competition intensifies it can no longer afford to pay. Furthermore, neighbours such as Poland, Hungary and the Czech Republic have wages at 10% of the German level, therefore increasing the probability that firms will simply relocate production in order to lower costs.[11] This contrasts gravely with America where small- and medium-sized enterprises have been the driving force behind the employment boom.

Institutional Factors

An alternative would be the UK style system, where the power of trade unions was severely diminished in the 1980s. Many believe the labour market reforms that have taken place in the UK were necessary, and do not see the option of a corporatist system as unworkable in the UK. The results are likely to be similar to those achieved in Ireland, where social partnership consists of strong public sector trade unions, within the Irish Congress of Trade Unions demanding wage increases way above the rate of inflation, while the interests of the private sector have been largely ignored. Certainly the failure of unemployment figures to fall during the recent boom questions the system. Many economists have been warning against the power of trade unions, but it seems that these warnings are not being heeded. The public services pay bill has increased by more than 6 % annually since 1987 as a result of the Programme for National Recovery and Programme for Economic and Social Progress increases and special pay awards. If the public sector had been persuaded to accept a 2.5% annual increases in the period 1987-92, sufficient to compensate for inflation, a saving of six hundred million would have been made. This money could have generated up to thirty thousand extra jobs in the public sector, or have been used through tax cuts to stimulate employment in the private sector. Either way, as McAleese has shown,

[11]Hutton, W. (1995)

"many thousands of jobs have been priced out of existence because of public sector unions' success in obtaining high increases in remuneration".

Employment protection is also blamed for Europe's rigid labour markets. The rise in unemployment over the 1970s and 1980s arose mainly through a reduction in outflows from the unemployment pool and, hence, an increase in the average length of an individual's unemployment spell. In this context, Bertolila and Bertola argue that the high levels of unemployment are due to low job creation, rather than excessive job destruction. Employment security provisions, introduced in a number of cases, under pressure from trade unions, have increased the effective hiring and firing costs for labour. Furthermore, the oil shocks of the 1970s substantially increased the degree of uncertainty faced by firms. The result of both increased uncertainty and high hiring costs is to make firms hesitant to increase employment, even in relatively prosperous times, owing to the high costs involved in subsequently shedding labour in a down-turn.[12]

It has been argued that lack of protection and deregulated markets will result in less loyalty on the behalf of firms and employees, and a subsequent lack of training. The paramount importance of training is widely recognised as a necessary response to technological progress and increased international trade. The idea of life time employment has all but disappeared in the UK, and some see that as a reason for not following their example. However, the now more common short term contracts are only continued if performance is satisfactory, and in longer contracts, also, reward is increasingly on the basis of performance - surely foundations for healthy productivity? Also, as the question of life time employability has emerged, workers realise that they may well lose their jobs if the company can no longer make effective use of them. The best companies have already understood this, if they are to retain their own right to flexibility, they also need to make their workers as flexible as possible.[13] They will be rewarded with less anxious employees, and higher quality ones, as the best people queue to work for firms that offer not the illusion of security, but an opportunity to stay employable.

Product Market Barriers

The McKinsey Global Institute report that product market barriers maybe even more important than labour market rigidities in explaining Europe's high unemployment.[14] New job creation offsets job losses in an efficiently working economy, but government interference, in the labour, capital or product markets, will block the expansion of jobs in new industries and products. In the retailing

[12]Blackaby, D.H. & Bladen-Hovell, R. (1992)
[13]"The Economist" March 19th 1995
[14]The Economist," Nov. 19th 1994

sector, for example, zoning regulations, restrictions on opening hours and other anti competitive practices have been shown to have stunted the growth of the sector across Europe. In France, retailing employment has shrunk whereas in the US it has been a huge job creator. 'Loi Royer' gives local politicians and shop owners power to block the opening of new large stores. Germany and Italy also have strict zoning regulations. In many European countries limits on the number of cable TV channels and restrictions on TV advertising have inhibited job growth. Reforming the labour market will create mainly low skilled low paid jobs. However, if this is accompanied by deregulating product markets, more high skilled jobs will be created.

Thus, it is my contention that changes should be made in the above areas. They are, undoubtedly, restraining employment creation. The measures will vary widely, as they must be suitable for different countries, with different social and economic structures. However, I believe measures must be taken. It may not, for example, be advisable for Germany to abandon its wage bargaining system - rather changes to enhance flexibility may be sufficient. The best climate for reform is when an expanding economy is experiencing a high rate of structural change. This can be shown, to some extent through the large scale introduction of temporary job contracts in Spain in the 1980s.[15]

Policies to Increase Labour Demand

Policies to increase labour demand, if implemented simultaneously with the aforementioned policies, should free up labour markets and subsequently reduce the 'NAIRU', which will increase wages and employment.

In Europe, public sector expenditure ratios average at almost 50 %, in contrast to the 30-35% of Japan and the US. If public sector expenditure is cut, the tax ratios could also be reduced. These tax reductions would then create conditions where companies would employ more labour, because it would be cheaper relative to capital, and because companies would be expanding faster. The supply of labour would rise at the same time, as the lower taxation would eventually decrease the replacement ratios in European countries. With more private sector output and less unemployment to finance, tax rates could be further reduced, to produce a virtuous circle for as long as these developments can be sustained.[16] Therefore, the reduction of public sector expenditure needs to become a major objective of economic policy for European governments.

It is a myth to believe that public sector expenditure ratios are already at an irreducible minimum. To take the example of Britain in 1976, real public sector

[15]Brittan, S. (1995)
[16]Eltis, W. (1995

expenditure was cut by 8% in two years. This, by a Labour government, is a larger figure than that achieved by any of the Conservative governments which followed. The fiscal tightening which took place in Ireland in the second half of the 1980s reduced the public sector expenditure ratio by a staggering 10% - from 53% of GDP in 1986, to a sustained 41-43% throughout the 1990s. What Europe now needs is a similar will to cut public sector expenditure now when the circumstances are not so pressing. In these examples, the ratios of taxation in GDP were not subsequently reduced because public sector expenditure was slashed to reduce budget deficits and control the growth of public debt. However, if governments with tolerable budgets and public debt, were to cut public sector expenditure as if they were in crisis, it is possible that they could at the same time reduce taxation and recreate the conditions for faster growth in employment and output.[17] Then a virtuous circle would be possible as the potential for further tax cuts would exist.

Lower European taxation would also enhance the competitiveness of European firms. It would increase their investment potential, and their ability to finance research and development. Furthermore, foreign investment into Europe would significantly increase. The efficiency of the labour market, as previously discussed, is also a major determinant of a country's international competitiveness, which needs to be improved in Europe to raise living standards, growth and employment.

With the advent of EMU, the possibility of changing the exchange rate is removed. Monetary policy will be dictated by the supranational European Central bank, based in Germany, and fiscal policy is also likely to be restricted. Therefore, the need to take structural measures to improve a country's international competitiveness will become stronger. Microeconomic policy measures should become more prominent, with the above ideas for training necessary for the increased labour mobility needed in a single currency area, being just one example.

Conclusion

While the causes and measures I have outlined are by no means conclusive, and some of the issues are quite contentious, I do believe the logic is clear. Furthermore the US, famed for its flexible labour markets, has a unemployment rate near to 5 %, and the UK , having made similar attempts, has a rate of 6.7 %. Richard Jackman of the LSE credits the reforms with helping to lower the unemployment rate by two to three percentage points. He also argues that the drop would have been more impressive if it weren't for the poor education

[17]Ibid.

system.[18] To conclude, I believe the main problem as regards any solution to this problem, is the deep rooted fear of the creation of a two speed society, as has happened in the US. There, the dispersion of income has increased dramatically, with many blaming the deregulated system. A look at the socio-economic background and educational attainment of the less well off, would certainly be a helpful insight into this problem, again emphasising the need for quality training for all. A study by the Centre for Economic Policy Research concluded that a fall in aggregate European unemployment to 6.4%, resulting in a distribution of income similar to that of the US, would benefit only 44% of the labour force, making it politically very difficult to achieve.[19] David O'Sullivan, a top aide to Commissioner Padraig Flynn, has said that "we agree there has to be radical change, but we don't want an American style free for all that destroys the social safety net."[20]

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The Irish Social Security System, a Time for Change?

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The Irish Social Security System is continually under review due to its central role in the government's approach to reduce friction's in the labour market. David Brocklebank traces the Irish Security System's development from the Beveridge Report, and points alternative scenarios.

Introduction

The distribution of income that could pertain in a core market economy diverges from what is regarded by the majority as equitable, creating a requirement for a system of social security. Transfer payments are the primary mechanism by which the government intervenes in the market and redistributes income on the grounds of equity and social efficiency. Some believe that the benefit or utility an individual attains from an extra unit of income diminishes as income rises. By redistributing income, total benefit from it can be increased. The social security system attempts to at least partially equalise the marginal benefit of income across the income range. It aims to reduce, though not remove, this difference, since a total removal of this difference would create economically crippling disincentive effects.

The Irish and British social security systems are similar, the latter having its foundations in the Beveridge report of December 1942. Minor alterations have been made, though essentially our system dates back to the time of World War II. When we refer to social security, we refer to cash benefits, health care, education, food, housing and other welfare services. For the purposes of this essay I shall focus on cash payments, since most of the notions of altering the system are rooted in changes to the cash benefits system. Firstly, I propose to look at the reasoning behind and the operation of the current system and then consider the view that perhaps the current system is somewhat dated and a fundamentally different system should be implemented.

Foundations of the current social Security System

The core element of Social Security envisaged in the Beveridge report was the introduction of a nation-wide social insurance scheme. Beveridge outlined a system of compulsory social insurance that could provide a minimum standard of living without having to resort to means-tested benefits. If a person had not made contributions to the scheme and found themselves in poverty then a national, means-tested assistance scheme would provide benefits for that person. Beveridge emphasised the necessity of having considerably less benefit payable to an individual on national assistance compared with social insurance.

The level of benefit is based on the notion of subsistence income, raising a number of problems. Standard rate of benefit payments to an individual do not internalise the differences in rent an individual has to pay, owing to the variation rent prices across the nation. Including the average rent costs in calculating a subsistence level payment results in some claimants living below the subsistence level, but finding a practical solution to rectify this proved elusive. A second problem arises from the need, from an insurance perspective, to predict the levels of payments in the future that would be required to maintain a "subsistence" standard of living. The rate at which prosperity increases should have some impact on the level of payments, because it is a determinant of what could be regarded as a subsistence standard of living, though this rate is rather unpredictable. This unpredictability in the level of benefit payments results in an inability to calculate premium payments accurately. This requires the government to act in a sense as "payer of last resort" to make up the difference between the contributions and the payments.

Beveridge believed that society was more willing to pay into an insurance scheme when they were aware it was going to finance their retirement and any contingencies which may arise, as opposed to paying a general tax.

The Beveridge Principles

The principles embedded in the Beveridge report are those which underpin the Irish system of social security. Beveridge outlined six fundamental principles of his plan for social security, which to varying degrees are contained within the Irish system.

- *Flat rate of contributions.* It was envisaged that all insured persons not dependent on their means would pay the same contribution for the same social security. In Ireland, we have an earnings related scheme, though this principle is maintained to a certain extent by a ceiling on the amount of income considered when calculating the social security contributions. Those on higher incomes pay more tax and, therefore, fund the state's share of the social insurance fund.
- *Flat rate of subsistence benefits.* The same level of benefit is received, irrespective of the level of earning prior to unemployment, disability or retirement.
- *Unification of administrative responsibility.* In the interests of efficiency and economy, each insured person makes a weekly contribution to a single social insurance fund from which all benefits and other payments will be made. In the Irish case, the Pay Related Social Insurance payments are made directly into the coffers of the department of Social Welfare, doing away with the idea

of a single fund. This is heightened by announcing any rate changes in the budget, treating PRSI like a tax, instead of a social insurance fund.

- *Adequacy of benefit.* Benefits should be set at a subsistence level, to provide an adequate standard of living. It allows scope for additional voluntary provision, though these are not regarded as vital. It is debatable that the levels of Irish benefits are pegged at a standard adequate to live on.
- *Comprehensiveness.* Social insurance should only include risks that are uniform and general. Anything that can be covered by social insurance should be, decreasing the reliance on national assistance or voluntary insurance. Voluntary insurance may in some cases not be viable, owing to the problem of adverse selection and misinformation.
- *Classification.* Social insurance schemes must embody the entire labour force and not just employees. The insurance scheme must act as one for all citizens, not just segments of the population. In Ireland, the social insurance scheme has recently been extended to those who are self-employed or in part-time work.

The Irish Social Security System

The Irish system of social security was built around these principles, developed in the early 1940's. Changes have been made to the system, though none of them may be regarded as fundamental. These changes have made the system more complex and increasingly difficult to understand. It is an unfortunate fact that the majority of those relying on the bulk of the welfare services are the less educated segments in society, who have tremendous difficult understanding their entitlements. Current estimates suggest that only about one in three of those who are entitled to Family Income Supplement (FIS) actually claim it. Complexity in the system results in increased administrative costs, at the expense of the tax payer and those receiving benefits from the system.

Complexity is one of the arguments against continuous tinkering with, instead of a radical reform of, the system. The current system may be described as "a patchwork quilt falling apart at the seams"[1]. Owing to the changed economic conditions, some argue that social insurance is an unnecessary element of government interference in the market place. Financial markets and financial instruments have developed to such an extent that they may better serve the interests of those currently making social insurance contributions. These instruments, such as critical illness plans and retirement plans, are so specific that they may provide a substantially more attractive option than the state-administered system. The private sector may not be seen just as providing services complementary to the state, but in direct competition with it. This was not the

[1] Hills et al. (1994). Quoted in relation to the British system, but equally applicable to the Irish system.

case when the current system was developed, though now it must be regarded as a viable alternative. The first country to recognise this has been Chile, where a compulsory pension scheme has been implemented which is run entirely by the private sector. No matter how advanced the financial markets become in handling such risk, the problems with insurance such as adverse selection still remain. Nevertheless, the markets may be more responsive in coping with such factors as the changing demographics of a society.

The current system was not designed to cope with such high numbers of unemployed persons seeking assistance. Currently there are 80,100 persons claiming unemployment benefit, while there are 199,400 persons claiming unemployment assistance. It was initially envisaged that unemployment assistance would be a payment of last resort as most people would have made contributions to the social insurance fund. They would, therefore, be in a position to claim unemployment benefit instead. The current concept of long term unemployment was not intended to be dealt with by the current framework. Growth in long term unemployment in the 1970's and through the 1980's has impeded the concept of social insurance, since some segments of the population never have a chance to contribute to the fund.

The work disincentive effects created by the current system provide a urgent reason for looking at an alternative system. Flaws in the system exist where, in some circumstances, an increase in gross income actually results in a reduction in net income. This is because, as income increases, more tax is paid and certain means-tested benefits are reduced or withdrawn. The replacement ratio is the ratio of family net income when working to family net income when not working. Currently, replacement ratios in excess of 80% are experienced at earnings up to around £12,000, and affect an estimated 37,000 employed and 23,000 unemployed persons. It is vital that any reform of the current system addresses the problem of discouragingly high replacement ratios.

Replacement Ratios '95/'96

Income	Single person	Married couple 4 children (no FIS)
5000	88.3	175.7
6000	75.7	149.4
7000	66.3	129.9
8000	58.9	114.9
9000	53	103
10000	49.3	103
11000	45.2	97.4
12000	41.8	92.43
13000	39.4	87.97
14000	37.6	83.87

Basic Income

The most prominent, and perhaps the most radical, alternative system is that of Basic Income which involves integrating the social security system with the taxation system. Basic Income is an extremely simple system compared with our current system. It involves paying a weekly income to every person, regardless of their status or means. It has appeal to those on both the right and left of the political spectrum. It is a non-targeted payment, meaning that those in the wealthiest sections of society will receive the same state benefit as those in the poorest. This would be financed by removing all tax allowances and charging one single rate of tax on all income after the Basic Income, which is not taxed.

There are two prominent advantages to such a scheme. It would simplify the system immensely, eliminating the need for rent-seeking tax lawyers and accountants, whereby productive resources are directed into economically unproductive sector, stimulating a wasteful use of resources. More importantly, it would eliminate the disincentive to work created by the current social security system. Basic Income removes the barrier between the transition from unemployment to employment.

Apart from the reduction in the poverty and unemployment trap and its sheer elegance, Basic Income has other advantages on a more social rather than economic level. It provides an automatic payment thereby doing away with the problems of individuals not being aware of their entitlements and the stigma associated with receiving social welfare. It is also an independent income to all, thereby incorporating a certain element of liberty.

There are indeed disadvantages associated with Basic Income and some would argue that the negative elements of the scheme outweigh the positive factors contained in it. Since Basic Income is a universal scheme, it is a poorly targeted method of tackling poverty. The initial notion of equalising marginal benefit of income is removed, since everyone is receiving the same income irrespective of circumstances. There is a distinct lack of flexibility to meet different needs in different ways. For example, an individual who is disabled may require more income to support themselves than an able-bodied person. In attempting to maintain simplicity and cost control, Basic Income schemes do not usually allow for specific special payments. Probably the most inhibiting factor restricting Basic Income to the textbook is the substantial tax increase required to finance it, which would lead to problems of tax compliance and an extension of the black economy.

Basic Income with payments of £60 a week to adults and £17.40 to children, priced in '93/'94 figures, would require a single tax rate of 68.6%, assuming that all tax allowances and exemption limits were abolished. Overall, this would

Basic Income with payments of £60 a week to adults and £17.40 to children, priced in '93/'94 figures, would require a single tax rate of 68.6%, assuming that all tax allowances and exemption limits were abolished. Overall, this would increase the equity of income distribution, though to what extent would depend on how Medical Cards, etc. were treated. A full Basic Income scheme may discourage students from dropping out of school because they would be taxed at the higher rate, yet still only receive the same Basic Income.

Basic Income would have a number of rational behavioural effects: naturally, many of these are almost impossible to estimate. A reduced replacement ratio may result in greater labour supply and possibly a reduction in numbers unemployed, depending on other economic factors. However, this may be counterbalanced by reduced work effort among the current labour force, meaning that more persons may take time off to study or work full time in the home. The high levels of taxation may promote a distinct reluctance in most workers to work overtime. There is a danger that a Basic Income scheme may bring about an inflexible labour force, which would have serious negative implications, especially in an era of footloose industries. Another danger of Basic Income is that it may stimulate a brain drain. Single employees without dependants, except those on the lowest incomes, expect to lose the most because of the introduction of Basic Income. These people tend to be well-educated college graduates and their emigration would cause a negative shock to the economy. Another problem that may arise would be the immigration of European citizens entitled to claim Basic Income in Ireland. In addition, the black economy will grow, owing to the increased incentive to evade taxation because of its higher levels.

Though the concept of a universal Basic Income sounds appealing, it has problems related to its "side-effects". Undoubtedly the most important of these is the behavioural effects surrounding the impact of the high tax rate required to support the system. Its unpredictable influence on the economy is one of the primary reasons why Basic Income has never been implemented in any country to date. The report on the Integration of the Tax and Social Welfare Systems(1996) came to the conclusion that "the introduction of a full Basic Income scheme would be highly problematic and the high tax rates needed to fund it would have a deleterious effect on employment".

Partial Basic Income

Another option is for the introduction of a partial Basic Income scheme, which would rely on some elements of the current system in conjunction with a limited form of Basic Income. It would represent a less radical solution to the problem and may be regarded as a "stepping stone" towards full Basic Income. It would allow us to observe the impact of changes on a smaller scale and we could, if these were not overtly negative, move gradually towards full Basic Income.

During this transition, the system will become even more complex, exacerbating many of the current problems.

Partial Basic Income involves the abolition of personal tax allowances but the retention of certain elements of the welfare system already in place. The Basic Income payments would not be on a scale to provide an adequate standard of living; nevertheless, it would recognise unpaid work, redistribute income to different household members and reduce the "dependency" status of persons in receipt of social welfare. A partial Basic Income of £21 per adult requires no tax increase owing to the reduction or elimination of certain social welfare payments (Higher Education maintenance grants, training allowances, etc.) and the removal of all allowances in the tax system. A partial Basic Income of £38 would require a single tax rate of 41-44%. It is important to note that payments to children are not included in the above costings. If they are included with a Basic Income of £21, a tax increase of 4% on the standard rate of tax would be required. An income of £38 would require a single rate of 44-47%.

If a Partial Basic Income scheme were introduced, then the problem would arise of how to deal with the social welfare payments above the basic income. Options would include taxing all residual social welfare payments, exempting social welfare payment from tax or grossing up social welfare payments and taxing them. Given the complexity of operating a twin Basic Income/Beveridge systems, it would be administratively simpler to exempt social welfare payments from taxation, though this does, to some extent, contradict the principle of the Basic Income system.

Variation: Basic Income for Children

A variant of partial Basic Income is a Basic Income for children. Under the current system, the majority of child payments are linked to the employment status and income of the parent. Therefore, if an unemployed person takes up employment, they lose not only their own benefits but also their children's benefit. This narrows the gap between basic industrial wages and social welfare payments. In other words, it increases the replacement ratio. Partial Basic Income for children would ease the problem of high replacement ratios, especially for large families, by removing the link between parental employment/income status and child allowances. The new payment would be universal and would operate along the lines of the current system of child benefit, though the level of payment would be substantially increased to reflect the actual costs of sustaining a child. It would involve the integration of Child Dependence Allowance, Child Benefit, Family In Supplement and child additions to the income tax exemption limits. A monthly payment in the region of £85 would require an increase of 3% on the standard band and an increase of 6% on the higher band, spreading the costs equally between the two bands. The group reviewing the integration of the

tax and social welfare system came to the conclusion that a Basic Income for children would reduce replacement ratios for those not in receipt of FIS at all income levels, but those receiving FIS at lower income levels would face increased replacement ratios. This problem could be eliminated by retaining a residual FIS component.

The introduction of a Basic Income for children would both reduce replacement rates and decrease the complexity of the system. The tax increases required to finance it are minor compared with what would be required to finance a full Basic Income scheme. The introduction of Basic Income for children would be a step in the right direction, leaving open the possibility of universal partial Basic Income, or even full Basic Income.

Conclusion

Undoubtedly, Basic Income, either partial or full, provides an alternative to the current system. The flaws in the current system need to be weighed against the flaws in any alternative system. Given the uncertainty in accessing these, and the possible substantial negative economic shock that full Basic Income could initiate, it is unlikely that full Basic Income will be introduced. Some have suggested that, within the Department of Social Welfare, there is minimal impetus to radically overhaul the system because its current complexity is in the interests of civil servants who can claim "specialist" knowledge. The move for reform is unlikely to originate from this source, though given the complexity of the issue, those with an intimate understanding of the current system and its flaws will have to provide the impetus for change. Perhaps the introduction of Basic Income for children would provide a starting point for a radical overhaul of a dated and inadequate Social Security system.

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