Sustainability, Development & Economic Growth

Ronan Lyons – Senior Sophister

Ronan Lyons explores the themes of sustainability and intergenerational equity. The author examines the debate surrounding sustainability in economics, and argues that we need to apply the tools of economics in order to arrive at realistic policy proposals to counter environmental degradation. He concludes that we cannot continue to consume our natural resources without thought to the consequences, and therefore we should seek a more sustainable approach to growth if we wish to preserve generational equity.

'These are the days of the hungry man
Whose place is in the past
Hand in hand with ignorance
And legitimate excuses'.
George Michael, Praying for Time

Introduction

We live in the world of the "hungry man", a relic of the past who can conjure up enough excuses to justify using all his new found ability to sate his desires. The dangerous cocktail of ignorance, ability and appetite have had their backlash, however. Sustainable development and intergenerational equity are the main themes of a large portion of current economic debate. They are, therefore, the two main themes of the essay. I open with a discussion of sustainability and sustainable development as concepts. They are not easily defined, and even more difficult to understand as guidelines to help political decisions be consistent with intergenerational equity. To properly conceptualise sustainability, one must recognise the functions that the environment fulfils, as a provider of resources, an assimilator of waste and as a direct source of utility. Therefore I use a circular model of the economy, to help illustrate these functions. It is also important to understand the position that this debate about sustainability occupies in ecological economics. The third section discusses this concern, in particular the false Faustian logic of an anthropocentric *Weltanschauung*, and also considers many questions that the concept of intergenerational equity incorporates. The fourth section discusses the discount rate, which ranks future utility of less worth than current utility. Two possibilities of how to treat it are considered, in order to end this "discrimination". The fifth section examines the two extremes of sustainability, the so-called strong and weak approaches. The debate here concentrates on the substitutability of the

various types of capital. The penultimate part considers the limits to economic growth, by for example challenging the assumption of non-satiation. The seventh part returns to the main issue, namely how natural stocks of capital are to be managed. The possibility of consuming man-made capital is investigated. Finally, there follow my conclusions and recommendations.

Sustainability: the concept

Sustainability and sustainable development have been important terms in the language of economics since the UN's Brundtland Report, *Our Common Future* in 1987. As concepts, they are difficult to define (Jacob, 1996). Sustainable development refers to a process of development that meets each generation's needs without compromising the ability of future generations to do so. While seemingly simple to explain as a concept, there is little agreement as to what this means in terms of practical policy prescriptions (Faber *et al.*, 1996). Amidst general concern about the depletion of the ozone layer, the extinction of thousands of species and the so called greenhouse effect, one can identify two central concerns regarding the current form of economic development and growth. Firstly, there is the fear that natural resources are being depleted at such a rate that non-renewable resources such as fossil fuels will be exploited to extinction and that renewable resources are being extracted at rates higher than they can grow, i.e. that they too are being exhausted. This is George Michael's "hungry man" in the quotation. The second concern is that pollution from the production or consumption of goods is damaging the environment in an irreparable way (Faber *et al.*, 1996). There is the perception, then, that things are getting worse. Hence, many view current economic development as unsustainable.

To further understand these concerns, one must consider the functions of the environment in terms of a circular model of the economy (Pearce & Turner, 1990). Conventional economics views the process as linear:

Resources(R) $\Rightarrow$ Production (P) $\Rightarrow$ Consumption(C) [$\Rightarrow$Utility (U)]

To understand the three main functions that the environment contributes to the utility of society, one must view the process as circular. The first of these functions is as a *supplier of resources* (R), already accounted for in the linear model. These resources may be either *renewable* (RR) or *exhaustible* (ER). The second function is as a "waste sink". Waste (W) exists at each stage of the linear model, i.e.:

$W = W_R + W_P + W_C$.

The total amount of waste must equal the amount of natural resources used up, i.e. W=R, because of the first Law of Thermodynamics, which states that neither energy nor matter can be created or destroyed. All this waste is *recycled* (r) or goes back into the environment in various forms, often with time lags. Nonetheless, the environment must absorb this waste (W-r). This absorptive ability is the *assimilative capacity* of the environment (A). If (W-r)<A, the system will function. If (W-r)>A, this function becomes overloaded and permanently impaired. The ability of the environment to fulfil its first function, to provide R, is also harmed. The third function of the environment is as a direct *source of utility* (U), e.g. nice views, the enjoyment of a walk in the countryside, etc. Hence, environmental degradation means a decrease in the utility accruing to society, either directly, as the environment is a source of utility, or indirectly, through reduced resources needed in the production of utility-yielding goods.

Thus, a rational society will aim to leave the ability of the environment to perform its functions unharmed, so that each generation can maximise its utility. This is the central argument behind sustainable development. Nonetheless conventional economics seems to disregard the natural base upon which it operates. Hence, there have emerged the two main concerns mentioned earlier. It is firstly believed that the current harvest of resources is greater than the yield. This must always be true of ER, and if RR are also being exhausted at too high a rate, the resource endowment for future generations is being reduced. Secondly, pollution, a form of W, is adversely affecting the environment's assimilative capacity (A). This is how the environment's ability to fulfil its functions is being diminished.

Ecological Economics

Thus, the basis of the argument is that current generations are, through environmental degradation, putting future ones at a disadvantage, by leaving them with less resources with which to achieve the same or a higher standard of living. The full argument of ecological economics is concerned with more than just this aspect (Faber *et al.*, 1996). The first major moral issue concerns the many interactions between human activities and the ecosystem. The etymologies of the words 'ecology' and 'economy' are rooted in the Greek *oikos*, meaning house. Ecology means literally the structure (logos) of the house. Given its recent behaviour, it must be asked whether humankind believes that not only does it own the house, but that the house is for its use only. Everything in it is controllable and

the driving force is the will of humankind. This anthropocentric view of the world disregards the possibility of non-human species having rights. Furthermore, this Faustian logic assumes not only omnipotence but also omniscience (*ibid.*). Everything must be known in order to control it, but it is impossible to know everything that will ever happen. The Utopia described by the neo-classical economics paradigm assumes perfect knowledge. Although science and technology can increase the base of knowledge, humans can never be godlike in their attributes. Such a world could never exist, yet decisions seem to be taken on that very premise, for example the introduction of nuclear power (*ibid.*). At first, it was generally believed that it was safe. Now, knowledge has improved. Everyone knows better, but what has been the cost in the interim?

The second moral issue of ecological economics is the intergenerational issue mentioned above. The central problem is that future generations have nothing to offer in any market for their right to use resources (Faber *et al.*, 1996). If the current generation's utility function does not include their well-being, it is an externality. Why should future utility be valued less than current utility? On the other hand, what exactly is essential about our quality of life that means other generations must be afforded it? Which are essential, material goods or non-material ones, such as freedom, respect for nature, or both? How can we reach a trade-off between the utility of the definitely poor today, and the maybe-poor-maybe-rich of tomorrow? These are some of the issues surrounding the area of intergenerational justice.

The Discount Rate

Discounting is the process of attaching less weight to the utility of future generations than to that of the current one. As it discriminates against future generations, there are conflicts between the principle of discounting and those of sustainable development and intergenerational equity (Belratti *et al*, 1995). The main reason for this is that it affects the consumption of natural resources. Other issues are salient here too, e.g. the storing of radioactive waste is more likely to be permitted in a given decision, the higher the discount rate, *ceteris paribus*, as the costs are further in the future (Pearce & Turner, 1990). The higher the rate, the more likely a society is to deplete the stock of natural capital, thus affecting the chances of future generations. This section discusses the rationale behind discounting and whether it can be reconciled with the themes of this essay.

The most prominent form of the discount rate is the rate of interest. There are two main sources of such discount rates in society (*ibid.*). There is first of all, the social

time preference rate (STPR). This reflects people's impatience, or pure time preference, to enjoy utility now rather than later. Pigou (1960), among others, has referred to this as social myopism. Secondly, it also contains a social judgement, made by Tullock for example, that future generations will be richer. Hence, according to the Law of Diminishing Marginal Utility, the extra utility will be of greater benefit to the current generation. The second source of the discount rate is the social opportunity cost (SOC). This is the productivity of invested capital, expressed in percentage form, e.g. capital invested with expected productivity returns of 6% is the opportunity cost of that investment to society. Regardless of which of these is chosen as the discount rate, they are always positive (*ibid.*).

There are a number of criticisms of the reasoning behind discount rates. Firstly, there is no logical reasoning why people's impatience should be included. On the one hand, it may not be consistent with their own lifetime utility maximisation. On the other, public policy often overrules the wishes of individuals. There is no reason why it could not do so here, on such a crucial issue, particularly when governments are entrusted with the task of being guardians of future generations' interests. Furthermore, even on a level of wants and satisfaction, only tomorrow's utility matters, not today's assessment thereof. Secondly, the argument regarding diminishing marginal utility is flawed. Utility has no measure. If that is the case, how can the elasticity of the marginal utility of consumption function be measured (*ibid.*)? Also, the argument assumes that consumption will increase over time. While this may be the experience of so-called western countries recently, this may not always hold. This is particularly the case, if the discount rate is so high as to cause environmental degradation, which, as explained earlier, will adversely affect the consumption of future generations.

Then, there are general arguments against discount rates as a phenomenon. The higher rates are, the greater the discrimination against future generations. In the case of a high discount rate, a project is more likely to pass cost-benefit analysis, the further into the future the costs are pushed, and the closer to the present that benefits occur. High rates also discourage investment and can imply a reduced stock of capital to be inherited. Overlapping utility functions, i.e. where this generation cares about the welfare of future ones, still impose a present measure of future benefits. The theme of this essay is to allow future generations the same ability to achieve their desired standard of life, rather than impose something on them. There are two possibilities to improve the situation regarding the discount rate and the discrimination that it implies. The first is to abolish the discount rate, at least in terms of a societal rate. The second option is to leave it alone, and instead try to

understand the linkages between the two levels of environment and economy. Hopefully, a sustainability principle could then be employed in cost-benefit analysis, so that the stock of natural resources is kept constant over a portfolio of projects (*ibid.*).

Substitutability of Resources

Even the concept of sustainability as explained at the start leaves room for argument. This debate centres around the composition of capital endowed to future generations (Auty & Brown, 1997). If intergenerational equity is no more than ensuring that future generations are endowed with capital per capita that is greater than or equal to that of the current generation, nothing is said about the composition of that capital. It could be any combination of human capital, produced capital or natural capital. Whether this is so depends on the degree of substitutability of various kinds of capital. If perfect substitutability exists, this has implications regarding the preservation of natural exhaustible resources. If these do not have to be passed on, they can be exploited to their fullest in the present. There are two opposing views on the topic of substitutability and hence what we should leave to our descendants.

Firstly, there is the "strong sustainability" approach of ecological economics, which assumes non-substitutability of the various capitals (*ibid.*). Of all possible consumption bundles, some exist where the abuse of natural resources exists, i.e. use of ER, extraction of RR above their yield rate and pollution such that (W-r)>A. This continues until a critical point is reached where the environment cannot sustain this anymore. The ecosystem collapses, reducing to zero the stock of natural resources. Although the consumed natural resources were used to bring about "produced capital", such capital cannot replace natural capital. Many adherents to this approach believe that current uncontrolled economic growth will eventually bring about such a result. An alternative system of consumption involves a slowdown in the over-consumption of natural resources, so that the environment never reaches that critical point where the ecosystem collapses. Such a slowdown may be brought about through direct regulation or such market interventions as eco-taxes.

The second approach, the so-called "weak sustainability" approach, assumes that the composition of capital is relatively unimportant, i.e. a great degree of substitutability (O'Riordan, 1997). Thus, once natural capital is wisely invested in other forms of capital, the depletion of natural resources can not be viewed as a problem. A problem with this view is that it does not consider pollution, which reduces the assimilative capacity of the environment. This method is seen however as more

"human-friendly" than the strong sustainability approach, because its goal is the maximisation of human welfare, and not the environment itself (Auty & Brown, 1997). As with most competing views, there is much thought emphasising the middle ground between these two approaches. That is to say, the "ecological" standpoint highlights the importance of a basic level of sustainable natural resources. The "environmental" approach allows the use of cost-benefit analysis to assess possible eco-tax reform.

Limits to economic growth

Economists make certain assumptions regarding consumer behaviour that lead them to the conclusion that the greater the economic growth in a given period, the better. The whole argument rests on the assumption of non-satiation. Simply put, in the eyes of many economists, more is always better. Indeed, this assumption is assumed to be a basic trait of consumer behaviour. Nonetheless, arguments challenging this assumption have been around since the time of Aristotle (Faber *et al.*, 1996). The phenomenon of post-materialism seems to confirm that a point can be reached, the so-called bliss-point, after which other non-materialistic concerns take priority. Such a point, or level of income, may not be even that high. Even twenty-five years ago, a survey in Britain showed that nearly three-quarters valued non-materialistic aspects of their life as most important to their "quality of life" (Douthwaite, 1992). If non-satiation is an unrealistic assumption, perhaps then unlimited growth equally represents an undesired aim.

Even ignoring that problem, there exist two types of limit to growth (Daly, 2001). Biophysical limits to growth are limits that must exist because of the economy's existence as merely a subset of the ecosystem. This is closely related to the second Law of Thermodynamics, according to which entropy sets a physical boundary, to for example, growth or recycling (Pearce & Turner, 1990). Materials used in the economy are used entropically, and thus are dissipated within the economic system. Matter and energy escape through outlets back into the environment as pollution. 'The Club of Rome Report', for example, highlighted the unsustainability of current growth patterns, especially considering population growth, which in effect swamps out efficiency gains (Jacob, 1996).

Secondly, there are ethico-social limits to growth. These relate to the moral duty many humans feel regarding the prevention of the extinction of species, and indeed the obligation to future generations (Daly, 2001). As opposed to being a natural law, like biophysical limits, these reflect a duty. In order to be effective, this duty must be

expressed by the great majority of people, usually through politics, otherwise it cannot be enforced legitimately (Faber *et al.*, 1996). In these three ways, it can be seen that unlimited economic growth may not be a good thing. Growth of GNP is a means to an end, but not the end. Development, i.e. improving quality of life, is the end. Raw economic indicators tend to hide poverty and distribution, hence development needs more inclusive measures than merely economic growth.

Levels of Natural Capital

Returning to the main themes of the essay, what is to be done about natural capital stocks, in order to develop in a sustainable way, consistent with intergenerational equity? As highlighted earlier, there are two main areas under discussion, namely the depletion of natural resources and the problem of pollution. With reference to the first, it would seem that if the resource stock should be held constant over time, then non-exhaustible resources should not be used at all, assuming infinite generations in the future. A complication is that the yields of resources are not constant, therefore the harvest does not stay constant from generation to generation. The rules can be changed for exhaustible resources, however (Pearce & Turner, 1996). Firstly, any decrease in their stock can be compensated for by increases in renewable resources, i.e. substitutability between different types of capital. Secondly, due to increases in efficiency, a given standard of living could be achieved by a decreasing stock of exhaustible resources.

Having accepted this, modifications need to be made to the notion of holding renewable resources constant. These changes parallel those made for exhaustible resources. Firstly, stocks of renewable resources need to be increased to counteract reductions in exhaustible resource stocks. Secondly, the efficiency argument equally applies to all kinds of resources, i.e. increases in efficiency may mean a reduced need for renewable resources. To these opposite-working factors must be added the problem of population growth. Increased numbers of people on the earth mean the same resources have to be spread out over more people. Nonetheless, one cannot ignore the market mechanism and innovation, when considering the issue of depleting resources. One common criticism of sustainable development theories is that they often leave out these in their discussion (Smith, 2001). This argument holds that as resources become more scarce, their price will increase, reflecting reduced supply. This inspires the search for more deposits of a resource, more efficient methods of production or totally new substitutes to the good in question. For example, from the scarcity of wood and whale oil came coal, from coal to oil and later electricity. These could be replaced in the future by wind, water and solar-

powered energy, to which the recent vogue for giant wind-farms, yielding cheaper electricity testifies.

One must acknowledge, however, that a lack of perfect knowledge exists, regarding remaining stocks, and that long run trends are not predictable (Faber *et al.*, 1996). Nonetheless, there is a role for the market in the solution to the problem of depleting resources. The same cannot be said, however, of pollution and its effects on the natural environment as an assimilator of human waste. For this problem, ignorance is even more important, as too often unwelcome effects are unknown, and hence the costs to society, bearing in mind the circular model of the economy, are only known ex post. This can be easily seen in such phenomenon as the depletion of the ozone layer and acid rain. This makes internalising the cost more difficult. To further complicate the matter, the assimilative capacity of the environment (A) is not a constant (Pearce & Turner, 1990). Thus, particularly in the area of pollution, the idea of sustainable development means change from current behaviour.

One suggested possible source of the solution to the problems explained above lies in substituting from natural capital (K_N) to manmade capital (K_M). As the first Law of Thermodynamics reminds us, K_M is not independent of K_N, manmade capital can only be made on the foundations of natural capital (Boulding, 1980). Also, it is unlikely that manmade capital will fulfil the varied functions of natural capital, e.g. the environment in its capacity as a life support machine. However, given that, the idea of increasing the use of manmade capital, instead of natural capital may be worth considering in more detail, if it can be shown that the marginal productivity of K_M is greater than the value of K_N that went into its production. This argument for manmade capital is often accompanied by arguments regarding improved technology. Once again, one must be careful, as new technology may not necessarily be less polluting than what was used before. Also, technological progress, although occurring at a rapid rate in the last century, cannot be accurately predicted. All in all, natural capital should be protected, as according to the themes of this essay. Both more efficient methods of production and environmentally friendlier source of energy should be researched, in order to protect exhaustible natural resources. There should also be strong rules on an international level guarding such scarce resources.

Conclusion

'So you scream from behind the door
Say what's mine is mine and not yours...
And the wounded skies above say it's much too late

So maybe we should all be praying for time.'
George Michael, Praying for Time

Sustainability and intergenerational equity are attempts to eradicate the attitude that all capital can be privately owned and consumed without reference to the consequences, as seen in the quotation: 'what's mine is mine and not yours'. These concepts were discussed and explained in the second part of the essay. The three functions of the environment, i.e. as a provider of resources, an assimilator of waste and as a direct source of utility, should be considered and maintained, because any impairment of the environment's ability to fulfil these functions will affect the utility of all current and future generations. The dominant *Weltanschauung* should not be anthropocentric, as the third section explained, especially as we must remember that humanity does not own this "House Earth". Current forms of the discount rate amount to a discrimination against future generations and the societal rate should either be zero or should be used in conjunction with a principle of sustainability across a portfolio of projects, as was discussed in the fourth part. The two schools of thought in sustainability, the strong and weak approaches, differ in their assumptions as to the degree of substitutability between the various sorts of capital, but both offer important contributions regarding the base level of natural resources needed, and cost-benefit analysis. The sixth section considered the limits to economic growth, namely biophysical and ethico-social, and raised questions about the conventional assumption of non-satiation. The last part discussed how natural capital should be distributed between almost infinite generations. More efficient methods of production, sources of energy that are friendlier to the environment and strong international regulations are three ways through which each generation can live on the yields and not encroach into the level of resources.

Bibliography

Auty, R. & Brown, K. (1997) *Approaches to Sustainable Development*. London.

Belratti, A., Chichilnisky, G., Heal, G., 'Sustainable Growth & the Green Golden Rule', in: Goldin, I., &Winters, L.Alan (Eds.) (1995), *The Economics of Sustainable Development*, Cambridge. Pp. 147-166.

Boulding, K., 'The economics of the coming spaceship Earth', in: Daly, H. (1980) *Economics, Ecology, Ethics: Essays toward a Steady-State Economy*, San Francisco.

Faber, M., Manstetten, R., Proops, J., (1996) *Ecological Economics*, Cheltenham.

Jacob, M. (1996) *Sustainable Development: A Reconstructive Critique of the United Nations Debate*, Göteborg.

Johansson, P. (1995) An *Introduction to Modern Welfare Economics* (5th edition), Cambridge

Johnson, P., McKay S., Smith, S. (1990) *The Distributional Consequences of Environmental Taxes.* London: Institute for Fiscal Studies.

OECD, (1992) *The Polluter-Pays Principle: OECD Analyses and Recommendations*, Paris.

O'Riordan, T. (Ed.). (1997) *Ecotaxation*, London.

Pearce, D.,Turner, K. (1990) *Economics of Natural Resources and the Environment*, London.

Pigou, A.C. (1960) *The Economics of Welfare*, London.

Smith, F. "Sustainable Development? How About Sustainable Growth?" in: *Wall Street Journal (Europe),* (31/05/2001)

Turner, K., Perrings, C., Folke, C. (1995) 'Ecological Economics: Paradigm or Perspective?' in: *CSERGE Working Paper GEC 95-17*, Norwich.

Warhurst, A. (1998) 'Developing a Sustainable Economy: Towards a Pro-Active Research Agenda' in: *Environment & Sustainability Desk Study for the ESRC*, Sussex.

Underdevelopment and Less Developed Countries

David Duffy – Junior Sophister

David Duffy explores the important issue of underdevelopment, which affects half the world's population. The author discusses the causes of underdevelopment, the merits of the various measures of development and policy prescriptions for boosting growth. He concludes that while some progress has been made in fostering development, that it is only through allowing the developing world to have a voice that we can really tackle poverty.

Introduction

From Bob Geldof and Band Aid to Jubilee 2000 and Bono presenting a pair of shades to the Pope, it has certainly become sexy to care about underdevelopment. While the intervention of so many of the world's rich and famous to champion the cause is certainly to be welcomed, the reality facing almost 3 billion of the world's population is anything but sexy. Hunger, disease, poverty, and exclusion are the reality.

This essay proposes to provide a general overview of the issue of underdevelopment. Firstly, an attempt will be made at getting to the heart of what actually comprises development. The traditional development indicator, Gross National Product, will be assessed and compared to other more recent and innovative indicators. Some of the causes of underdevelopment in today's world will then be analysed, before providing some policy prescription, which may go someway to boosting development in the Third World.

Development Indicators and their Usefulness

What is development?

While we all have an intuitive understanding of the term development, it is somewhat harder to devise an all-encompassing definition of what exactly development means. Chambers provides the simplest definition of development as *'good change'* (Thomas, 2000: 23). However, this is far from conclusive, as there are many subjective views on what exactly represents "good". The more traditional view of development is in the purely economic sense, which sees development as an increase in Gross National Product (GNP); in other words, development is synonymous with economic growth. Recently however, more humanist and inclusive definitions have been proposed which focus on improving people's lives

and living standards. This would therefore include such issues as human rights, education, health, with the focus pertaining more to human welfare than human wealth. In this essay the term "development" will be along the lines of that provided by the United Nations Development Programme: *'Development is about expanding the choices people have to lead lives that they value'* (UNDP, 2001: 9).
This obviously tends more to the more humanist and modern approach to development, but it is not mutually exclusive of the traditional approach to development.

Gross National Product
Gross National Product per capita is a measure of the average income per person in a country. While this obviously affects the living standards of the population, a number of shortcomings are associated with GNP as a development indicator.

GNP per capita is an average figure and therefore takes no account of the distribution of income. This is particularly relevant to LDCs, where often a small minority elite hold a disproportionate amount of the wealth.

Comparisons between countries' GNP levels are based on the market valuations and currency exchange rates, and expressed in U.S. Dollars. However the real value of national income is distorted due to varied costs of living. Real purchasing power is generally higher in poor countries

Income is only a means of achieving a desirable living standard; the true indicator of a society's welfare includes items such as health, education and human rights. These are largely intangible and therefore cannot be included in the index.

A perverse situation exists in which undesirable activities can increase GNP. For example, war leads to increases in production and thus growth, though the negative effects of war on development far outweigh any benefits. (McAleese, 2001)

Do more satisfactory indicators exist? The United Nations has developed a number of other composite indexes, which seek to put a more realistic figure on development (UNDP, 2001:14).

The Human Development Index

'The Human Development Index (HDI), measures the overall achievements in a country in three basic dimensions of human development – longevity, knowledge and

decent standard of living' (UNDP, 2001:14).

Longevity is measured by average life expectancy, knowledge by average adult literacy and primary and secondary school enrolment, and GNP per capita, adjusted to Purchasing Power Parity dollars, gives an indication of material living standards. By its more inclusive nature, the HDI is obviously a more refined indicator of development than GNP per capita. The problem of using market valuations is corrected by adopting purchasing power parity, which accounts for the cost of living. Secondly, while being by no means fully comprehensive, the inclusion of other variables longevity and knowledge indicators give a better estimate of the intangible components of living standards. Another major benefit of the HDI is that it allows evaluation of the policies of countries in using their income. For example, Pakistan and Vietnam have similar GNP levels, but Vietnam achieved a HDI of just under 0.7 compared to just 0.5 in Pakistan. The HDI also proves that development can pre-exist economic prosperity as Costa Rica and Korea have similar HDI figures, though Costa Rica has only half the income level of Korea (UNDP, 2001:13). The HDI, however, does not eliminate the distributional problem and therefore any inferences from it continue to be less valid. Efforts have been made, such as the Gender-related Development Index (GDI), which adjusts the HDI downward for gender inequality.

The Human Poverty Index

'The Human Poverty Index (HPI), reflects the distribution of progress and measures the back-log of deprivation that still exists' (UNDP, 2001:14).

It attempts to isolate areas of poverty, whilst continuing to use the same parameters of the HDI. Longevity is measured by the probability at birth of not reaching 40 years of age; knowledge is measured by the adult literacy rate, while overall economic provision is accounted for by examining the percentage of children less than 5 years of age born underweight and also the percentage of people using improved water supplies. Therefore, the main innovation of the HPI is the complete absence of the national income figure as an indicator of development. Whether the alternative measures used are any more valid, however, is far from clear. The HPI has succeeded in isolating areas of extreme poverty. For example, Tanzania and Uganda are ranked 140th and 141st respectively in the HDI table, but Uganda exhibits a much higher poverty rate (UNDP, 2001: 15).

Do Indicators Really Matter?

Are these alternatives to GNP really beneficial to our understanding of economic development? I believe there is an over tendency to down play the role of GNP per capita. The relationship between economic growth and development, while imperfect, should not be muddied. In the words of the World Development Report *'with economic growth, income poverty falls; with economic contraction income poverty rises'* (World Bank, 2001: 35). All the empirical data supports this statement. To paraphrase the earlier definition of development, growth allows people to *'have greater choices to lead the lives that they value.'* Economic growth must be at the core of development, and then steps can be taken to ensure that best use is made of this growth.

Despite some exceptions, such as the Vietnam and Pakistan example, countries tend to find themselves in generally the same position regardless of the indicator that is used. Sub-Saharan African countries are always bottom of the pile, and western countries always lead the way. Therefore, if the goal of a development indicator is to tell us if a country is developed or underdeveloped then it hardly matters whether we use the crudest or the most inclusive indicator.

While there are undoubtedly common problems faced by all developing countries, as will be seen later, development indicators may generalise the situations across the Third World. For example, just because Venezuela and Brazil have similar HDI rankings does not imply that they have exactly the same problems that require exactly the same solutions. The rich collection of data assimilated by both the UNDP and World Bank isolate specific issues within specific countries. This is lost when the data is aggregated in a composite index. For example, the large number of AIDS related deaths in Botswana has made AIDS the primary focus of their development plan. Merely quoting a HDI or GNP figure for Botswana would do little to isolate the problem.

In conclusion, development indicators do serve a purpose. They can highlight policy deficiencies, identify areas of neglect and give nations some tangible indication of how far they have developed and how much further they need to go. However, they must be treated with caution and their findings scrutinised. The resources pumped into finding new and more inclusive development indicators could well be better spent on focusing on the needs of less developed countries and how to meet these needs.

Causes of Underdevelopment

The causes of under development are varied and widespread. The literature lists a plethora of them; poverty, over-population, geography and climate, poor education and healthcare, international policies, war, migration and inequality, which by no means exhausts the list. While some may be relatively more important in certain countries, the above tend to exist, at least to some degree, in all LDCs regardless of their circumstances or geographical location. It would be impossible to discuss all of the causes in detail in this essay. Instead four broad issues will be examined. A discussion of colonialism provides the historical backdrop to underdevelopment. The insufficient nature of international policies will be examined, and finally poor educational and health standards will be evaluated. It is important to stress the inter-linked and overlapping nature of these causes, which has implications for policy formulation.

Colonialism

Present day underdevelopment can be traced back through almost 500 years of European imperialism. Large expanses of land in the Americas, Africa and Asia were carved up and ruled by the wealthy nations of Western Europe. The net result is that former colonies, with the obvious exception of North America, now form the bulk of the world's underdeveloped nations. Bernstein (2000) examines some of the reasons why:

- Colonial Powers exploited the natural resources of their colonies, forming patterns of trade that richly benefited the European nations at the expense of the colonies themselves.

- The Colonies' population provided a cheap pool of workers for performing labour intensive tasks. Employment concentration in menial and unproductive sectors remains to this day.

- While some colonial projects sought justification on humanitarian grounds, they were more often hall marked by coercion and inhumane treatment.

- The 20th century saw the break up of many colonial empires and independence for many LDCs. However, independence has often been proceeded by periods of volatility and civil war, as rival tribes and groupings sought to seize control of the infant states. Unfortunately many have continued and exacerbated in

recent times. Allen (2000b: 164) states that in 1995 65 out of the 79 countries experiencing war or political violence were underdeveloped.

International Causes

Colonialism, in its most explicit form, may no longer be a feature of today's world, but actions on the part of the developing world continue to discriminate against and undermine development efforts in LDCs. Unfair trading practices and insufficient aid are both causes of underdevelopment.

The system of international trade developed under imperialism, whereby developing countries export cheap raw materials and import expensive finished products persists to this day. The obvious effect is net cash outflows towards the developed world, which reinforces inequality. There are other implications. Many LDCs have focused on cash crop production to boost exports, which has meant that local communities are in danger of hunger, and in extreme cases famine. Furthermore, the developed world has sought to maintain the status quo by placing trade barriers on imports from LDCs. The loss to developing countries from tariffs alone was approximately $43 billion in 1995, without considering quotas, anti-dumping measures and protectionist product standards (Development Goals, 2002).

Another fault of the international community is the unacceptable level of aid provision. The United Nations target of 0.7% of GNP remains a pipe dream in most cases, with Organisation for Economic Co-operation and Development (OECD), members averaging 0.24% in 1999 (Development Goals, 2002). In practice this implies only 20 cents per day for each person in the developed world. Can aid make a difference? Yes, according to the World Bank, who estimate that the reallocation of existing aid flows to poor countries with sound management would lift 18 million more annually out of poverty (World Bank, 1998:16).

Education

Traditional theories of development may have overlooked education as a stimulus for development, but more recent thinking regards it as central. In fact, I would go so far as to say that lack of education has been the major cause of underdevelopment and education must be at the heart of any prescriptions for development. This stems from the fact that lack of education leads to other poor practices, such as unprotected sex or poor land cultivation.

Primary level education is most in need of reform in LDCs. A comprehensive primary sector is required before subsequent levels can also perform. Currently there

is an alarming 75% drop out rate from primary schools in many African countries (Drudy, 2002). Children in rural areas may have to travel great distances to attend school, while urban schools are often under-staffed and under-resourced. There is also an opportunity cost for families, in that children could be earning extra income for the family. Often this is a cost households cannot endure. Poor levels of primary school attendance lead to the problem of illiteracy. Todaro (2000:331) estimates that at least 30% of the population in LDCs is illiterate. This hinders effective communication of information. As with most issues there is also a high degree of inequality in education, with the poor and females faring badly.

Health

Poor health and healthcare is as much a cause of underdevelopment as underdevelopment is a cause of poor health. Lack of sanitation and clean water supply, poor education, inadequate nutrition, and insufficient income to buy even the most basic drugs mean that the risk of disease is greatly augmented.

High child mortality rates and low life expectancy highlight the scale of the problem. In Angola 292 children out of 1000 die, and those that survive can expect to live for just 47 years. Compare this to a child mortality rate of 7/1000 and life expectancy of 77 in the UK (Parker and Wilson, 2000: 77). Diseases such as diarrhoea, measles and malaria, all easily curable, are among the main killers. Special mention must also be made of the AIDS crisis, which is now reaching epidemic proportions. 28 million Africans are infected with the virus, of which 2.3 million per year will die

Curing sickness is not just an issue of compassion, poor health hinders development as the following points illustrate.

- Sickness reduces productivity and thus reduces national output.
- Families are often forced to sell their productive assets to fund the cost of medication.
- High child mortality rates cause parents to have more children, which adds an added cost burden to them.
- Disease scares off tourists and investors, valuable sources of income. (The Economist, Dec. 22, 2001: 10)

Policy Prescriptions

The problems of the developing world are vast and difficult, however, with the correct policy measures correctly formulated and implemented, it should be possible to at least make some inroads into underdevelopment. On a national basis, more funding must be pumped into education and health, sources of inequality and discrimination in society must be targeted, and sound and accountable institutions must exist to ensure proper implementation of all policies. In the previous section the interlinked nature of the causes of underdevelopment was stressed. For this reason, it is essential to adopt a more widespread framework for policies. Focusing on just one problem may have negative externalities in other areas, the focus on cash crops for export causing hunger being an obvious example. Therefore, the suggestions made in this section will not be specific to the causes of underdevelopment mentioned earlier. It remains essential to tackle problems head on, but in many cases these need to be tailored to meet the needs of individual countries. A more general policy framework will therefore be proposed in line with the most recent World Development Report (World Bank, 2001) which stresses the need for opportunity, empowerment and security.

Opportunity

'When poor people are allowed access to the institutions richer people enjoy, they can thrive and help themselves' (The Economist, September 15, 2001).

It may be clichéd to say that the best policies do not just help people, but also rather help people to help themselves, however few policies actually incorporate this. In this sense economic policies promoting economic growth are desirable. Focusing on growth alone is not enough; it must be *'rapid, sustainable and pro-poor growth'*.

Markets are the primary source of economic activity, but factor and product markets are virtually non-existent in many LDCs. They must also be regulated to ensure that it is not just the rich and powerful that benefit from economic activity. For example, fair wages and minimum price levels safeguard against exploitation. The inescapable phenomenon of globalisation, rather than being a tool of oppression against the Third World, offers opportunities for developing countries. By focusing on areas of comparative advantage, the countries along the Pacific Rim have embraced global activities and increased their prosperity as a result. The onus also lies on developed nations to ensure that LDCs are not discriminated against in the area of trade.

Access to assets, infrastructure and social goods such as education and health is also essential. In agriculture, land reform is required to defeat excessive landlord control, and tools, fertilisers and livestock should be made available to ensure reasonable income standards. Investment in infrastructure should initially be on a small-scale on local level such as the building of village wells. It is often not sufficient to merely pump funds into health and education. Specific areas of concern must be identified and targeted, such as primary education, or bottle-feeding of babies.

Empowerment

Effective policies rely on the institutions charged with their implementation.

'Empowerment means enhancing the capacity of poor people to influence the state institutions that affect their lives' (World Bank, 2001: 38).

Is it over optimistic to expect mostly illiterate people to care about their political voice, or furthermore expect them to provide valuable inputs into the discussion of development and means of achieving it? Not so, according to the World Development Report, which states that poor people sense keenly their lack of voice in the running of their affairs.

The institutions of the Third World perversely often militate against development. For example it takes 19 steps, 5 months and more than the average person's annual income to register a new business in Mozambique, in which case it is hardly surprising that little spirit of enterprise exists (The Economist, September 15, 2001). Simple, accessible and unintimidating institutions are the key. For example, small claims courts, banks offering small amounts of low interest credit, regional centres that provide information on issues ranging from healthcare, to agricultural practices to literacy training for older people. Moreover, government, at both a national and international level must be made more accountable. Corruption and cronyism benefit a minority at the expense of the needy. Many of the elections in Third World nations are overseen by international committees, these have in place to insure clarity and fairness. This should be extended to the functioning of government. Inequality must also be tackled. Discrimination on the grounds of gender, race, ethnic grouping or social standing must be made illegal and made punishable.

Security

'Enhancing security for poor people means reducing their vulnerability to such risks

as ill health, economic shocks, and natural disasters and helping them cope with the adverse shocks when they do occur' (World Bank, 2001: 39)

Economic and natural disasters are for the most part outside our control. Poor people lose out most significantly as a result of these, so it is possible to enhance their protection. Instruments such as health insurance, pensions, unemployment benefit, social funds and savings schemes should be developed to give the poor something to fall back on. Information on what to do in times of disaster should also be made available.

Conclusion

Modern definitions of development tend to focus more on the humanistic element of development and underdevelopment. In line with this, GNP is often seen as a less valid indicator of development. The Human Development Index and Human Poverty Index seek to provide more refined estimates of development. However, too much faith can be placed in indicators and their results, and despite GNP falling out of favour it still has a role to play.

There are very many causes of underdevelopment. Four major ones were discussed. Colonisation of Africa, Americas and Asia gives a historical backdrop to the current problem of underdevelopment. The role of the international community in causing underdevelopment was then examined. Poor education and health care were analysed, not just as symptoms of underdevelopment, but rather causes that reinforce underdevelopment.

The policies suggested sought to be more holistic than merely focusing on specific problems. The need to promote opportunity, empowerment and security, as proposed by the World Bank (2001), was used as the framework for policy formulation.

Progress has been made in the developing world. For this Messieurs Bono and Geldof, as well as those who play less glamorous behind-the-scenes roles, can take a bow. However it will only be by giving the people of the developing world a voice, rather than relying on those in the developed world to speak for them, can they ever catch up in terms of development.

Bibliography

Thomas, A. (2000) 'Meaning and Views of Development' in Allen and Thomas (ed.) (2000) *Poverty and Development Into the 21st Century* Oxford: Oxford University Press.

Bernstein, H., (2000) 'Colonialism, Capitalism, Development' in Allen and Thomas (ed.) (2000) *Poverty and Development Into the 21st Century* Oxford: Oxford University Press.

Drudy, P.J. (2001/02) Lectures in Economics of Less Developed Countries. Trinity College, Dublin.

The Economist (December 22nd 2001) "The Health of Nations" pp. 71.

The Economist (December 15th 2001) "Now, think small".

McAleese, D. (2001) *Economics for Business* London: Prentice Hall.

Parker, M. and Wilson, G., (2000) 'Diseases of Poverty" in Allen and Thomas (ed.) (2000) *Poverty and Development Into the 21st Century* Oxford: Oxford University Press.

Todaro, M. (2000) *Economic Development* Harlow: Longman.

UNDP (2001) *Human Development Report 2001: Making Technologies Work for Human Development* New York: Oxford University Press.

World Bank (1998) *Assessing Aid: What Works, What Doesn't and Why* Washington D.C.: World Bank.

World Bank (2001) *World Development Report 2001/2002: Attacking Poverty* New York: Oxford University Press.

Online References

Development Goals (2002) *http://www.developmentgoals.org/findout-achieving.html* on 16/1/02.

How Necessary is Government Support for Agriculture?

William Hynes - Senior Sophister

William Hynes discusses the reason for government intervention in agriculture and the means by which different countries intervene in agricultural markets. The adverse effects of this intervention are also explored. The author concludes that intervention is a failure from an economic point of view and it fails both farmers and consumers.

'Public rights come first, and private interests second'
(Theodore Roosevelt)

The agricultural issue has always been an area of controversy – disagreements over agricultural policies almost caused the breakdown of the World Trade talks on the eve of a new Trade Round in Doha. Therefore, it is appropriate to question the necessity of government support policies and the subsequent regulation of agriculture. In most industrialised economies, the European Union (EU), spends $45 billion a year of taxpayers money on subsidising farmers through the common agricultural policy. The EU protects the market for farm goods to ensure that consumers pay artificially high prices for their food. Despite subsidies and substantial transfer payments, farmers frequently complain of poverty and of a declining standard of life.[1] This begs the question, why do governments favour policies of intervention? This essay will examine the classical arguments for such government intervention in agriculture, highlighting the inherent problems, which make agriculture a special case. The methods of intervention will be considered, with particular emphasis on the Irish beef sector compared with the New Zealand model of agriculture, in which farmers operate with minimum interference. Some of the adverse effects of intervention will then be addressed, before finally coming to a conclusion on whether U.S Secretary of Agriculture Dan Glickman was right when he described *'completely free agricultural markets as a purely academic concept'*[2]

Classical Arguments for Government Intervention

There are unique problems inherent within agriculture:

[1] The Economist: "Ploughshares into swords" Oct 21st 1999

[2] Franz Fischler, Speech at Congress Verona, 24 September 1999

- Many of the variables that dictate agricultural output are out of the control of the producers. *'Agricultural products are susceptible to price fluctuations arising from the fact output cannot be immediately adjusted to current market prices: this can give rise to a cobweb-type cycles.'* [3] This means it is difficult to plan ahead.

- Engel' s Law indicates that *'most agricultural output is part of the food budget of citizens and income elasticities are therefore low'* [4], the agriculture industry depends on population growth however agricultural output is increasing at a far faster rate than population growth.

- There is limited labour mobility meaning resources are trapped within farming. Due to the declining efficiency of farming relative to other sectors incomes are further depressed and not helped by the price cost squeeze.

- Livestock are susceptible to disease, evident in the BSE scare and the foot and mouth crisis, this can leave farmers vulnerable.

Thus the "farm problem" is the primary reason for support of agriculture. Murray Benedict (1955), identified the farm problem with *'the whole array of grievances and aspirations that cause farmers to seek government aid'* [5] In the European model of agriculture, multifunctionality is another key argument for support; the term refers to any unpriced spillover benefits that are additional to the provision of food and fibre. Claimed benefits range from environmental values, rural amenities, cultural values, rural employment and rural development.[6] Much of the current rationale in Ireland is based on the fact that benefits accrue to a society from the achievement of social objectives. Economists cannot quantify their value. Winters (1990), analyses the economics of the officially stated case for agricultural support, what he terms the "So-called Non-economic Objectives". He found that while certain justifications for agricultural intervention exist, they are very specific e.g., disaster insurance may need subsidisation, rural amenities may require support, and

[3] McDonald and Deardon, 1999: 282

[4] Pelkmans, 1997: 164

[5] Gardner, 1992: 64

[6] ABARE August 1999 "Multifunctionality: A Pretext for Protection"

official inventories may contribute to national security. These would not be provided in a market economy. Market failures provide a case for some kind of government intervention either by direct provision or through subsidisation. However, government failures may lead to an even more inefficient outcome than imperfect markets. Some commentators believe that farm policy is *'better explained by the success of agricultural groups in using governmental power to increase their own wealth'.* [7] *'In farm programs, the benefits are concentrated on a relatively small number of producers or landowners, while the costs are widely diffused among taxpayers and consumers - the basis inherent in the political process which favours small groups at the expense of the public at large'.* [8] The optimal degree of government intervention must balance the prospective gains against the potential implementation problems. Winters believes that agricultural policy is an economic issue and is wasteful, and that the justification is entirely political. He also contends that more often than not policy is harmful to its declared objectives.[9] While different governments use different rationales in justifying intervention, one factor is usually consistent, *'given the stated objectives of governments and the varieties of means to achieve them, agricultural policy is very inefficient.'*[10]

Ireland

Even after a number of years of exceptionally high economic growth primary agriculture still accounts for 6.2% of Irish GDP. In comparative terms agriculture is nearly three times as important to the Irish economy as it is to the EU economy as a whole. *'Nobody should be surprised therefore that the future well-being and prosperity of agriculture is a matter of major concern at every level of Irish life'* [11] Beef accounts for 33.2% of Irish agricultural output. While for the purposes of this essay I will be concentrating on the beef sector, it should be noted that:

- It is impossible to examine the effects of liberalising the beef regime in Ireland in isolation from reforming policy in the dairy, cereals, sheep and other sectors.

---

[7] Pasour, 1990:

[8] Pasour, 1990: 18

[9] Winters 1990

[10] Winters 1990

[11] Joe Walsh, Minister for Agriculture and Food 26th March 1998

- Irish beef policy, especially as it applies to farmers, is EU policy. Irish beef farming is particularly sensitive to changes in EU policy: *'Any fall in price in the EU is magnified in Ireland given its position as a major exporter.'*[12] The aim of Agenda 2000 was to make the beef sector more market driven to make EU prices converge with world prices. The accumulation of intervention stocks was one of the main motives for reform. The period 1997 – 2001 was a tumultuous time in Irish agriculture. In particular the beef sector has been hit by large shocks (such as the BSE scare and the Foot and Mouth crisis), and has had to adjust to large-scale policy changes within the EU. The current support system is composed of direct payments. Agenda 2000 increased the value of payments and the increases were sufficient to offset the drop in market returns. The current support system is much better than it was, but Winters (1990), identifies two problems that farmers have with direct payments. Firstly some regard it as charity. The previous system was no more than covert and inefficient charity, with wide ranging negative externalities. Secondly direct payments are seen as a very expensive option. In budgetary terms, yes, but in economic terms they are much cheaper than market support. Overall the move towards direct payments is a step in the right direction, but what about the effect of a total dismantling of government support? Dr Kevin H Hanrahan of Teagasc, a leading economic researcher on the beef sector, gives his views on the prospects for this sector, should it be exposed to an environment of no subsidies? So long as there is a dairy industry there will be some beef production and a beef industry per se. Given Ireland's climatic advantages in growing of grass I would expect that even in the event of a very radical reform of EU beef policy that some specialised beef producers would remain in business. Are Irish beef producers ready for an environment where they receive little or no support from taxpayers or consumers? Most analysis would indicate that in the short term many would face severe difficulty. Farmers become addicted to government support. In Ireland, Teagasc estimates that 72% of beef farmer's income in 2007 will be in the form of direct payments. Such dependency is risky for farmers, as their livelihoods can be changed by unpredictable and uncontrollable changes in government policy. This has happened in New Zealand (NZ).

[12] Binfield et al 2001 : 1

New Zealand

In the mid eighties, New Zealand embarked upon a program of enormous reformation and restructuring, embracing a market-oriented economic philosophy. A key tenet was that economic efficiency would be optimised if markets were allowed to develop and operate with a minimum amount of government intervention. Government assistance to the beef sector had existed for decades in NZ and was intensified to very high levels in the late 70s and early 80s. Assistance to farmers occurred in the form of output price (supplementary minimum prices), but also on inputs like fertiliser, pest control, and low interest rates. This high level of support was unsustainable and with the NZ economy running into difficulty in 1984, a new government transformed its agricultural policy by removing all direct subsidies within two years. This represented a tremendous shock and an important response to the reforms was an exit response. Many farms went out of business; the beef sector being one of the hardest hit. NZ farmers responded to policy reform by shifting away from producing traditional crops to more non-traditional crops. Beef farming declined, while fruit, vegetable and horticultural products became increasingly prominent. Those who survived were quick to respond to the economic conditions and the dire consequences predicted for the beef sector did not materialise. The reorganisation of how beef farmers ran their businesses was an essential requirement for survival and this transition was not costless. A lower level of support for the beef sector meant that production fell, even when international prices were relatively good. As a country, New Zealand lost out. Land prices collapsed dropping by 40 – 60% from their peak in 1982. Had other countries deregulated agriculture in a similar manner to that of NZ, farmers there would have been much more competitive internationally and land values would not have declined so dramatically.

Several Lessons were learned about the nature of farm support [13]

- Levels of support altered the way NZ farmers farmed.

- Prices increased as support was capitalised into land values. This created a debt problem as farmers borrowed against this apparent equity using income supported by government. Farmers often farmed for capital gain rather than for farm profitability.

[13] Ministry of Agriculture and Food New Zealand Publications: "Reform of NZ Agriculture"

- NZ farmers were insulated from international prices; both for the products they produced and for the inputs they used.

- They had no way of knowing what the actual international prices were, and that NZ farming was not in line with international requirements or prices. This was a very bad situation for a country, which exports around 80% of its agricultural output.

- Government carried the risk of wrong or poor decisions because, regardless of what farmers did, they were still paid. This cost taxpayers a lot of money.

- NZ gradually lost international competitiveness.

- Most importantly, NZ farming is now stronger in a deregulated economy than it was when supported by the government. Farmers now produce products consumers want. Inputs are used more efficiently and wisely. New Zealand farming decisions are now based on actual prices paid for farm products on international markets. This has reduced the risk of reliance on government support. It has improved efficiency and made NZ farmers focus on consumer requirements. Knowing that consumer needs must be met has improved marketing and strategic planning. In short, the NZ experiment has been a success. *'The NZ experience does indicate that farming without price supports is possible, and not as unhealthy as many had feared'*[14].

Key Points from New Zealand's Experience [15]

- In a market-driven economy, farming must be based on the prices consumers are willing to pay.

- The process of reform must take a whole economy approach and be based on a strategic assessment of how to reach the desired outcome.

- Government intervention in New Zealand created unsustainable farming.

- Farmers and rural communities responded to well developed and integrated

[14] Tronstad 1996

[15] MAF NZ "Reform of NZ Agriculture" Chapter 11: Summary of Key Lessons Learned in New Zealand When Moving from a Regulated to a Deregulated Economy

government policies once they perceived these would lead to sustainable benefits.

- Slow responses from large organisations delayed benefits to farmers.
- Bureaucratic reform must be driven by purpose for the organisation.
- As a result of exposure to international market prices, New Zealand farming has become more responsive, more efficient and internationally more competitive.

New Zealand's experience shows that it is possible to go from a heavily supported and controlled agricultural sector to one which is fully market driven and which has no government protection. [16]

Adverse Effects of Intervention

In addition to the high cost there are also additional adverse effects of intervention, many have been highlighted by the NZ experiment as described above.

- Under the old Common Agricultural Policy (CAP) system, because export subsidies were paid, large amounts of beef were held as intervention stocks. The cost of preserving the beef was prohibitive and amounted to enormous waste. But with recent reforms, surpluses of beef have been reduced to manageable levels.
- The current direct payments scheme to beef farmers is inequitable, with a small number of farmers receiving the majority of payments. Given that consumers have to pay for this, current farm policies 'not only reduce societal welfare but are also grossly unfair'[17].
- Incentives can encourage farmers to farm specific crops. In NZ, initially forestry was encouraged by a grant, but was later discouraged by changes in taxation. Forestry is now, however, very profitable and new tree plantings are increasing.

[16]MAF NZ "Reform of NZ Agriculture" Chapter 11: Summary of Key Lessons Learned in New Zealand When Moving from a Regulated to a Deregulated Economy

[17] ABARE: US and EU agricultural support

- Negative spin-offs in the economy have resulted in the servicing sector becoming less efficient. Because farmers receive good prices, the service sector may have the view that farmers can "afford" to pay more for fertiliser, transport and processing costs. This discourages these firms to become more efficient. Less technology is introduced, as there is little incentive to do so. Much of the support paid to farmers was actually captured by processors.

- Support linked to production will make farmers strive to produce as much as they can. This can have harmful effects on the environment. De-coupled support including direct payment still has the same perverse incentives. Also it must be acknowledged that the multifuntionality of agriculture has considerable negative externalities in addition to the positive ones.

- While the effects above are largely domestic, there is also a wider liability to consider. Government support distorts trade and makes goods produced by inefficient farming practices competitive on the global market. This penalises countries like NZ who are efficient, but whose farmers do not receive the same level of government assistance. Third world countries lose out as they depend on the export market for their very survival. The costs of domestic farm programs extend internationally.

'Clearly agricultural support has been neither in the national interest nor justified by widely held perceptions of social justice' [18] The *'adverse side effects of farm programs will be eliminated only when the incentive to produce for the government is replaced by the incentive to produce for the market.'* [19] The New Zealand beef sector in particular highlights the transition problems. The important thing is that beef farming there has survived. Agricultural Economist Dr Robin Johnson, was instrumental in planning the changes in New Zealand. He believes the route chartered by the country is the most sustainable and economically sensible way forward for farmers now living with the CAP. *'Subsidies could be phased out in a reasonable way and some of the money saved could be used to encourage farmers to consolidate, try new ventures or seek new ways of making a living'* he said. [20] History has shown that education and retraining, not protectionism is the solution to flagging competitiveness. It is doubtful that Ireland could ever be as efficient as

[18] Harvey and Ritson 1992

[19] Pasour, 1990: 248

[20] BBC News "European farmers look to New Zealand" 24th August 2001

New Zealand, given NZ's natural advantage in land quality and weather conditions. It is probably true that Irish farmers were more efficient before CAP, which has encouraged farmers to farm in a rather unnatural way. CAP has put Irish farmers in a straightjacket; its removal could be the incentive to make them strive for efficiency once more. Unfortunately there would be huge transition problems involved in such a policy change. However dealing with these problems would not be as difficult as trying to achieve the political consensus necessary to base agricultural production and marketing decisions on market signals. [21]

Conclusion

If government intervention policies in the beef sector proved effective and efficient all of the time then there would be a strong case for the necessity of such policies. However, in reality intervention sometimes fails and in some cases makes matters worse. From an economic point of view, farmers should be forced to take their chances on the open market. Let the market decide the winners and losers. *'If the policy is to keep beef farmers,(in the main), in business then the current policy would appear to be a successful one. If, on the other hand you consider this objective to be too narrow and think that some other objective is more important then it would be easy to conclude that the current policy is ineffective'* [22]. But in looking at only the economics of the policy, we would be writing off the social, cultural and psychological benefits from farm policy. Just because it is costly does not mean we should simply walk away letting a community and a tradition, which is at the very heart of our society die. Recent events such as the California Power Crisis and the Railtrack fiasco show us, government deregulation is not always the answer. Beef farming has become more efficient in this country due to reforms forcing this to happen. The elements of such reforms should be considered, rather than simply subscribing to the beliefs of what Robert Peel once described as *'the harsh cold blooded economist, regarding money as the only elements of national happiness.'*

In conclusion: Theodore Roosevelt once said, *'Public rights come first, and private interests second.'* It could be argued that the maintenance of the rural environment and preservation of the farmer's way of life are public rights. With rights come responsibilities and indeed, it is quite a high cost in monetary terms, but it is also a

[21] Pasour, 1990: 249

[22] Dr Kevin F Hanrahan of Teagasc

reflection of our "kinder, gentler" society. The way the general public rallied around the farming community in the midst of the Foot and Mouth crisis surely makes this point explicit. Other sectors such as tourism suffered but while farmers were generously compensated, tourism received only modest support. The special treatment of farm policy has been a recurring theme in this essay. In my opinion the issue of intervention in agriculture is a political one. It is strange that given its declining importance in the Irish economy, the farm lobby still has so much influence on EU policy. Agricultural policy therefore can be viewed as the private interests of the farm lobby coming first. This is at the expense of the public rights of consumers to pay lower prices for their food, and the rights of efficient producers abroad to compete in European markets. Overall the necessity for government support is ambiguous but the New Zealand experiment represents an important lesson for agriculture – it shows that governments might make their greatest contribution to economic stability by attempting to do less. [23]

Bibliography

BBC News. *European farmers look to New Zealand* 24th August 2001.

Bell, B (Nimmo Bell) Elliott, REWE (MAF) (1993) *Aspects of New Zealand's Experience in Agricultural Reform Since 1984.* Ministry of Agriculture New Zealand Publications.

Binfield J, Hanrahan K & Henchion M. (June 2001) *Economic Analysis of Policy Changes in Beef and Sheep Sectors.* Teagasc Project No: 4432.

Gardner, B.L. (Mar., 1992) Changing Economic Perspectives on the Farm Problem, *Journal of Economic Literature*, Volume 30, Issue 1, 62 –101.

McDonald, F. & Dearden, S. (1998) *European Economic Integration.* Harlow: Longman.

O'Hagan (ed) J W (2000) *The Economy of Ireland.* Dublin: Gill and Macmillan.

Pasour, E.C (1999) *Agriculture and the State: Market Processes and Bureaucracy.* New York: Holmes and Meier Publishers.

[23] Pasour, 1990: 245

Pelkmans, J. (1997) *European integration: methods and economic analysis.* Harlow: Longman.

The Economist 'Ploughshares into swords' (Oct 21st 1999)

The European Commission web site.

Tronstad, R. (Feb 1996) *Adjusting to No Government Supports in Agriculture: Possible Lessons from New Zealand.* University of Arizona Paper

Winters, A.(1990) *The so-called non-economic objectives of agricultural support.* OECD Economic Studies 13, pp. 237-266.

An Econometric Analysis of Inflation and Unemployment in Ireland

Orson Francescone – Junior Sophister

The continued relevance of the Phillips Curve is explored in this essay. Orson Francescone contributes to the debate by investigating the unemployment inflation relationship in Ireland, since the 1980s. He concludes that the original Phillips Curve relationship exists in Ireland over the period investigated and that inflation is negatively related to unemployment.

'Since 1970 the Phillips curve has become an unidentified flying object and has eluded all econometric efforts to nail it down'
Arthur M. Okun

Introduction

More than forty years have passed since Professor Phillips outlined the relationship between inflation and unemployment and to this day, the dust lifted from the huge debate sparked by his paper has not settled. It is not an exaggeration to say that most of the post-Keynesian macroeconomics has the critique, or reappraisal, of the Phillips curve, embedded in its genetic structure. It is for these reasons that I found the topic particularly interesting and it is why I have decided to conduct an econometric analysis of the relationship with regards to Ireland and specifically during the period from 1983 to 2001.

Theoretical background

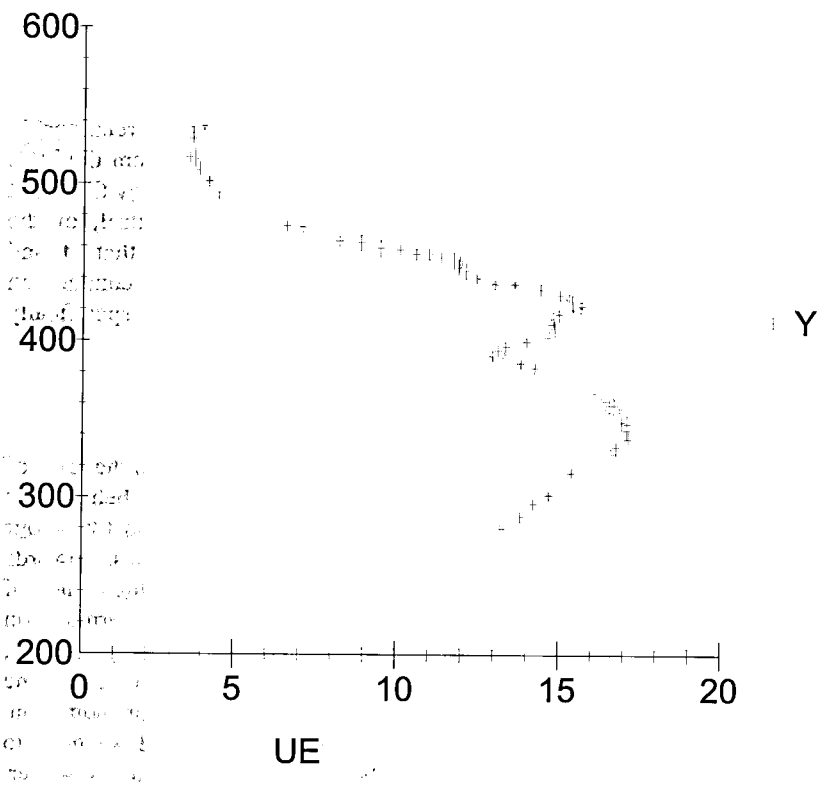
In his original paper, Phillips discovered a negative relationship between the level of growth of money wages and the unemployment rate. The reasoning behind this relationship being that, similarly to the goods market, when the demand for labour increases (decrease in unemployment), its price (money wages), increases. Towards the end of the 1960s high levels of unemployment accompanied by high rates of inflation, led to the demise and downfall of the relationship, and to the formulation of the "Expectations-augmented" Phillips curve by Friedman and Phelps (1968), through the introduction of the concept of inflation expectations, implying that the trade-off between inflation and unemployment is only a short run phenomenon. Because my econometric model is a relatively simple one, this is all we need to know about the theoretical advances that have been made in this topic. However,

one must bear in mind that many more important studies on this issue have been published since, particularly important the one by Lucas and Rapping(1970), in which the relationship is actually inverted.

The evidence

Before I introduce my model, I think it is useful to look at a scatter plot of the quarterly observations of the Consumer Price Index (CPI), on unemployment from 1983 to 2001.

Fig. 1.



From a quick visual inspection, it emerges that for most observations the negative relationship between inflation and unemployment holds in a striking way, although it is also quite clear that for the remaining observations the relationship is actually inverted from negative to positive. This inspection of the data would lead me to state that it is reasonable to try and fit a curve relating inflation and unemployment but that caution must be taken when deciding a functional form for the relationship.

The Model

My econometric model will take the following form:

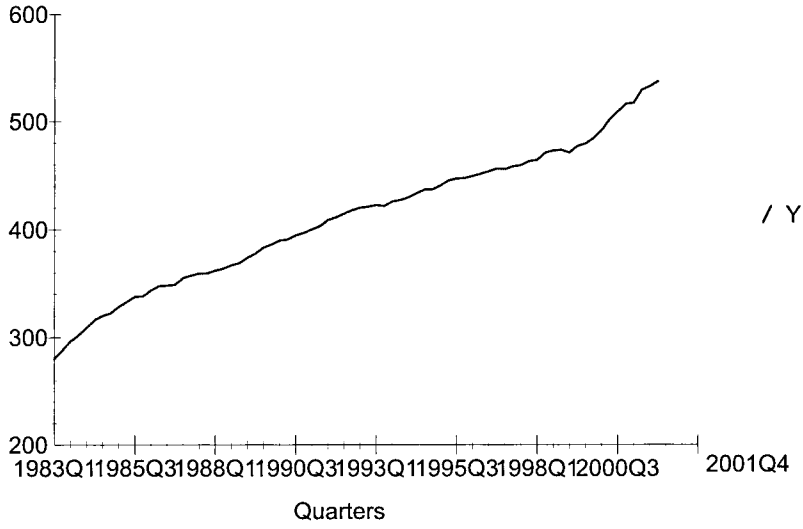
$$Y=\alpha+\beta_1X_1+\beta_2X_2+\beta_3D_1+u$$

Dependent Variable

Y: Consumer price index

My dependent variable is the CPI, which is designed to measure the change in the average level of prices paid for consumer goods and services by all private households in the country. I am using a quarterly series to base November 1975. There are two reasons behind my decision to use the level of goods inflation rather than wage inflation. Firstly, it has become a widely accepted practice in the study of the relationship between inflation and unemployment to use wage inflation and goods inflation interchangeably. This is based on the observed behaviour of wages' and goods' price level, which move closely together. Secondly, quarterly data on wages in Ireland has only become available recently, and in order to get a better insight into the possible inflation-unemployment relationship, I deemed quarterly data to be more appropriate than annual, thus opting for goods inflation rather than wage inflation. Figure 2. is a plot of the CPI against time and it is not surprising to observe a constant steadily increase in the index through the years.

Fig. 2.



Explanatory variables

X_1: Standardised Unemployment Rate

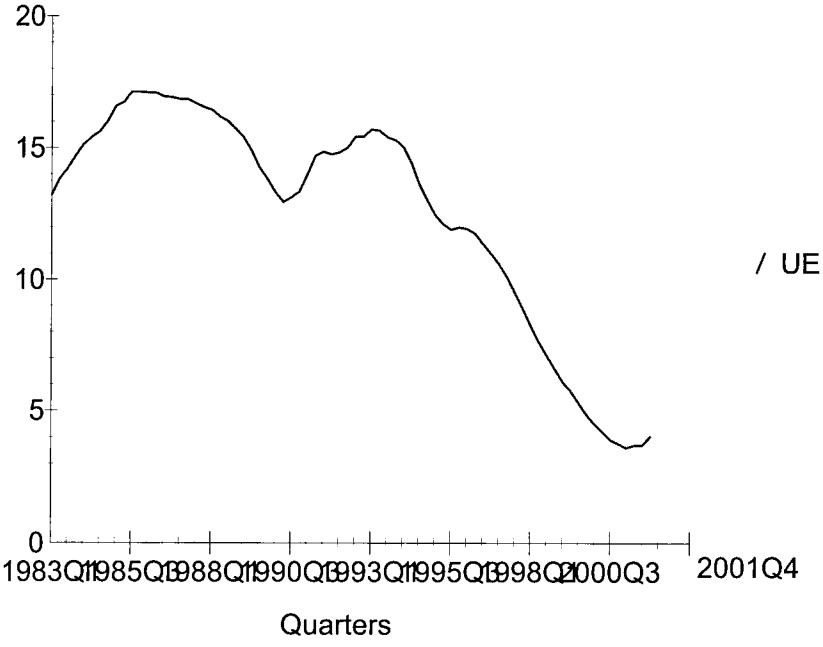
The Standardised Unemployment Rate (SUR) is based on the estimated number of people unemployed expressed as a percentage of the total economically active population (i.e. the labour force), using internationally comparable definitions of employment and unemployment, as recommended by the International Labour Organisation (ILO).

I have expressed this variable in a reciprocal form, X^{-1}. This is because the relationship between inflation and unemployment has been previously found to be highly non-linear. The theoretical backing to the non-linearity assumption has taken several forms. Lipsey (1960), stated that, because unemployment can never become less than zero, it must approach zero as excess demand approaches infinity thus implying a smooth asymptotic curve. Santomero and Seater (1978), proposed that if

it is assumed that increases in excess demand for labour have diminishing marginal returns in reducing unemployment, then a non-linear Phillips curve emerges.

Because of the evidence of Fig 1, in which we can see clear patterns of negative linearity followed by swings to patterns of positive linearity, I suspect a highly non-linear relationship, and this belief strengthens the case for using a reciprocal function of the unemployment rate. Fig. 3 is a plot of the SUR over time.

Fig.3.



X_2: Inflation expectations
This is a proxy for inflation expectations constructed as follows:

$X_2=\{Y-Y_{-1}\}_{-1}$ where Y denotes the CPI.

This variable has been constructed by taking the difference between the CPI at time t

and the CPI at time t-1 and lagging this difference by one period. The theoretical justification of including expectations into the Phillips curve model is important and was forwarded by Friedman and Phelps. It is crucial we understand why this variable is included and a brief explanation will follow. Let us assume that the economy is at a level in which there is full equilibrium in the labour market. The government decides it wants to boost aggregate demand further thus causing unexpected inflation. Employers will "trick" workers by offering the same (but now lower real wage) or a slightly higher wage (but still lower real wage). This will cause people to enter the labour market and unemployment to fall. We thus have a short-run Phillips curve. But workers will eventually realise that real wages have fallen and demand higher money wage rates. How much higher money wage rates will depend on expected inflation. If workers expect the new rate to be equal to that just experienced, and if this is realised, the "tricking" will cease and the unemployed will no longer prematurely abandon their job search leading to a rise in unemployment. So the only way to decrease unemployment is to surprise workers by increasing inflation again, this process will eventually lead to an inflationary spiral. Thus Friedman asserted that movements along the curve reflect only surprise inflation and that a different short-run Phillips curve relations exists for different rates of expected inflation. It follows that the coefficient β_2 should be equal to one so that to each different rate of expected inflation corresponds a separate short-run Phillips curve.

D : Incomes policies dummy variable
This is a binary qualitative variable used to take account of the effect of incomes policies on the inflation level. It takes the form:

D=0 Incomes policies not in place.

D=1 Incomes policies in place.

Incomes policies are government policies aimed at directly influencing wage rate growth as an attempt to reduce high rates of inflation. Theoretically one would expect that, if incomes policies fulfil their purpose, lower rates of inflation should be observed during "policy on" periods than during "policy off" period. In Ireland, from 1983 to the first quarter of 1987 there were no incomes policies in place. There have been incomes policies in place under several forms and guises for every subsequent year up to today.

Regression

Multiple Regression results

Throughout this paper I am performing Ordinary Least Squares estimations of the regression coefficients

Ordinary Least Squares Estimation

****

Dependent variable is Y

74 observations used for estimation from 1983Q3 to 2001Q4

****

Regressor	Coefficient	Standard Error	T-Ratio[Prob]
X1	672.6057	49.1502	13.6847[.000]
X2	3.6477	1.1799	3.0916[.003]
D	68.2795	7.4195	9.2027[.000]
C	304.7401	7.6336	39.9210[.000]

****

R-Squared	.86751	R-Bar-Squared	.86183
S.E. of Regression	22.6928	F-stat. F(3,70)	152.7767[.000]
Mean of Dependent Variable	414.2835	S.D. of Dependent Variable	61.0490
Residual Sum of Squares	36047.3	Equation Log-likelihood	333.9768
Akaike Info. Criterion	337.9768	Schwarz Bayesian Criterion	342.5849
DW-statistic	.29039		

****

Diagnostic Tests

****

Test Statistic	LM Version	F Version
A:Serial Correlation	CHSQ(4)=56.8424[.000]	F(4,66)=54.6639[.000]
B:Functional Form	CHSQ(1)=10.8592[.001]	F(1, 69)= 11.8668[.001]
C:Normality	CHSQ(2)=4.5428[.103]	Not applicable
D:Heteroscedasticity	CHSQ(1)=.15775[.691]	F(1,72)=.15381[.696]

****

My estimated line of best fit is

$$Y=304.7401+672.6057X_1^{-1}-3.6477X_2+68.2795D$$

Analysis of multiple regression results

Statistical significance of regression coefficients
Under the null hypothesis that the regression coefficients are equal to zero, that is to say:

$H_0: \beta_1 = \beta_2 = \beta_3 = 0$

The critical t value for n-k (70) degrees of freedom and a 5% level of significance is approximately equal to 2. We thus have two cut off regions (this is a two tailed test), the limits of which are+ 2 and –2. As we can see from the regression output table, all the t-ratios of our regression coefficients fall in one of the rejection regions. We can thus reject the null hypothesis and state that, at the 5% significance level, all our regression coefficients are different from zero.
This result could be inferred by looking at the p-values associated with the coefficients. In fact there is a 0% probability of committing a type I error in relation to C, X_1 and D, and only a 0.3% in relation to X_2

Analysis of individual coefficients

The coefficient of the unemployment variable,β_1 is quite a large positive number. This indicates a strong negative relationship between inflation and unemployment as we have been using the reciprocal of the standardised unemployment rate in our model for reasons outlined above. Thus inflation and unemployment seem to move in opposite directions as proposed by Phillips.

We will now turn to the coefficient of the expected rates of inflation β_2 . From the negative coefficient there would seem to be a negative relationship between inflation and its expectations. The negative sign is consistent with the belief of inflation following a mean reverting pattern. In fact, if inflation deviates from its mean either upwards or downwards, we will expect it to move in the opposite direction in the next time period so as to return to its original trend, hence the term "mean reverting". It is interesting now to test whether the coefficient is statistically different from 1. This is the coefficient consistent with Friedman's expectations augmented Phillips curve theory. Let:

$H_0: \beta_2 = 1$

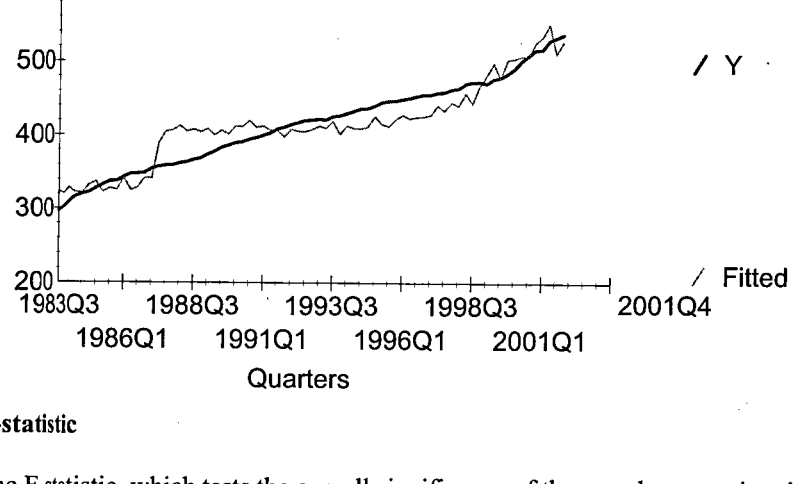
Then: $t = (-3.6477-1)/1.1799 \sim t\ 70df$ $t=-3.9390$
and we know that: $t_{70,0.025} \cong 2$
Clearly our test statistic falls in the rejection region on the left hand tail of the t distribution, so we reject the null hypothesis that β_2 is equal to one and it appears we can refute Friedman's theoretical findings.

Looking at β_3, the coefficient on the incomes policies dummy variable, we can see, quite surprisingly, that it is a positive number. This means that when D takes on a value of 1(policy on), the intercept term shifts up by 68.2. It appears that incomes policies are having the opposite effect of what they were designed to do (decrease inflation). There is in fact an increase in inflation when they are in effect. Although surprising, this is not inconsistent with other findings. In one of their studies, Lipsey and Parkin(1970) noted that 'the data are not inconsistent with the view that wage and price restraints have usually been ineffective in restraining inflation, and also that the restraints have sometimes actually had the effect of raising the rate of inflation above what it would otherwise have been'

R^2: Coefficient of determination

The coefficient of determination is a measure of goodness of fit. In our model R^2=.86751 which is quite a high value. This means that 86% of the changes in Y can be explained by changes in our independent variables. An important property of R^2 is that it is a non-decreasing function of the number of explanatory variables. A more exact measure of goodness of fit, which takes into account the number of explanatory variables, is the adjusted R^2. In our case it is still high, standing at .86183.The level of goodness of fit can also be deduced by looking at the plot of the actual and fitted lines in Fig 4.

Fig. 4.



F-statistic

The F-statistic, which tests the overall significance of the sample regression, is F=152.7767

If we use the 5% level of significance, $F_{(3,70)} \cong 2.76$. Thus our F-statistics falls well into the rejection region and we can reject the null hypothesis of the model having no overall significance.

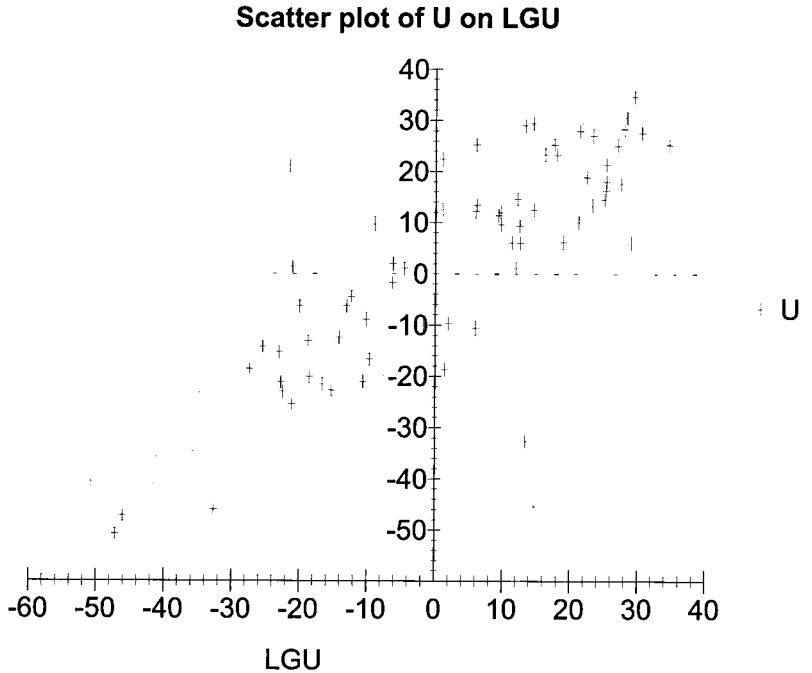
DW-statistic

The Durbin-Watson statistic gives us an indication of whether autocorrelation is present in our model or not.

In our model DW=.29039. For 74 observations and 3 explanatory variables d_L=1.395 and d_U=1.557.As 0 <.29318<1.395, we should reject the null hypothesis of no positive autocorrelation and should accept that our model has positively correlated disturbance terms. It must be noted, however, that the Durbin-Watson d test is inappropriate in this case as the regression model includes lagged values of the dependent variable in one of the explanatory variables, namely in X_2. In such cases the Durbin h test is appropriate. To detect the presence of autocorrelation it is useful to look at the plot of the residuals at time t against their value at t-1. Figure 5

reveals to us the classical pattern of positively correlated disturbances. It is important to note that, although the OLS estimation remains unbiased in the presence of autocorrelation, it is not efficient. This is a serious problem in that the t and F tests of significance we have performed are less legitimate.

Fig. 5.



Regression diagnostics

The *Lagrange multiplier* test for residual serial correlation confirms our findings. With a χ^2=56.8424 well beyond the critical value of $\chi^2(4)$=14.8602 at the 5% level of significance we reject the null hypothesis of no serial correlation.

Ramsey's RESET test for correct functional form produces aχ^2=10.8592. Unfortunately, this value is also beyond the critical value of $\chi^2(1)$=7.87944 and we must reject the null hypothesis of correct functional form.

The *Jarque-Bera* test of normality of residuals returned a χ^2=4.5428. This figure is below the critical value of $\chi^2(2)$=10.5966. We thus fail to reject the null hypothesis of normally distributed residuals and can conclude that the disturbances in the model follow a Normal distribution.

The test for *heteroscedasticity* based on the regression of squared residuals on squared fitted values returned a χ^2=0.15775, this is well below the critical value of $\chi^2(1)$=7.87944. We thus fail to reject the null hypothesis of homoscedasticity and can conclude that our residuals have constant conditional variances.

95% Confidence interval for X_1
This will take the form: $\beta_1 \pm t_{\alpha/2}\, se\,(\beta_1)$
Where α=5%. Then $t_{(70,0.025)} \cong 2$.
Thus 672.6057±2(49.1502)= 672.6057±98.3004
This means that $574.3053 \leq \beta_1 \leq 770.9061$
Thus we can see that, due to the large standard error associated with the coefficient, β_1 stands in quite a large confidence interval.

Forecast

I will test the forecasting capabilities of this model by substituting values for September 2001's Standardised Unemployment Rate and expected rates of inflation and letting D=1(incomes policy in place) into the estimated line of best fit and comparing the result with September 2001's CPI index.

If we substitute the values relating to September into our line of best fit we obtain:

Y=304.7401+672.6057*(1/3.7)-3.6477(1.799)+68.2795

Y=548.2425 which is our forecast value of the CPI for September 01.

Now, the actual value of the CPI for that period was 534.8. Our model has overestimated the CPI by approximately 2.5%. Considering that our model does not explain 100% of the changes in the CPI, I believe this to be a reasonably good forecast. I also regressed my model up to the first quarter of 2001 and forecast the remaining four quarters, obtaining reasonably good results with a mean prediction error of 4.29. Also the Chow predictive failure F test failed to reject the null

hypothesis of correct forecasting properties of the model.

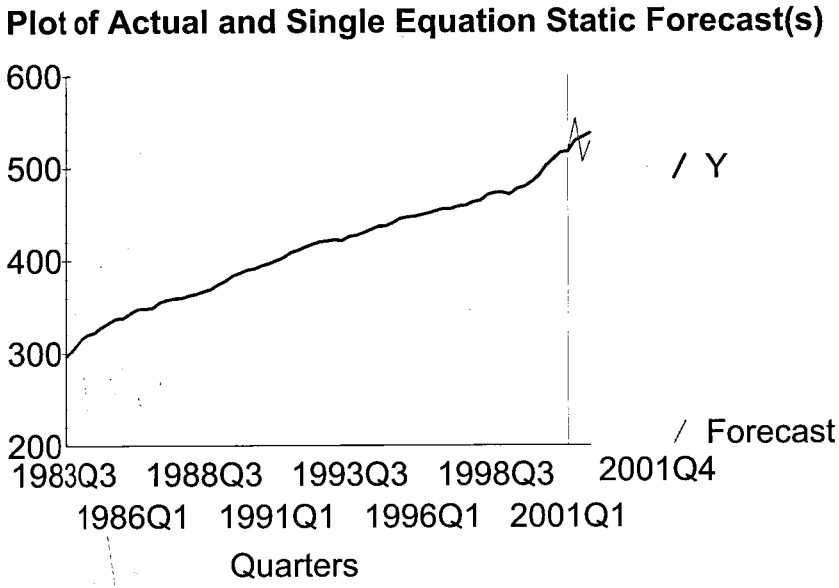
Single Equation Static Forecasts
****
Based on OLS regression of Y on:
X1 X2 D C
71 observations used for estimation from 1983Q3 to 2001Q1
****

Observation	Actual	Prediction	Error	S.D.of Error
2001Q2	529.1000	552.5828	23.4828	25.5039
2001Q3	532.6000	506.0560	26.5440	25.7845
2001Q4	537.2000	527.3792	9.8208	24.4403

****
Summary statistics for single equation static forecasts
****
Based on 3 observations from 2001Q2 to 2001Q4

Mean Prediction Errors	4.2940	Mean Sum Abs Pred Errors	19.9492
Sum Squares Pred Errors	450.8246	Root Mean Sumsq Pred Errors	21.2326
Predictive failure test	F(3,67)=.74751[.528]		

Fig. 6.



Conclusion

The model I have estimated returned all statistically significant coefficients at the 5% significance level and a relatively high value of R^2. Theoretically I can assert that Phillips' original finding is supported by this model in that there is a clear negative relationship between inflation and unemployment. With regards to Friedman's proposition, I rejected the hypothesis of a unit coefficient on the expected inflation variable thus rejecting the expectations augmented version of the Phillips curve, but the negative sign on the same variable supports the belief in inflation following a mean reverting pattern. This model supports the view that incomes policies are ineffective in reducing inflation, we can actually observe an increase in inflation during the years an incomes policies was in place. The overall forecasting properties of the model also seemed to be quite good.

However, having stated these findings we must not forget that this model has failed to pass a test for functional form implying there might be a specification error in the

current formulation of the model. Wanting to speculate on the nature of this incorrect functional form, the non-linear relationship between inflation and unemployment is probably more complex than the one presented in this paper. More importantly though, another of the assumptions of the Classical Linear Regression Model has been violated, namely that of the absence of serially correlated errors. Strong positive autocorrelation has emerged from this regression. This is a serious problem in that in the presence of autocorrelation the residual variance is likely to underestimate the true variance and as a result we are likely to overestimate R^2. More importantly the coefficient variances may be underestimated, therefore the t and F tests of significance are no longer valid, and if applied, are likely to give misleading conclusions. Autocorrelation is not an insurmountable problem and there are several ways of taking remedial action against it. It would be interesting to see if our t and F statistics are still significant after correction for autocorrelation. This, unfortunately, would take us beyond the scope of this paper.

Bibliography

Berndt, E. (1991) *'The practice of econometrics'*. Addison Wesley.

Friedman, M. (1977) 'Nobel Lecture: Inflation and Unemployment' in *The Journal of Political Economy (Jun).*

Gujarati, D.(1995) *'Basic Econometrics'*. McGraw-Hill

Lipsey, R. (1960) 'The relation between unemployment and the rate of change of money wage rates in the UK, 1862-1957: A further analysis' in *Economica* (Feb).

Lucas, R and Rapping, L. (1969) 'Price expectations and the Phillips curve' in *The American Economic Review* (Jun).

Mayes, D. (1981) *'Applications of Econometrics'*. London: Prentice Hall International

Phelps, E. (1967) 'Phillips Curves, Expectation of Inflation, and Optimal Unemployment Over Time' in *Economica* (Nov).

Phillips, A.W. (1958) 'The relation between unemployment and the rate of change of money wage rates in the UK: 1862-1957' in *Economica* (Nov).

Santomero, A and Seater, J. (1978) 'The inflation unemployment trade-off: A critique of the literature' in *The Journal of Economic Literature* (Jun).

A Response to the Cynics

John Lynham–Junior Sophister

John Lynham discusses whether economics is a true or pseudo science. It is argued that econometrics while, having faults, compares well with the other physical sciences and concludes that economics and econometrics are true sciences.

'They don't ask themselves – and I think this is the worst sin of them all – whether there doesn't exist a different model that would fit the data equally well, and what does that tell me? So I think that the problem with economists is that they do too much uncritical empirical work, and that they deceive themselves with the refinements of their methods.'
Robert Solow[1]

'If there is one of you who has not sinned, let him be the first to throw a stone at her'
John: 8:7

Introduction

The general consensus reached by essays on this topic in past Student Economic Reviews and other publications is that the impact of econometrics on economic theory has been minimal and that far from cementing the scientific status of economics, it has only made economics appear pseudo-scientific, a social science parading around as a "real" one. This essay intends to buck the trend and it will argue that econometrics is more sinned against than sinning; that economics is indeed a scientific discipline and its scientific status is wholly dependent on econometrics.

Economics as Science

The strength of economics lies in its perception as the most scientific of the social sciences and this explains why it is accorded more respect in the media, policymaking and the minds of the general public. Many economists have gone to great lengths to demonstrate economics' scientific status. For example, there are a number of links, similarities and overlaps between economics and the "real" sciences. For instance, Adam Smith's concept of "natural liberty" could be thought

[1] Solow, R quoted by Blaug, M. (1992) *The Methodology of Economics – or How Economists Explain*, Cambridge University Press: Cambridge, p 242.

of as an ecological concept. Under a regime of natural liberty, a society will develop specialised occupations and experience economic evolution. The biological world, likewise, operates under a regime of natural liberty and produces specialised species which interact with each other and produce a process of evolution which is unplanned, at least in the sense that the invisible hand does not have to be attached to a head.

Wade Hands has emphasised both the predictive success of economics as well as its scientific credentials:

'...general equilibrium theory represents an apogee for economic theory. It has achieved a degree of formal rigor and sophistication comparable with the greatest physical theories, a sophistication which makes every other social science seem woefully parochial in comparison. Granted, elegance is neither necessary nor sufficient for science, but it certainly keeps economics above the muddle which often reigns in other social sciences'[2]

In fact, the general equilibrium theory that Hands speaks of has begun to have an impact on the real sciences, for example in the field of biology. The formalism and results of general equilibrium theory are turning out to have applications for establishing stability conditions for ecosystems. The results of economists are being taken over and reinterpreted by mathematical ecology: they provide proofs and stability conditions for unique stable equilibriums that modern evolutionary biology requires in the development of its own theory of balance and competition in the evolution of the biosphere.[3]

Three Charges, Three Responses

Nevertheless, the scientific status of economics is under threat and nowhere more belligerently than in the attacks on econometrics. Critics argue that econometrics provides an unsatisfactory analysis because it is plagued by three main problems: weak data, ideology affecting the outcome of empirical tests, and misdirected effort.

---

[2] Hands, Wade (1984) "What Economics Is Not: An Economist's Response to Rosenberg," *Philosophy of Science 51,* p. 502

[3] Rosenberg, Alexander (1992) *Economics: Mathematical Politics or Science of Diminishing Returns*, University of Chicago Press: Chicago-London, p 250.

The first charge is that econometricians are obsessed with statistical pyrotechnics – *'Physicists do not compete to find more and more elaborate ways of observing falling apples'*[4] – whilst ignoring the problem with their data. The main distinction made between the data of economics and that of the natural sciences is that the economic data under consideration is liable to historical change. Cynics point out that the CPI measures something different from the CPI of 40 years ago whilst an atom of carbon has the same structures it did 40 years ago.[5] This type of reasoning ignores the fact that "real" scientific data, just like economic data, changes with time. Before the work of James Chadwick in 1932, an atom of carbon contained no neutrons. Today it does. The data used in econometrics does have its drawbacks but this does not mean that economics is in any way less scientific than the "real" sciences.

The second problem relates to the charge of data mining and aprioristic conclusions; researchers massage results so as to produce an outcome that accords with personal opinion. Econometricians rarely try to find out if there is another fit to the data, *'acting as if the data admitted only a unique inference'*[6], the aforementioned "biggest sin of all". Mayer claims that the practice of running thirty regressions and only publishing the one that confirms a hypothesis is widespread.[7] To think, however, that those academics in what Mayer terms the 'hard sciences' are not guilty of the same sins is to place scientists on an ethical pedestal they do not deserve. Scientists, like economists, have their own prejudices and ideologies. Take for example, Dr Brigitte Boisselier, a controversial scientist forging ahead in the field of human cloning, who is a member of the Raelian religious sect, which believes that cloning is the first step towards attaining eternal life.[8]

The third problem (that of misdirected effort) is similar to the second and was summed up by Patinkin as *'the high correlation between the policy views of a*

---

[4] Summers in Poirier, Dale (1994) *The Methodology of Econometrics II*, Elgar: Aldershot, p 530.

[5] Dixon, Padraig (1998) "Econometrics and the Science of Economics," *Student Economic Review 1998*, (Colourbooks) p. 76

[6] Leamer, Edward (1985) "Sensitivity Analysis Would Help", in *American Economic Review*, vol. 75, no 3. p 324.

[7] Mayer, Thomas (1993) *Truth Versus Precision in Economics*, Elgar: Aldershot, p 141.

[8] http://www.guardian.co.uk/Archive/Article/0,4273,4224163,00.html

researcher and his empirical findings'.[9] Econometricians, apparently, are only willing to put effort into research that will be personally beneficial. Yet again, scientists have been given an ethical higher ground that they do not deserve. Scientists pursue projects for the sake of profit or research grants. They disagree on a wide variety of "facts", often dependent on their financial backing. A group of scientists funded by major oil companies have proven that global warming is just as likely to be a natural fluctuation in the earth's temperature. Until very recently, some groups claimed that there was no definite link between smoking cigarettes and lung cancer with scientific research to back up their claim.

Should we heed the "stone-throwers"?

Econometrics is, first and foremost, a relatively young discipline (the Econometrics Society was founded in 1930). It is crucially important to note that the aforementioned flaws of econometrics are a result of the "sins" of econometricians. This does not imply that the purpose of econometrics, namely to apply mathematical statistics to economic data to lend empirical support to economic models,[10] is at fault. The problem lies, not with the discipline, but with the practitioners. But I believe that the cynics are still unduly harsh on econometricians, and I have attempted to show that criticisms made about econometricians can also be made about "hard" scientists. Furthermore, it is only fair to expect mistakes and sins in a field that, in relative terms, is still in its infancy.

Heeding the "stone-throwers" by rejecting econometrics is not an attractive alternative. It would leave economics with almost no quantitative and qualitative way of selecting from among an abundance of possible explanations the one that best explains economic events. Even if there are other methods for testing economic hypotheses, such as the looser methods of colligation practised by economic historians, or ethnographic methods,[11] the demands of policymakers for scientific theory will nevertheless drive us back to the use of econometrics.

---

[9] Latsis, Spiro (ed.) (1976) *Method and Appraisal in Economics*, Cambridge University Press: Cambridge, p202.

[10] Tintner, G. (1968) *Methodology of Mathematical Economics and Econometrics*, The University of Chicago Press, Chicago, p. 74.

[11] Blaug, M. (1992) *The Methodology of Economics – or How Economists Explain*, Cambridge University Press: Cambridge, p. 245.

Suggestions for the future

The way forward, therefore, is not with constant ridicule but with suggestions to improve both theoretical and applied econometrics. The suggestions made by Thomas Mayer in 1980 are still relevant today:

- More emphasis should be placed on the problem of data collection.
- Econometric results should not be treated as evidence from a "crucial experiment".
- Journals should encourage work on the basis of the likely validity of the results reported and not on the basis of the technical sophistication of the techniques employed.
- Requiring authors to present all the regressions they ran can reduce data mining.
- Authors should not use up all their data in fitting their regressions, leaving a reserve against which to test the regressions.
- Journals should publish papers that report insignificant results and require authors to submit their unpublished data so others can easily verify their work.[12]

My own personal suggestion would be to change the way in which economics is taught. Since universities, by and large, produce the econometricians of the future it is perhaps not surprising that they can be guilty of ideological bias when the general progression of economics courses is to start with the teaching of economic history and competing ideologies/interpretations and to conclude with the teaching of econometrics and methodology. Empirical analysis should be one of the first skills that students of economics learn and not one of the last.

Conclusion

Yes, econometrics has its faults. And these faults do make it easy to attack the scientific status of economics, since econometrics aims to be the scientific backbone of economic theory. But if we are going to attack econometrics when it fails to live

[12] Mayer, 1980

up to our expectations of real scientific analysis, surely we should also allow it the privileges that we grant real scientific analysis.

Do we expect benefits from scientific analysis? Yes, of course we do. Do we say in advance what they are, where they will come from, and when? Definitely not. Is this the slightest reason to either deny the importance of scientific analysis or to suggest that attention should not continue to be lavished upon it? On the contrary, it is reason to give it a slack rein, to accept that scientists are fallible and to give it all the intellectual freedom it demands. *Mutatis mutandis* for econometrics.

'The only cure for the shortcomings of econometrics is more and better econometrics'.
Pesaran[13]

Bibliography

Blaug, M. (1992) *The Methodology of Economics – or How Economists Explain.* Cambridge University Press: Cambridge.

Dixon, P.(1998) 'Econometrics and the Science of Economics' in *Student Economic Review 1998.*

Hands, W. (1984) 'What Economics Is Not: An Economist's Response to Rosenberg' in *Philosophy of Science 51.*

Latsis, S. (ed.) 1976 *Method and Appraisal in Economics*, Cambridge: Cambridge University Press.

Leamer, E. (1985) 'Sensitivity Analysis Would Help', in *American Economic Review*, vol. 75, no 3.

Mayer, T. (1993) *Truth Versus Precision in Economics.* Aldershot.: Elgar.

Poirier, D. (1994) *The Methodology of Econometrics II* Aldershot: Elgar.

[13] Pesaran in Blaug, M. (1992) *The Methodology of Economics – or How Economists Explain*, Cambridge University Press: Cambridge.

Rosenberg, A. (1992) *Economics: Mathematical Politics or Science of Diminishing Returns*. Chicago-London: University of Chicago Press.

Tintner, G. (1968) *Methodology of Mathematical Economics and Econometrics*. Chicago-London: University of Chicago Press.

Online References

http://www.guardian.co.uk/Archive/Article/0,4273,4224163,00.html

Econometrics: Pro-active Science, or PR stunt?

Grellan McGrath – Junior Sophister

Grellan McGrath examines the current status of economics and econometrics. The methods of econometrics are placed under scrutiny and he concludes that econometrics still has a long way to go before it can be considered a science.

'If economists could get themselves thought of as humble, competent people, on a level with dentists, that would be splendid'
Keynes J.M., *'Economic Possibilities for our Grandchildren'*

'Econometricians... are a positive help in trying to dispel the poor public image of economics (quantitative or otherwise) as a subject by in which empty boxes are opened by assuming the existence of can openers to reveal contents which any ten economists will interpret in eleven ways'
Darnell A.C., and Evan J.L., *'The Limits of Econometrics'*

Introduction

Economics as a discipline has always struggled to win over the faith and trust of the wider public. This is, of course, caused by many factors, but one of the most common grievances has traditionally been that the studies followed are too theoretical, and that predictions can be vague, co-dependant and not clinical. In short that economics is not scientific.

In this essay we shall see that at first glance, econometrics does advance economics' struggle to be reckoned with the likes of botany and biology as a precise science, but that just underneath the surface, the scientific properties of econometrics are questionable at best.

We shall begin with a look at the current status of economics, and then discuss the nature of theory and predictions arising from it.

Then we shall turn to econometrics and its interaction with economics, before analysing the chinks in its scientific armour.

ECONOMETRICS: PRO-ACTIVE SCIENCE, OR PR STUNT?

The Current Status of Economics

When we compare economics with established natural sciences such as physics or astronomy we see that it is extremely young and essentially remains an adolescent discipline.

Characteristic of economics' youthfulness is its diversity and variability. The range of schools of thought in the field is almost endless, from Marxism to Monetarism, Classical to Keynesian. Although certain schools and theories have enjoyed brief spells of popularity such as Keynesianism post World War II and Marxism in the early twentieth century, no one view has become accepted as "the right view". Like any adolescent, economics has not yet decided on a core view of the world.

However, also like any other adolescent, economics seems to be in a frantic rush to be treated as more mature than its years, and with the respect accorded to its natural science peers.

Many economists seem at pains to have economics recognised as, or at least compared to, the exact sciences such as chemistry or physiology. Why is this so? In my opinion, it is because if a discipline becomes established as so, it lends itself to respect, and its proposals to acceptance by the general public. Assuming the altruistic aim of economists is to prescribe an allocation of resources for us all to adopt so as to maximise welfare, these attributes are desirable.

They should be wary, though, that to gain plaudits and respect for predictions and propositions, proven accurate over time is one thing, but to present oneself as something they're not and then be "found out" would set the discipline back decades in gaining the trust of more established avenues of study, and most importantly, the general public.

With this in mind should we readily proclaim econometrics as *a 'colossal step forward on the road to the development of our discipline'*.[1] Are we ready to put forward the opinions of Friedman or Marshall as equivalent truths to those of Einstein or Pythagoras in their respective disciplines? Or should we, instead, be careful of "crying wolf?" To answer this we must look at the current nature of

[1] Schumpeter, J., (1908) *Economic Methodology* p.499, in F. Malchup, (1978) *Methodology Economics and Other Social Sciences* Academic Press.

economic propositions, and how econometrics serves to further their scientific tendencies. It is also necessary to scrutinise the methodology of econometrics, as it may not be all it seems at first glance.

The Nature of Economic Theory and Predictions

Here we shall follow the distinctions of J.R. Hicks[2], who describes several divisions of predictions.

Firstly, we draw a line between the conditional and unconditional predictions of this world. A conditional prediction says that something will happen if some condition is satisfied - a condition that we know how to describe. An unconditional prediction makes no qualifications, and is traditionally the realm of fortunetellers and psychics.

Hicks uses the case of the astronomer as an example of a scientific unconditional predictor. He or she will be able to tell us when there will be an eclipse of the moon with remarkable accuracy. There are two reasons for this. Firstly, his/her studies are beyond the realm of being influenced by human actions. Secondly, and perhaps more relevantly, he/she has been able so to circumscribe their description of the phenomena that they can feel sure that there are no conditions, which they have not taken into account. This is not, and will not foreseeably be the case of economics or econometrics.

However, in general most traditional sciences' predictions are conditional, and so economics is not precluded from being scientific on those grounds.

Within conditional predictions we distinguish between strong and weak predictions. A strong prediction basically says that given the stated conditions an event will follow.

A weak prediction says *'the event will follow if there's no disturbance'*, i.e., some of the conditions for this event to follow have been identified. As you can see there is a marked difference between a strong and a weak prediction.

In general, scientific predictions are strong and economic predictions are weak; this is due to the unpredictability of human behaviour and the erratic nature of day-to-day economic forces. This gives rise to the *ceteris paribus* nature of economics.

[2] Hicks, J.R., (1986) *Is Economics a Science?*

Conditional, weak predictions? All other things being equal? No wonder the world has been slow to embrace this subject!

Econometrics and its Interaction with Economics

It is clear from the above appraisal of economic predictions and the general distrust in which it is held by the greater public, that economics lacks scientific credibility. It is almost as if in the early 1930's, economists realised this problem and called in some image consultants or branding specialists. *'Your discipline seems too vague'*, these consultants may have said, *'we want to do a major deal to tie in your brand (economics) with the established names of Mathematics, Statistics and Logic. Once the public identifies economics with these established distant cousins, it's bound to be taken more seriously on a scientific level.'*

And so, much in the same way that an instant coffee was named "Gold Blend", many years later to imply luxuriousness, econometrics as we know it, was publicly unveiled with the publication of the 'Constitution of Econometric Society' in 1930.

So what exactly is econometrics? Well there are a myriad of definitions, which we need not delve into, as long as we know its *raison d'etre* is to apply statistical and mathematical methods to the analysis of economic data in order to give empirical content to economic theories. In other words, to lend practical examples to the sometimes abstract ideas of economics. But is it successful in its attempt to marry economics with mathematics and statistics in order to bring it closer to the realm of science? On first impressions, the answer would appear to be yes.

The three golden rules of econometrics are *'test, test, test'* according to Hendry [3] and from the outset, this would do much to improve the reputation of economics for producing lofty and (crucially) unfalsifiable theories.

The method of testing of choice is usually "Hypothesis Testing" of estimators, which themselves are chosen by strict criteria from a number of options including "Least Squares," "Maximum Likelihood," etc. We have a range of models, from "Probit" and "Tobit" to "Distributed-Lag"' models. The decision to reject or not reject a particular hypothesis is based on diagnostics such as R^2, t , F and Durbin-Watson d-statistic. All this brought together is broadly termed "Regression

[3] Hendry, D.F. (1980) p.403

Analysis," investigating causation and correlation. So there we have it. If anyone would dare question the scientific credentials of economics we can quote the above jargon as being representative of a particular branch of economics.

And so, it seems, econometrics is a success in moving economics away from the academic and abstract world into the world of science. That is, until we begin to look under the surface of the maze of technical terms.

Questions to be asked of the Scientific nature of econometrics

'Economists' search for "truth" has over the years given rise to the view that economists are people searching in a dark room for a black cat; econometricians are regularly accused of finding one.'[4]

The flaws of econometrics have been long debated and argued, and although I have nothing new to add, I feel it is necessary here to outline some of them in order to show that it holds limited ability to aid economics on its path to becoming a science.

Firstly, natural scientists regularly have at their disposal experimental data. The investigator may collect data holding certain factors constant in order to assess the influence of some other factor on a given phenomenon. This is rarely, if ever the case with econometrics since much of the data is 'second hand,' but more relevantly because most of what we want to know is about human behaviour in the real world, and experimental data on that is almost impossible to achieve. As Kamarck put it:

'More prestige is acquired for applying the latest technique to good bad or indifferent data than arriving at valid, verifiable and useful results'[5]

Secondly, we have the need in econometrics to use a "disturbance term" or "stochastic error." This is not for the variables deemed irrelevant (if it was there would be no need for the term), but for those that (unlike the astrologer), we cannot account for.

It is due to econometrics dependence on experimentally unobservable human behaviour and its reliance on the assumption that random or unforeseen events will

[4] Kennedy, P., (1992) *A Guide to Econometrics* (3rd ed.) (Cambridge, Mass.: the MIT Press) p.82

[5] Kamarck, A.M., (1984) *Economics and the Real World.* (London: Basil Blackwell) p.9

follow a statistical distribution that I contend that econometrics is not legitimately an exact science. In this way I further say that although it may have pushed economics closer to being classified alongside the natural sciences, this is purely for superficial reasons and its power is currently limited.

However, we must note that if economics is adolescent, then econometrics is in its infancy, and it is only natural to have a few teething problems. In the future econometrics may make leaps and bounds past these stumbling blocks, in which case it will definitely be able to play a significant role in the re-launching of economics as a science.

Conclusion

There are those who seem over-zealous, in that they want to have economics considered an accurate science before its time. Econometrics has (superficially) helped their cause.

However, by contradiction, if we place econometrics as it is now under scrutiny, we see that it is a system of assumptions, non-experimental data and simplification, which cannot be taken as the basis of a precise science.

For the moment, as economics matures, in order for it to gain respect and credibility from the public, it will be necessary to come out as the highly skilful but ultimately fallible forecaster and advisor that it is.

We do not currently possess anywhere near enough knowledge of human behaviour nor the power to process the unquantifiable amount of influences on an econometric model to call the discipline of economics "scientific." However, that is not to say that we never shall.

In the meantime, economics should enjoy its youth in its entirety, including making mistakes which at the time seem huge, but in the future we will all be able to look back at and smile upon!

Bibliography

Gujarati, D. (1995) *Basic Econometrics* (3rd.ed). McGraw-Hill.

Hendry, D., (1980), 'Econometrics-Alchemy or Science?' in *Economica,* (November 1980.).

Hicks, J.R. (1986) 'Is Economics a science?' in Baranzini and Scazzieri *Foundations of Economics.* London: Blackwell.

Kamarck, A.M. (1983) *Economics and the Real World.* London: Blackwell.

Kennedy, P., (1992) *A Guide to Econometrics* Cambridge, MA: MIT Press.

Maddalla, G.S. (2001) *Introduction to Econometrics* (3rd. ed.) Wiley.

Various Authors. (1995-2000), *Student Economic Review,* Dublin University.

Benefits of EU membership for Ireland: An Econometric Analysis

Ulrich Daun - Socrates Student

Ulrich Daun explores the effect of EU transfer and access to the European market on Irish economic growth. Using the tools of econometrics he examines the relationship between these variables and Irish GNP. His findings suggest that both these factors have been important for Irish GNP growth, but that exports have taken on a greater role since the 1990's.

Introduction

Ireland is a small open economy on the periphery of Europe. Due to its links with Great Britain and the mobility of its citizens, it has always been regarded as a regional rather than a national economy and has always depended on access to foreign markets. In 1973 Ireland, along with Denmark and the UK, joined the European Economic Community (EEC), which later became the European Union (EU). This had mainly two impacts. Firstly, the membership led to a reduction of trade barriers. Ireland was now committed to free trade with all other member states and in 1977, all tariffs within the Union had been removed. Secondly, membership of the EU led to an inflow of transfer payments under the Common Agricultural Policy (CAP), and Structural Funds. The CAP subsidises farm prices to support the farmers and ensure farm incomes. As a net-exporter of agricultural goods, Ireland is said to have benefited from these payments. The Structural Funds are aimed at regional development and at social and economic cohesion within the EU. These resources have helped to equip the Irish economy with a more modern infrastructure and thus have contributed to rising productivity.[1] Furthermore membership of the EU makes Ireland more attractive for foreign direct investment. It is a base from which a non-European company can try and access the European market. It is amongst American firms that Ireland has proved to be particularly popular[2].

With the forthcoming eastern enlargement of the European Union, the CAP and the Structural Funds are likely to be reformed. This will involve a reduction of payments in general, but, furthermore, Ireland will no longer be entitled to structural funds as

[1] See Haughton (2000), 'The Historical Background', in O'Hagan, J., (2000) (ed.): *The Economy of Ireland. Policy & Performance of a European Region*, p. 37/38.

[2] See Barry *et al.* (1999): 'The European Dimension: The Single Market and the Structural Funds' in Frank Barry (1999) (Ed.): *Understanding Irish Economic Growth*, p. 115.

these are only for those members whose per capita income is well below the EU average. With an eastern enlargement the Irish per capita income will not rise immediately, but the EU average will decrease significantly. The aim of this paper is therefore to examine the extent to which the impact of EU membership can explain Irish economic performance over the last two decades.

Data and Variables

To model the effects of the EU on Ireland, the Irish Gross National Product[3] (GNP), is used as the dependent variable Y_t, where. 't' denotes the year and runs from 1977 to 1999[4]. There are two explanatory variables: exports to the EU/EEC member states[5] (X_{1t}) and net receipts from the EU budget[6] (X_{2t}). It is obvious, that the benefits from investments in infrastructure reach into the future. Thus an unweighted 5-year moving average is used to model the influence of the net-receipts on GNP:

$$X_{2t} = \frac{1}{5} \cdot \sum_{i=t-5}^{t} X_{2i}$$

In absence of any theoretical backing, the five year period was chosen arbitrarily. It should be good enough to pay regard to the intertemporal nature of these payments, but it is imaginable, that the benefits do not stop accumulating after five years, e.g. if we think of a road financed by the EU. As mentioned above, membership of the EU led to FDI-inflows into Ireland. Assuming that they were aimed at gaining access to the huge European market, rather than the Irish market, their influence will be captured by exports.

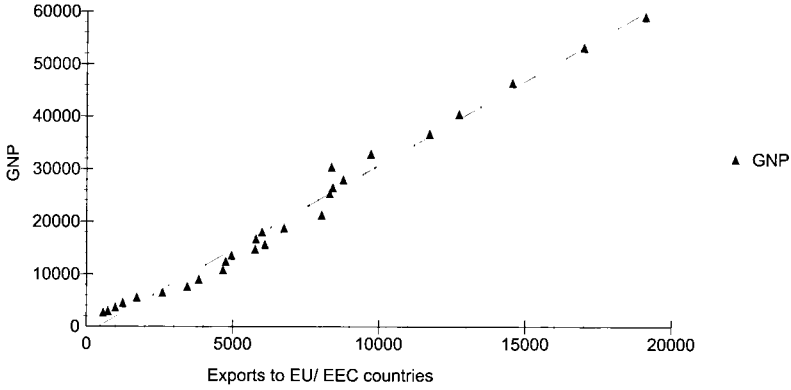
[3] GNP data is taken from various issues of the "Statistical Abstracts" published by the Central Statistics Office.

[4] This is due to the availability of data.

[5] Data on the exports is taken from various issues of the "Statistical Abstracts" published by the Central Statistics Office.

[6] Data on the receipts and payments from the EU-budget was kindly left to the author by the European Parliament's Office in Ireland.

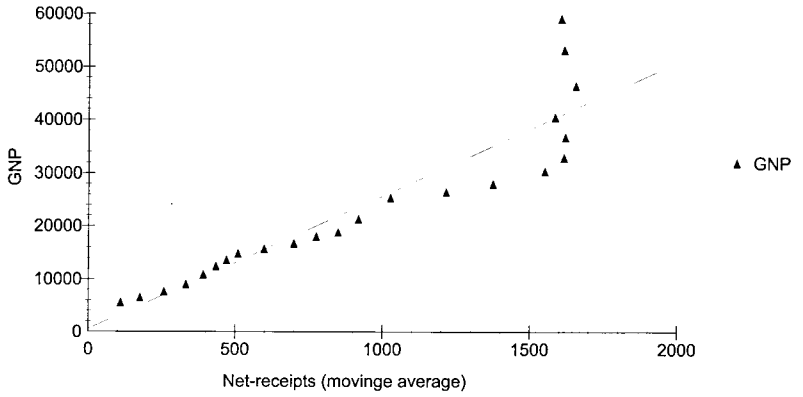
Fig.1: GNP vs. exports



From the scatter-diagram in Fig. 1 we see that there is a good relationship between GNP and the exports to the EU/ EEC member countries. What is conspicuous is that the scatters do not seem to vary randomly around the best fitting line.

The scatter plot from Fig. 2 shows the relationship between GNP and the moving average of net-receipts from the EU budget. This relationship is not as unequivocal as the former one. There is a clear break for high values of GNP as the

Fig. 2: GNP vs. Net-receipts



increase in GNP does not seem to be matched by an equivalent increase in the net-transfer payments from Brussels. This could be an indicator for a structural change and we should keep that in mind for later analysis.

The model

OLS-estimation

According to the ideas described above, we are interested in estimating the population regression function:

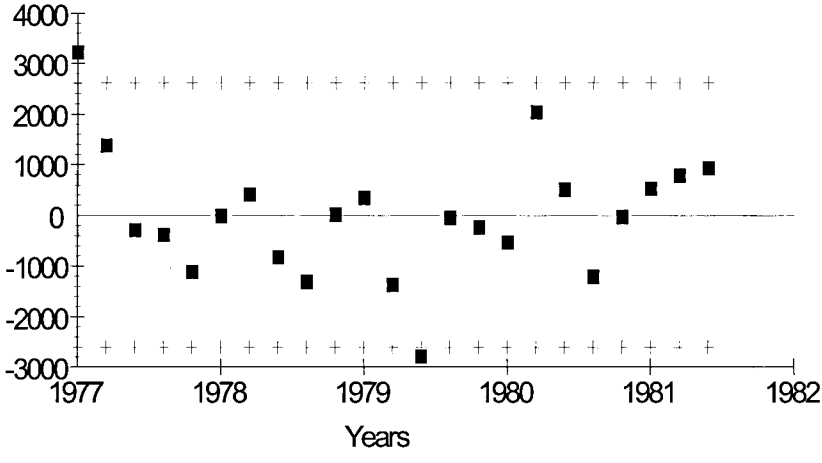
$$Y_t = \beta_o + \beta_1 X_{1t} + \beta_2 X_{2t} + u_t$$

The first approach is to use the ordinary least squares method (OLS) in order to obtain best, linear and unbiased estimators (BLUE) for the three coefficients. From this procedure the sample regression function was as follows:

$$Y = -2961.9 + 2.7497 X_{1t} + 5.3528 X_{2t}$$

All coefficients are significant at a 1% level. The goodness of fit measures R^2 = 0.99318 and Adjusted R^2 = 0.99250 take on huge values. There may be several reasons for this. On the one hand, the model may be very good (Anova-F-test seems to back this).

Fig. 3: OLS-residuals



On the other hand this could be a sign of autocorrelation[7]. This would be backed by the Durbin-Watson statistic that takes a value far away from 2 (DW = 1.1187). Therefore we test:

$H_0 : \rho = 0 \qquad vs. \qquad H_1 : \rho > 0$

The one sided test is chosen, because the value of DW and the plot of the residuals in Fig. 3 suggest positive serial correlation. For a 5% level, with $k' = 2$ as the number of true regressors and sample size $n = 23$, the upper bound of DW is 1.544, the lower bound is 1.168. The test criterion is to reject the Null, if DW lies below the lower bound. As $DW = 1.1187 < 1.168$, we have to reject H_0 and assume the presence of positive autocorrelation in the data set. This means, that the calculated standard errors of the OLS estimators may not be correct and OLS is no longer efficient. We risk the calculation of wrong confidence intervals and wrong test statistics and therefore risk wrong test decisions. Hence, we have to try and take remedial action.

[7] See below for multicollinearity.

Autocorrelation: Remedial action[8] Autocorrelation might be caused by AR(1), an autoregressive process of order 1. This means that the residuals in period t are a function of those in the previous period and a random term:

$$u_t = \rho.u_{t-1} + \varepsilon_t$$

where $|\rho| < 1$ is a constant and ε_t denotes the "true" error term in period t. In this case the transformation $Y^*_t = Y_t - \rho Y_{t-1}$ leads to the population regression function[9]:

$$Y^*_t = \beta^*_0 + \beta_1 X_{1t}^* + \beta_2 X_{2t}^* + \varepsilon_t$$

This regression function does not violate the classical normal linear regression model assumptions of no autocorrelation, as it does not contain the former error term u_t that caused the original problem. The coefficients are nevertheless the same, except there is a linear transformation of β_1. This procedure is called Generalised Least Squares (GLS) estimation, but unfortunately requires knowing ρ to obtain BLU estimates. Nevertheless, if we could get an estimate for ρ, we could compute a "feasible" GLS.

We can solve the problem of estimating ρ using the DW-statistic:
$DW = 2(1 - \rho)$
Thus, we can solve this expression in order to obtain ρ and get an estimate by substituting the calculated DW-statistic:

$$DW \approx 2(1 - \rho)$$
$$\Leftrightarrow$$
$$\rho = 1 - DW/2 = 1 - 1.1187/2 = .44065$$

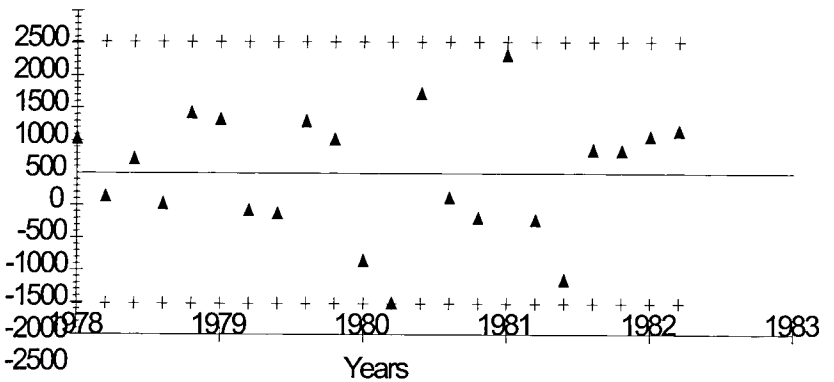
Feasible GLS-estimation:
As result of the remedial action we obtain feasible GLS estimates that are BLUE. They take the values $\beta_0 = -2308.2$, $\beta_1 = 2.6876$ and $\beta_2 = 6.8088$. The problem of autocorrelation seems to be solved, as DW=2.1875 indicates that we cannot reject the Null of no autocorrelation at a 5% level. The plot of the GLS residuals supports

[8] This procedure- is based on Pindyck and Rubinfeld (1998), *Econometric Models and Economic Forecasts*, p.160-165.

[9] with $\beta_0^* = (1 - \rho).\beta_0$ and $X_{it}^* = X_{it} - \rho. X_{it-1}$ for i = 1,2..

this.

Fig. 4: GLS-residuals

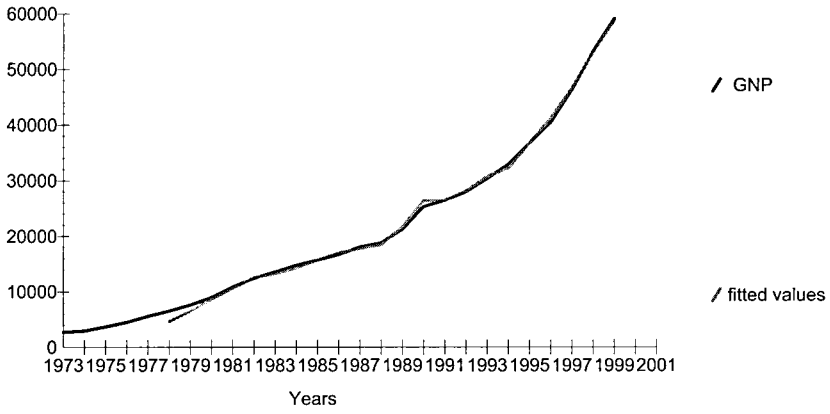


We can now compute the sample regression function:

$Y_t = -4126.6 + 2.6876X_{1t} + 6.8088X_{2t}$

All coefficients are significant at a 1% level.

Fig. 5: Actual and fitted values of the GLS-regression



Goodness of fit measures are still high, but this time we know that this it not caused by autocorrelation: $R^2 = 0.98866$ and adjusted $R^2 = 0.98746$. The ANOVA-F-test of the overall explanatory power of the model is significant on a 1% level. Indeed, Fig. 5 does not show major fluctuations of the fitted around the true values.

To learn about the preciseness of the obtained estimates we can calculate confidence intervals. As there are 22 observations (one is lost due to AR(1)) and 4 estimated parameters (the three coefficient-estimates and ρ), $[\beta_i - \beta_i] / se[\beta_i] \sim t_{18}$ With the 1% percentile $t^{0.01}_{18}$ we obtain the 1% confidence intervals: [-5370.1 ;-2883.1] for the intercept, [2.3299; 3.0452] for the coefficient of exports to the EU/EEC member states and [3.5461; 10.0715] for the net-receipts from the EU budget.

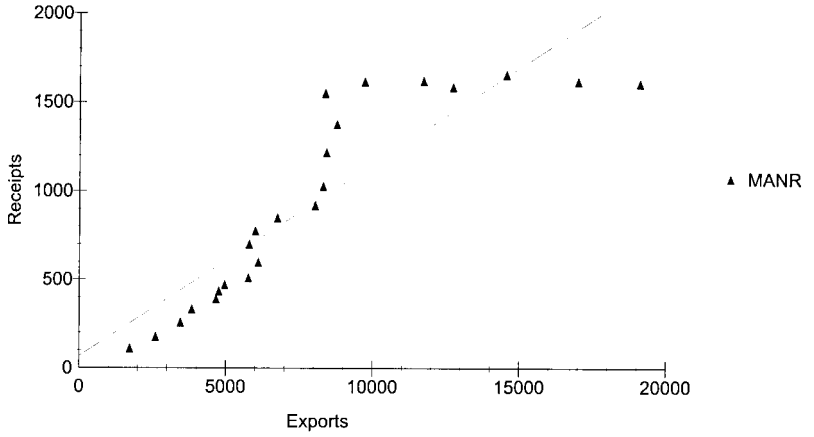
Multicollinearity

In its original meaning, multicollinearity is defined as a perfect linear relationship among all or some explanatory variables. From Fig. 6 we see, that this is not the case. But today, the term multicollinearity is used in the broader meaning that the variables are correlated, but not perfectly.[10] It cannot be rejected that there is

[10] See Gujarati (1995): *Basic Econometrics*, p. 320.

pairwise correlation in the given data (Pearson's is 0.83), but as Gujarati[11] mentions, it

Fig. 6: Exports vs. Net-receipts



may not pose serious complications, as long as the t-values are significantly high. With multicollinearity, it is possible to obtain a high measure of goodness of fit, while the t-statistics for the single coefficients are insignificant. In our model R^2 is very high, but all of the explanatory variables are significant at a 1% level. Thus we do not need remedial action.

Normality of residuals

A further assumption of the classical normal linear regression model is that the residuals are distributed normally. The χ^2 test in the regression output for normality that is based on the skewness and the kurtosis of the residuals indicates that we cannot reject the Null, that the residuals are normally distributed at a 5% level. The p-value is 0.751. The histogram of residuals (Fig. 7) backs this.

Heteroscedasticity

Heteroscedasticity means that the conditional variances of the residuals differ: $V[\varepsilon_t X_{1t}, X_{2t}] = \sigma_t^2$. We can test

$H_0: \sigma_t^2 = \sigma^2 \ \forall_t$ vs. H_1: *not* H_0

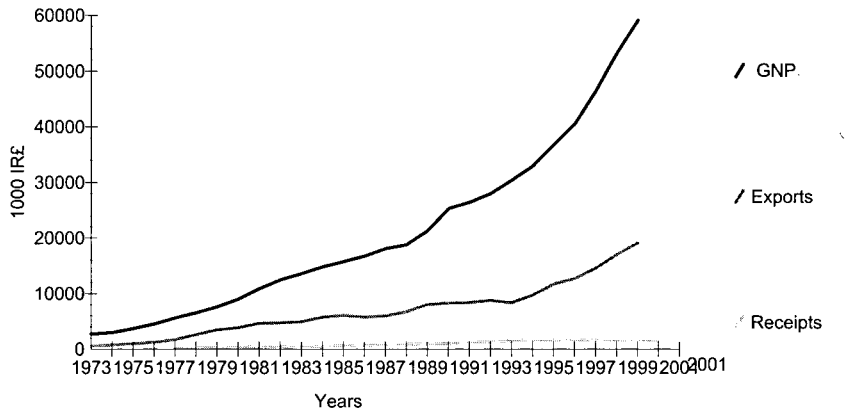
[11] Gujarati (1995) *Basic Econometrics*, p. 336.

The test used by Microfit is based on a χ^2 distribution. The result is that we cannot reject the Null at a significance level of 5%.

Structural change in the 1990s?
If we take a look at the time path of GNP (Fig. 7) we can see, that economic growth has accelerated in the 1990s. This acceleration can also be identified in the export figures, but not in the net-receipts. Has the Celtic Tiger changed the relationship between the variables in favour of the exports? To answer this question, we are going to test for a structural change in 1990.
Pindyck and Rubinfeld [12] suggest a test involving a dummy-variable: D_t :

D = 1 *if t › 1989*
D = 0 *for all other years*

Fig. 7: GNP, Exports and Net-receipts 1973-1999



This variable takes the value 0 for any period before the structural change and from then on the value 1. If we assume that the structural change occurred in 1990 we can run the regression:

[12] Pindyck and Rubinfeld (1998), p.137. It would also be possible to run two separate regressions and then test for equality of coefficients, but as the second regression would only be based on 9 observation we rejected this alternative.

$$Y_t = \alpha_0 + \alpha_1 X_{1t} + + \alpha_2 X_{2t} + \alpha_3 (X_{1t} - X_{1;1990}) D_t + v_t$$

with v_t as the error term. Then we can use a simple t-test to test
$H_0 : \alpha_3 = 0$ vs $H_1 : \alpha > 0$

If we cannot reject the Null, then the data does not support the idea of a structural change in 1990. But if we can reject it, then the data suggests a positive α_3 and the influence of X_1 has increased during the years of the Celtic tiger.

We obtain $\alpha_3 = 1.1029$, significant at a 1% level. Thus we reject the Null and do not deny the possibility of a structural change.

Conclusion

In the model described above we showed, that we can model the relationship between Irish GNP, Irish exports to the EU/EEC member states and the Irish net-receipts from the EU budget. Both explanatory variables have a positive influence on GDP. The high values of the goodness of fit measures nearly indicate a deterministic relationship rather than a stochastic one. But we have to note, that this model is only based on a vague idea of possible dependencies rather than a precise economic model.

A further finding is that there was a structural change in the 1990's, when the Irish economy went into a process of rapid growth. During these years the exports became more important in explaining the Irish performance. This is especially interesting as, with the forthcoming enlargement of the EU towards the east, Ireland's position in Europe will change from a net recipient from the budget to a net-contributor. Nevertheless, Ireland has to ensure that it takes advantage of the new export markets in the east.

Bibliography

Barry, F., Bradley, J., and Hannon, A. (1999) 'The European Dimension: The Single Market and Structural Funds' in Barry, F. (Ed.) (1999) *Understanding Irish Economic Growth*, Macmillan.

Gujarati, D. N. (1995) *Basic Econometrics.* McGraw-Hill.

Haughton, J. (2000) 'The Historical Background' in O'Hagan, J. W. (Ed.) (2000), *The Economy of Ireland. Policy and Performance of a European Region.* Gill and Macmillan.

Pindyck, R. S. and Rubinfeld, D. L. (1998) *Econometric Models and Economic Forecasts*. McGraw-Hill.

Principia Economica

Charles Larkin – Senior Sophister

The historical origins and methodology of economics are explored in this essay by Charles Larkin. The effects of the methodology of econometrics on the foundations of economics are examined, and he concludes that the methodology of economics has endangered the foundations of the discipline of economics.

Economics, if one were to look back to its very beginnings, would find it to be one of the oldest "sciences" in the Western World, a distinctive accolade for any form of human inquiry into the world in which mankind inhabits. Plato, in particular Aristotle, began that branch of logic that is today called economics. What we today call economics is quite different to what was recognisable to Aristotle. The Age of Enlightenment forever changed economics with Adam Smith's *magnum opus* in *Wealth of Nations* (1776), which created the foundations of modern economics and would eventually give rise to econometrics. The question at hand is whether this speciality within economics, in and of itself, substantiates the claim that economics is a science. To answer this pressing question we shall look into the history of Econometrics as an academic discipline, second, we shall endeavour to understand the epistemological aspects of science, which eventually gave rise to economics and finally we shall investigate the anthropological aspects of human learning. The analysis of these three areas combined will be the *instantia crucis* that allows one to determine that econometrics not only does not contribute to substantiating the scientific claim of economics, but also endangers the very epistemological and methodological foundations upon which Political Economy is based. One's analysis shall begin with a short historical account of Econometrics.

The Late Renaissance and early 1600s changed the study of economics forever.[1] The thinkers of the time gave rise to a new view of the political economy that fully endorsed

[1] The rise of trade and the Reformation redefined the moral, ethical and religious views of Europe. Commerce expanded, Humanism developed and the theories of experimentation began to show fruit with Galileo, Copernicus and the other early masters of the physical sciences. Economics undergoes its dynamic quantum leap at this moment in time – the developments of Hobbs, Pascal, Descartes and the British Empiricists all make an impact on Political Economy.

the use of the '*nonoverlapping magisteria*'[2] (Gould, 1997: 19). Baconian thought resulted in the development of the Mercantilist economics, Cartesian thought influenced the Physiocratics[3] and Descartes' own *Regulae*, in Rule 14, stipulates the unending and profound influence that geometric and mathematical methods can have upon the '*loftier sciences*' (Redman, 1997: 30)[4]. This was also the period of time in which the great grandfather of statistics and econometrics was born – Political Arithmetic.[5] Petty's *Political Arithmetic* (1899) and Graunt's *Observations on the London Bills of Mortality* (1899) formed the basis for all the statistical numbers used in economics and science. The development of this science gave rise to a familiar cry amongst the economists of the age (Redman. 1997: 142-149). Patkin (1976), discusses Keynes' personal view of econometrics and how he was less than enamoured with its method, but he also includes the key correspondence on the issue of national accounts. Keynes, Kuznets, and Clark all lobbied for and tried to develop better, more accurate national statistics. The United States developed them during the Great War and Britain during the Second World War (Patkin, 1976: 1092-1111). The issue that synthesises Keynes to the 1600s is that his complaints of misconstrued, poorly collected, analysed and defined data were those of not only the leading economist of Petty's age, Charles Davenant, but are also found in Adam Smith's *Wealth of Nations*. Smith finds a distinctive value for Political Arithmetic (as does Keynes who developed the method of measurement of GDP in his Y=C+I+G model), but only in so far as it is not abused, or thought to contain explanatory properties which it does not contain (Redman, 1997: 142-157), Hendry (1980), shows the

[2] By this Gould means that there is a distinctive separation between what is within the realm of science and what inhabits the realm of theology and religion. The two magisteria are not to overlap or attempt to conflict with one another and therefore exist in an uneasy harmony, both aware of world they uneasily share.

[3] Cartesian thought helped to develop the systematic mathematically deductive process that is found in Quesnay's *Tableau Oeconomique,* an important work that influenced Smith.

[4] It is important to point out that Pre-Classical Economics reaches its height with Cantillion in his highly systematic theory. His *Essai* outlined the questions of dual value, uses statistics to develop his arguments and anticipates theories of population not seen again until Malthus. (Roll, 1992: 108) This helped to set the stage for the further advancements that Smith would make in his *Wealth of Nations* (1776).

[5] Sir William Petty with John Graunt developed what would become econometrics, and surprisingly the capabilities of both Political Arithmetic and Econometrics as forms scientific inquiry are similar.

limitations of the use of statistical inference, and the regression method.[6] One of the first instances of the linear representation of economic information was John Playfield (1748-1819); it is with him that econometrics had set itself apart as one of the founding methodologies of Political Economy (Redman, 1997: 151). The final development in econometrics, until the synthesis of economics, mathematics and probability under W.S. Jevons, was to be found in Thomas Bayes – the founder of Bayesian probability.[7] His developments would eventually provide not only a large explanatory factor in econometrics, but also in economics.

The conclusion of the discussion of the history of econometrics will bring us through the Classical view to the present "crisis" in economics. Adam Smith, as mentioned above, developed the foundations of all Political Economy, and he himself used Political Arithmetic in his *Wealth of Nations* and firmly established economics as an academic discipline. Ricardo and Mill develop upon Smith but they differ slightly in their methodology and intellectual models. Marshall, Edgeworth and Jevons brought to fruition the mathematical and statistical view of economics.[8] Keynes' development of Macroeconomics, and the post-war drive towards "demand management" took economics from its knees in the Great Depression to its "Golden Age" in the post-war world until the 1970s. This brings us to the present situation in economics; the 'crisis' in

[6] Hendry (1980) illustrates the ability for the linear regression model to be manipulated to such a degree that the whole method of econometrics can be shown to be of little value. Hendry truly begs the question of whether or not econometrics is any more than a series of totally unfounded assertions based on a method still trying to turn lead to gold.

[7] This was in response to David Hume speculative conclusion that "...sensory evidence cannot render a generalisation or prediction certain." (Redman, 1997: 200) The epistemological foundations for Bayesianism were to be logical interpretation was fully refined in the works of Keynes and Carnap. Keynes attempted to expand the *inductive* abilities of probability, but since this science results from the study of games (a human creation) its adequacy for weighting evidence in natural and social science is still in question. The axiomatic basis of probability limits its explanatory ability and to philosophers of the Vienna School, namely Karl Popper, found this support of the inductive method as useless as induction itself. (Redman, 1997: 202)

[8] The application of Newton's "fluxions" (calculus) at the close of the Nineteenth Century was the height of economic systemisation prior to the marginalist school in America.

economics that British economists spoke of in the 1970s, and American economists in the 1980s (Redman, 1991: 154-167). This "crisis" gave rise to many questions in economics and has placed the epistemological and methodological foundations of Political Economy under scrutiny.

The epistemological[9] foundation of economics is to be found with Adam Smith. Smith who was first and foremost a philosopher, a philosopher of the Scottish school who had entered an academic world dominated by the Royal Academy and two opposing, yet fundamentally important points of view on scientific thought – the Baconian and the Newtonian. These formed the basis of Smith's thought and Smith's *rhetoric.*[10] (Redman, 1997: 207-220). The Baconian philosophy of science was to create once-and-for-all the wall between religion and science and implement the 'nonoverlapping magisteria' model that exists to this day. Bacon's *Novum organum* was his "textbook" to the goals, methods and knowledge which the new scientists of the Renaissance were to embrace. Bacon outlines four failings of scientific thought, that not only influence Smith's philosophy of science, but are also, unfortunately, the failings of many modern economists.[11] (See Hutchinson in *Economics in Disarray* (1984)).

---

[9] By this I mean the study of knowledge and thought processes that gave rise to Smith's philosophy, of which *The Wealth of Nations* was a branch.

[10] It is important for reasons of clarity to introduce the arguments of Donald McCloskey (1983) who views the problematic case of Modernist Method as it is used in economics. (McCloskey, 1983: 484) The problem with the modernist method as McCloskey illustrates it, was not the blind mathematical system that McCloskey believes it to produce. Hume in his *Enquiry concerning Human Understanding* denies Newtonianism, which is the true source of what he terms as modernism. The deductive-inductive method of Smith differs largely to what he decries. "The way Hume sees it, only a fool could dispute the authority of experience." (Redman, 1997: 73)

1. [11]The idols of the tribe, the human tendency to find too much regularity in the nature.
2. The idols of the cave, the natural narrowness of human thought that results from the human tendency towards parochialism.
3. The idols of the marketplace, the limits of human language which plague all the sciences and all aspects of life.
4. The idols of the theatre, which illustrates how dogmas and schools of thought cripple pure enquiries into the nature of the world. (Redman, 1997: 14-15) [The lack of a "nonoverlapping magisteria" is what Bacon is referring to in this final point.]

Newton was the other great mind to influence Smith, though it is unlikely that Smith understood calculus or the *Principia.* Smith had read *Opticks* and the *Principia*, and the two works differ sharply, which influences a great deal of his work. Newton used the deductive-mathematical method in the *Principia*, whereas in the *Opticks*, Baconian experimentation is blatantly present. This may explain the "linguistics" of Smith who evoked the use of scientific rhetoric, such as the "terminology" of the *Principia* but never actually endeavours to singularly use an axiomatic deductive method, for his own philosophy of science does not embrace this concept. Smith's goal was to apply the principals of the physical world and sciences to moral ethics, of which economics was one facet. Smith outlines how generalisations are formed in the *Theory of Moral Sentiments*:

'The general maxims of morality are formed, like all other general maxims, from experience and induction. We observe in a great variety of particular cases what pleases or displeases our moral faculties, what these approve or disprove of, and, by induction from this experience, we establish those general rules. But induction from this experience, we establish those general rules. But induction is always regarded as one of the operations of reason. From reason, therefore, we are very properly said to derive all those general maxims and ideas' (qtd. in Redman, 1997: 187)

This outlines the inductive-deductive method that Smith would later use in the *Wealth of Nations*, a process of investigation and collection of facts (econometrics and mathematical economics), used in tandem with the deducing of an inference from those facts but only in a very minor way [12] (Redman, 1997: 184-189). This is where one finds the beginnings of econometrics not being able to contribute to making economics a science, but that the violent way in which the mathematical and econometric method was forced upon economics shakes it to its very epistemological core. Terrence Hutchinson (1984), illustrates this in a concise and all-encompassing manner is his article 'Our Methodological Crisis'. The abstract deductive method so fundamentally changes economics, allowing for unsubstantiated generalisations that the rise of economics as an

[12] Smith had a strong dislike for the deductive method, therefore inductive, experience based thought is the pervasive method in all his works.

intellectual playground where the importance of policy-making advancements is lost. Smith understood this fully, and so did Newton and Hume (who is made out to be the evil creator of modernism in McCloskey's (1983) article)[13]. Smith knew of the complexity of man and that a mechanistic and systematic view would collapse the foundation of his work. A view lost on a theoretical construct of General Equilibrium as Hutchinson (1984), clearly states.

Econometrics, as stated above, was a welcome tool for economics to Smith. He felt that though it was still hard to learn to walk before one could run, it was a valuable tool if it was not to supplant the importance of all the various subsystems of thought that make up his view of the economy. Unreliable data and unreliable methods were the criteria under which empirical work was to be judged – difficult criteria to be judged by for any present day econometrician. The key to the epistemology and methodology at the heart of economics is an understanding of Adam Smith himself. As a Scottish philosopher he was imbued with the Scottish view of academic inquiry (Redman, 1997: 110-112). The focus was on rhetoric, the historical study of the foundations of mathematics, a broad and liberal education that involved a command of multiple subjects, a method that involved a "common man's" understanding of moral philosophy, this is the cornerstone of Scottish academia (Redman, 1997: 110-111). This mindset was made manifest in Smith's works. His use of Newtonian phraseology and rhetoric resulted in many economists finding a basis for mathematical form in Smith, as Jevons developed in the

[13] Again this is a manifestation of McCloskey's confusion between Newtonianism and modernism. Newton himself in the below quote realised the limitations of his method acknowledging there are some phenomena that even physics cannot explain. Newton in the *Principia* states:

> I deduce the motions of the planets, the comets, the moon, and the sea. I wish I could derive the rest of the phenomena of Nature by the same kind of reasoning from mechanical principals, for I am induced by many reasons to suspect that they may all depend upon certain forces by which the particles of bodies, by some causes hitherto unknown, are either mutually impelled towards on another, and cohere in regular figures mutually impelled towards one another, and cohere in regular figures or are impelled towards on another, and cohere in regular figures, or are repelled and recede from one another. (*Principia* qtd. in Redman, 1997: 48)

Hume himself felt that his good friend Adam Smith's *Theory of Moral Sentiments* was off the mark in trying to apply the principals of the physical sciences to that of morality. (Redman, 1997: 187)

late Nineteenth Century. This loses sight of Smith's evolutionary and self-adapting system of thought that was the counter opposite to the axiomatic deduction of Newton, and closer to Bacon and perhaps Darwin's *Origin of Species*. Smith created a complex of subsystems that includes experimentation, reason, history, natural history, a generalist's perspective, moderation and balance, connecting principals, moral axioms, natural laws, concepts of systems, fairness, rhetoric and statistical methods. Smith's method allows for mathematics and econometrics but only as long as it understands that it is part of the philosophical system under which the supremely complex human artifice of commerce is studied. This makes the simplistic models not only highly difficult to create but also discounts them, for they come dangerously close to missing the point of Political Economy. Keynes puts the danger of an overly Newtonian view of economics in a very clear manner:

'Unlike physics, for example, such parts of the bare bones of economic theory as are expressible in mathematical forms are extremely easy compared with the economic interpretation of the complex and incompletely known facts of experience, and lead one but a very little way towards establishing useful results'. (Keynes qtd. in Morishima, 1984: 71).

Kenneth Boulding in his presidential address to the American Economic Association made clear that the simplistic trends of economics has resulted in it removing itself from the scope of human activity and lost its basis in the greatness and weakness of the human condition (Boulding, 1969: 1-11). The shaky ground upon which the overly mathematical, parochial and myopic method of econometrics and mathematical economics has allowed economics to venture is clear. It is a result of a persistent misinterpretation of Smith since the time of Jevons and as a result, it has shaken the very foundations of the study of economics. The final section will endeavour to explain why this happened.

The anthropology of human learning allows one to partially understand how Smith's warnings were ignored by so many for so long. The brain's versatile toolbox developed over the millennia the skills to outwit and outsmart the local flora and fauna. In the process humans and our evolutionary ancestors developed the ability to analyse, categorise and to communicate. The intuitive mechanisms of the mind work well, up to the point of abstract concepts, like economics. At this point the human mind leaves the

Stone Age and enters the world we inhabit, and the world that Adam Smith and Isaac Newton inhabited. As primates, we are social by nature and also visual. The development of abstractions for understanding was a mark of higher human thought. The use of geometry and mathematics are those higher levels of thought, which ease the understanding of difficult concepts (Patkin, 1997: 42-45). The issue at hand is the problem that this produces. In the presence of a theoretical concept *Homo Sapiens* is like a child with a hammer – everything becomes a nail. The inherent ease of mathematics and geometry on the Cartesian Plane in assisting the economist in deducing the complexities of an oligopolistic market via game theory offers great advantages, but also great dangers.[14] The history of modern mathematics is based upon the axiomatic deductive methods of Descartes and Newton. The deduction from basic axiom to theorems is possible for an infinity of possibilities. The application of such a tool to economics is important and useful but also counter to its foundations. As stated above, Smith used an inductive method. Smith's work then became the axiom upon which all economics was based, but his first principals were not axiomatic, which resulted in mathematic progress but hit epistemological brick walls. Mathematics helps to decode the universe as we can see and understand it, and it is an intrinsically important tool, without which science does not exist (Tyson, 1997: 80-82). This shows why Smith does not reject econometrics or mathematics. The brick walls are hit when the language of mathematics is stopped short by the might of Nature in physics. Economics, in being a human creation while studying the human artifice of commerce, is therefore affected by the time and mores of society, and subject to its own Heisenberg Uncertainty Principal.[15] By the observer being a participant in what he or she is observing, it results in the wall economics approaches being filled with holes, and therefore allowing theories and conceptions to fly through, though they have no grounding in the world of human commercial interaction (Boulding, 1969: 2). The use of mathematics and econometrics ceases to be part of the co-operative Smithian subsystem but begins to chip away at the other pillars upon which economics stands.

---

[14] The Smithian warning against over-application is quickly ignored and the rise of econometrical and mathematical methods that serve no practical purpose and reconsider ineffective theories multiple times in different ways take place.

[15] A concept taken from Theoretical Physics, it is the belief in the process of observing, the observer corrupts what he or she is attempting analyse.

The innate facts about human learning allow this to happen almost unnoticed. Man is a linguistic creature, but of the 6,000 languages that exist only 1,000 phonemes (basic sound units) exist, and automatic limitation upon what we can convey through mere words (Nowak, 2000: 42). Again, this allows econometrics and mathematics to easily fill the void, which is either too difficult or too wordy to describe about how humanity interacts in the act of commerce. Risk and uncertainty, and group collusion are highly complex and difficult concepts to verbalise, economics utilises mathematics, geometry and econometrics in a manner that supports political economy, but to over simplify or infer from statistics what cannot truly be inferred results in the foundation of the economics being damaged. John von Neumann created the programmable computer via syntax and a limited linguistic set (Nowak, 2000: 47). Man is similarly gifted, but as with the computer, there are limits to its application. Economics must realise those limits in order to save itself from the current "crisis" it faces.

The objective of this essay was to discuss whether or not econometrics contributed to economics as a science. Econometrics does not add to economics as a science, in fact, if taken to the extreme it endangers the very foundations of political economy. We illustrated this thesis by first discussing the history of economics, how it developed and where it has gone, with the goal of illustrating how economics was intrinsically linked to moral philosophy. Second, the discussion entered into the mind of Smith, the epistemological development of economics and how Smith's own times influence his work. This showed how econometrics does not make economics a science, but was always an intrinsic part of political economy. The final section ventured into how humanity learns. This was to illustrate how easily Smith's, Newton's and Hume's warnings can be ignored. Those warnings, particularly Smith's places the very subject in danger, as his inductive subsystems that were the foundations of economics are put at risk but a myopic view created in the last few decades by econometrics. Smith personifies economics; he also personifies Alexander Pope's *Essay on Criticism*:

'A little knowledge is a dangerous thing;
Drink deep, or taste not the Pierian Spring;
There shallow draughts intoxicate the brain,
And drinking largely sobers us again' (qtd. in Gould, 1997: 24)

Economics is scientific in as far as it is a systematic inquiry into the human artifice of commerce, but economics must drink deep of the Pierian Spring. To not fully take in all that the muses have to offer the economist (both mathematical and otherwise), and the econometrician may, by intoxication caused by parochialism conjoined with myopia, strike out and destroy the pillars around them that support the temple of political economy. If the economist and econometrician drink largely they come within distance of understanding that there is truly a grandeur to this view of life.

Bibliography

Boulding, K. (1969) 'Economics as a Moral Science.' *American Economic Review.* 59.1: 1-11.

'Drink Deep, or Taste Not the Pierian Spring.' *Natural History.* 106.8 (1997): 24-25.

Gould, S. (1997) 'Nonoverlapping Magisteria.' *Natural History.* 106.2. 16+.

Hendry, D. (1980) 'Econometrics – Alchemy or Science' *Econmica.* 47: 387-405.

Hutchinson, T. 'Our Methodological Crisis.' Wiles and Routh. 1-21.

McCloskey, D. (1983) 'The Rhetoric of Economics.' *Journal of Economic Literature.* 21: 481-517.

Morishima, M. 'The Good and Bad Uses of Mathematics.' Wiles and Routh. 51-73.

Nowak, M. 'Homo Grammaticus.' *Natural History.* 109.10 (2000): 36-44.

Patkin, D. 'Keynes and Economics.' *Econometrica.* 44.6 (1976): 1091-1123.

Pinker, S. 'The Brain's Versatile Toolbox.' *Natural History.* 106.8 (1997): 42-45.

Redman, D.(1991) *Economics and the Philosophy of Science.* Oxford: Oxford University Press.

Roll, E. (1992) *A History of Economic Thought.* 5th ed. London: Faber and Faber.

The Rise of Economics as a Science. London: MIT Press.

Tyson, Neil de Grasse. 'Romancing the Equations.' *Natural History.* 106.10 (1997): 80-82.

Wiles, P. & Guy Routh. (1984) *Economics in Disarray.* Oxford: Basil Blackwell.

Hayek on Money

Sarah Hynes – Senior Sophister

Sarah Hynes examines the economic theories of Freidrich Hayek. The author examines the debate between Hayek and Keynes in the 1930's and the triumph of Keynesianism. She then turns to the re-emergence of Hayek's theorising in the 1970's, and concludes that Hayek's contribution to monetary thought was unrecognised by the mainstream.

Introduction

Friedrich August Hayek was born in Vienna 1899 and died in 1992. Though his life roughly coincides with the twentieth century, quite the opposite may be said about his economic theorising which was almost always in conflict with mainstream thought throughout his life. His life-long pre-occupation with inflation was a driving force behind his clash with Keynesian interventionism in the 1930's and the aggregative positive economics of Milton Friedman and the monetarists more recently. Hayek's appointment as Tooke Professor in Economic Science and Statistics in the London School of Economics in 1931 was a manifestation of his pre-eminent position in economic thought in the 1930's. J. M. Keynes and Piero Sraffa abruptly cut the promising start short by denouncing his interpretation of the business cycle in a debate in the 1930's.

He then turned his attention to epistemology, philosophy, politics, psychology and law, leaving London in 1950, for Chicago and then returning to Austria. His work in these areas was decisive in the intellectual battle against communism in the twentieth century. This won him admirers who included Margaret Thatcher. The Thatcher connection and Hayek's later work advocating radical free market policies has meant that he is often relegated to the extreme right-wing of economic thought. The fall-from-grace of Keynesian economics in the 1960's and 70's as well as the conferment of the Nobel Prize for economics on Hayek in 1974 has led to a resurgence of interest in his work.

This essay is divided into two parts. The first focuses on the debate between Hayek and Keynes and Sraffa in the 1930's. This debate is interesting from the point of view of the economic historian because it is a turning point in economic thought, preceding the

Keynesian revolution that changed the course of events in the twentieth century.

The second part deals with Hayeks' return to economic theorising in the 1970's with regard to his radical plan for the denationalisation of money, sparking off a debate on the topic. The evolution of his thought and the incorporation of some of his ideas developed in the intervening years are evident.

The Keynes-Hayek-Sraffa Debate of the 1930's

'Hayek's economic writings... are almost unknown to the modern student; it is hardly remembered that there was a time when the new theories of Hayek were the principle rival to the new theories of Keynes' (Hicks, 1967: 203).

The misunderstandings which characterised the debate have been attributed to the obvious fact that Hayek and Keynes/Sraffa represented respectively two different economic traditions, namely the Austrian School of Economics and the Cambridge School, and also the two rival institutions of LSE and Cambridge University. As Kurz (unpublished: 2) puts it *'The quest for truth competed with other motives including the desire to win out against alternative schools of economic thought and establish a dominant position in economics'*. The victory undoubtedly belonged to Keynes and the Cambridge tradition. By the mid 1940's Hayek had retreated from academic economics, turning his attention to the epistemological and political writings for which he is more renowned among the general public.

The relevant primary literature expressing Hayek's views consists primarily of two books; *Prices and Production* (1931), and *Geldtheorie und Konjunctutheorie* (1929), published in English as *Monetary Theory and Trade Cycles* (1933). Hayek's review of Keynes's *Treatise on Money* (1930), published in *Economica* sparked off the debate between Keynes and Hayek. Sraffa's highly critical review of *Prices and Production* appeared in *The Economic Journal* in March 1932. Hayek's reply was published in June of that year along with Sraffa's rejoinder.

The dispute began when Lionel Robbins asked Hayek to review Keynes's *Treatise on Money* (1930). The "scathing attack" by Hayek appeared in the November 1931 issue of the LSE household journal *Economica*. *'The exchange led to a heated correspondence*

between Keynes and Hayek from December 1931 to February 1932 ... including a letter from Hayek to Keynes on Christmas day with a reply the same day' (Dimand 1988: 57 quoted in Steele 1996:131). The intensity was short lived. Keynes's disengagement, as he shifted his attention to other subjects and ultimately to writing the *General Theory,* resulted in a *'grave disappointment'* to Hayek (Wubben, 1997: 197). Hayek declined from engaging with this *'erratic person as he came to characterise Keynes'* (Wubben, 1997: 198), not bothering to review his *General Theory* in 1936.

The substance of the debate was *'the self adjusting and co-ordination properties of a market economy'* (Butos, 1994: 470 in Wubben 1997: 197). The debate essentially centred on savings and investment. Keynes and Hayek had a common starting point in Wicksell's distinction between a natural and market rate of interest, the former denoting the notional value where planned savings equals planned investment, and the latter actually determined by the demand and supply of loanable funds. A divergence between the two generates a cumulative process of price changes until the economy returns to equilibrium (Tieben 1997: 98). From this common starting point, as Hicks points out, *'Wicksell plus Keynes said one thing, Wicksell plus Hayek said quite another'* (Hicks, 1967: 204). From that point on their theories diverged significantly. Keynes defined the discrepancy between ex-post savings and investments as unanticipated profits. The role of expectations is central to Keynes's analysis where they are frustrated/satisfied when savings exceed/match investments, resulting in a steady state contraction, with no endogenous self-correcting mechanism. Hayek attributed the divergence to intertemporal unwinding of monetary disturbances within the framework of Austrian Capital theory. Hayek maintained that the business cycle is a problem of a monetary economy where co-ordination failures between firms and households lead to a boom and bust scenario due to the disturbing influence of the banking system (including both the monetary authorities and banks in general).

The methodological differences between the two men also contributed to the confusion characteristic of the debate. Hayek avoided mathematics on principle, meaning he had to resort to complicated and sometimes ambiguous verbal explanation and his infamous triangles to explain complex phenomena. At this stage he was still an adherent of Walrasian General Equilibrium, in his own words *'most perfectly expressed by the Lausanne school'* (Hayek, 1933a: 42) which he attempted to integrate with his business cycle theory. Hayek viewed Paretian equilibrium as the centre of gravity toward which

all major economic forces tended.

To a large extent the review consisted of a criticism of the terminology used by Keynes. '*By arbitrarily changing the meaning of familiar concepts, Mr Keynes has succeeded in making plausible a proposition that nobody would accept were it stated in ordinary terms*' (Hayek 1932a: 73). Tieben (1997), points out that Hayek was perhaps too eager to undermine an argument that was anathema to his own, thus ignoring the main theoretical innovation of the *Treatise,* that is the influence of stocks of assets as well as flows on the interest rate. Keynes acknowledged the possibility of investment in other financial assets besides new Capital goods. Hayek recognised that Keynes's portfolio balance approach was '*in many respects the most interesting part of his theoretical analysis*' (Hayek, 1932a: 75) but ignored it from then on. Keynes also explicitly recognised the store of value function of money whereas Hayek exposed himself to criticism in only considering the means of exchange function. The focus of criticism on the terminology may have also reflected Hayek's objection to Keynes's overly aggregative style of theorising (Foss, 1999: 25).

On a theoretical level, Hayek's criticism of Keynes centred on Keynes's neglect of the structure of production processes and his concentration upon purely monetary effects. In fact Keynes's business cycle theory did lack capital theoretic foundations, however it is unlikely he would have found much use in Austrian Capital theory to rectify the situation. Keynes and Hayek both ignored certain aspects of each other's work, leading to the conclusion that had there not been a lack of communication, both theories could have been improved. Both economists were guilty of judging each other's works by the yardstick set by their own theories. Most recent commentators concede that the two men were talking at cross-purposes. Nentjes (1989: 143 in Tieben 1997: 96) goes as far as to contend that the debate was '*a clash of two opposing paradigms and its accompanying lack of communication*'. This explains why much of the debate involved disagreements about terminology and why it degenerated to some quite hostile and even offensive discourse. Keynes complained that '*Hayek has not read my book with that measure of 'good will' which an author is entitled to expect of a reader. Until he can do so, he will not see what I mean or know whether I am right. He evidently has a passion which leads him to pick on me, but I am left wondering as to what that passion is*' (Keynes, CW XIII 243 quoted in Kurz unpublished: 22). Keynes then turned his attention to other subjects, leaving Piero Sraffa, his colleague at Cambridge to continue the battle to discredit

Austrian Economics.

At almost the same time as the Hayek-Keynes macro-debate, Piero Sraffa was asked by Keynes to review *Prices and Production* for the *Economic Journal.* The book was the result of a series of four lectures at the LSE that Hayek had given in 1931. The reaction in Cambridge was one of confusion. Kahn (1982: 82 quoted in Steele 1996: 131) recalls that Hayek had completely bewildered his audience by his presentation of a condensed version in a paper to the Marshall Society. Kahn also recalls that there was an impression at the time that he was being *'served as an antidote to Keynes'.*

It should be noted that at this stage of the debate, Hayek had only been in London less than a year and that most contemporary economists were unfamiliar with his previous work or indeed with continental economic thought, in particular Austrian Capital theory. Many economists looking on from the sidelines were baffled by the debate. In Hicks' words *'Prices and Production was in English but it was not English economics'.* Hayek's triangles, which he used to explain intertemporal allocation of resources between intermediate producers' goods and consumers' goods, continue to confuse to this day. An in-depth analysis of the theory expounded by Hayek's *Prices and Production* is beyond the scope of this essay. A few points of interest must suffice.

The book has two aims; the first constructive and the other critical. Hayek seeks to refute previous theories which, in the first lecture, *'Theories of the Influence of Money on Prices'*, he classified in four stages. His four stages track a development from Locke, Cantillon, Hume, Ricardo, and Wicksell among others. The fourth and final stage has yet to come to fruition (but will presumably encompass his own work on monetary theory). Sraffa approvingly refers to it as *'a model of clearness'* (Sraffa, 1932: 42). With the introduction of Böhm Bawerks Capital theory, Sraffa's approval disappears. The constructive aim of the book is addressed in the remaining three lectures which integrate capital theory with monetary theory addressing issues concerning prices (relative prices and the general price level), credit, savings and investment. He concludes in the last lecture with some prescriptions for monetary policy. Hayek emphasises the importance of relative prices rather than the general price level reflecting his dislike of aggregation using statistical methods to empirically verify economic theory. He proposes instead to adopt an individualistic method consistent with his own methodology of subjectivism.

HAYEK ON MONEY

The notion of equilibrium adopted by Hayek was different to that adopted by Sraffa and Keynes. Hayek saw business cycles as a transitional stage between equilibria. It was the time dimension that distinguished Hayek's notion of intertemporal equilibrium from Keynes's more limited Marshallian concept of equilibrium. Hayek conceived the interest rate as inherently an intertemporal relative price which '*expresses itself in the whole structure of relative prices*' (Hayek, 1933a: 207 in Foss, 1999: 36). The concept of "forced saving" occupied a prominent position. In an economy where resources were fully utilised, further investment may only take place if a smaller amount of output is consumed. Unlike Keynes, it was the world of fully-utilised resources that Hayek occupied. Throughout the book Hayek maintained that '*the recurring business depressions can only be explained by the operation of our monetary institutions*' (Hayek, 1931: 111). Forced Saving is brought about artificially by banks lending to producers at a more favourable rate. An increase in the production of capital goods relative to consumer goods due to a change in the propensity to save leads to a new equilibrium. However, an increase in production financed by credit forces consumers to save since the production of consumers goods has been reduced. This disequilibrium scenario, reflecting the upswing in a business cycle, is re-equilibrated by a change in the relative price structure where some specific capital (e.g., specialist machinery) cannot be easily reverted to consumption. Hayek sees the case of voluntary saving as '*permanent and justified'* whereas in the case of forced saving there are distributional effects where '*now this sacrifice is not voluntary and it is not made by those who will reap the benefits of those investments*' (Hayek, 1931c 52-53).

An exert from the passages on forced savings shows how Hayek's perception of the economy differs from Keynes:

'The existence of unused productive capacity is therefore nothing less than a proof that capital is available in abundance, whereas consumption is insufficient: Quite on the contrary, it is a sign that these productive capacities cannot be used, because the current demand for consumption goods is too urgent to allow us to invest the available productive resources in time consuming processes of production.' (Hayek, 1931c: 94).

In his *General Theory* Keynes relegated two of the central issues of Hayek's theory, namely neutral money and forced saving to '*a theoretical limbo from which they have never returned* ' (Foss, 1999: 37).

The neutrality of money was a recurring theme. Hayek was critical of monetary policy guided by the '*widespread illusion that we only have to stabilise the value of money in order to eliminate all monetary influences on production*' (Hayek, 1931c:126). Hayek saw money as neutral in a monetary economy only when events took place '*as if they were only influenced only by the real factors*' (Hayek, 1931c: 130). This did not necessarily mean, as Sraffa interpreted, to maintain the MV in the Quantity Theory of money as constant. Hayek recognised that even though a change in the quantity of money may or may not have an impact on the general price level, it almost certainly effects the structure of relative prices. It is this relative price structure upon which production depends.

Hayek saw neutrality as a theoretical concept, which could not be achieved by a simple stratagem of monetary policy. He was strongly opposed to an elastic currency fluctuating with the level of production. He likened the system of credit to an inverted pyramid, where the lowest part corresponded to cash, the next tier up, was central bank credit, then commercial bank credit, then private credit. Since only the first two or three tiers could be officially controlled, it would be extremely complicated and difficult to maintain a constant velocity of circulation. In terms of policy prescription Hayek had very little to offer. In contrast, Keynes provided a practical programme to escape the Great Depression. Maintaining the MV in the Quantity Theory of money constant was the second best solution since in the real world the conditions necessary for neutral money would never exist. Therefore, according to Hayek:

'*The only practical maxim...Is probably a negative one that the simple fact of an increase of production and trade forms no justification for an expansion of credit, and that –save in an acute crisis- bankers need not be afraid to harm production by over caution*' (Hayek, 1931c: 125)

There are some aspects of Hayek's theory that are relevant to events today. The idea of malinvestment or misdirections of production to explain the business cycle has some relevance to the booming US economy in the late 1990's and the subsequent slowdown due to overinvestment in Information Technology as, in Hayek's words, '*the structure of production adjusted*'. The source however could not be said to be purely monetary but rather a combination of relatively cheap money by historical standards and Keynes's

animal spirits of investors.

Hayek's analysis of these issues provoked harsh criticism by Piero Sraffa. Sraffa's review in March 1932 and his rejoinder to Hayek's reply in June are even more notable since Sraffa was a distinguished economist but these works were his sole publication in 25 years.

Zappia (1999), identifies three main points in Sraffa's review:

- The role of money in the economic system: Hayek omits the medium of exchange function of money such that the distributional effects of a rise in the general price level (between debtors and creditors for instance) play no role.

- Forced Savings: Sraffa disagreed with Hayek's notion of Capital consumption, using the analogy of a robbery where '*one class.. has robbed .and ... saved the plunder. When the robbery comes to an end it is clear that the victims cannot possibly consume the capital which is now well out of their reach*' (Sraffa, 1932a: 203-204).

- Sraffa sees Hayek's fundamental mistake as the belief that '*the divergence of rates is characteristic of a monetary economy*'. Sraffa sees equilibrium when the market rate equals the natural rate. In such a case the spot and forward rate coincide. Sraffa argues that there would be as many natural rates as there were commodities so that divergence between rates was inevitable and '*essential to the effecting of a transition as is the divergence of prices from costs of production; it is in fact another aspect of the same thing*' (Sraffa, 1932: 206). It was in his reply to this last point that Lachmann (1986: 237) labelled as the '*fatal concession to his opponent*'. Hayek implicitly admits that the multiplicity of interest rates is incompatible with his framework although he maintains that it is possible to have a number of divergent interest rates, all of which are in equilibrium.

Sraffa's critique of *Prices and Production* did irreparable damage to Hayek's reputation. Hayek was unable to defend himself against the two greatest flaws in his reasoning: his omission of the multiple functions of money and his inability to incorporate a multiplicity of interest rates into his theory.

Frank Knight in a letter to Oskar Morganstern said '*I wish he (Hayek) or someone would try to tell me in a plain grammatical sentence what the controversy between Sraffa and Hayek is about . I haven't been able to find anybody who has the faintest idea*' (Kurz, unpublished: 1). Kurz referred to it as ' *far from being two sides of a debate, (they) passed each other without touching*'. From this it is clear that the discussion of relatively obscure topics such as the neutrality of money or theories of savings and investment, while the Great Depression ravaged economies in the real world, baffled contemporary economists. It certainly did not help that Hayek had introduced terminology such as the "roundaboutness" of the production process, "capitalistic methods", "the coefficient of money transactions" among others to explain his ideas.

Sraffa's criticism has been seen as '*an attempt to divert the interest of economic profession towards a macroeconomic approach in the face of mainstream inability of explaining permanent unemployment. To undermine the soundness of Hayek's theory of real economy was Sraffa's main goal on behalf of Keynes*' (Zappia 1999: 1). Sraffa's denunciation of Hayek dealt a fatal blow to both the Austrian school and its most high profile proponent. Hayek retreated from the forefront of economic debate just as the Keynesian revolution revved up a gear.

The disagreements did not follow the implicit rules of academic discourse of the time and at times became quite antagonistic. Keynes moved on to greater things leading the Keynesian revolution. The debate has been referred to as a duel, battle or war. Lachmann (1986: 226) said '*Sraffa's review was an onslaught conducted with unusual ferocity, somewhat out of keeping with the tone ordinarily adopted by reviewers in the Economic Journal'*. This gives an accurate impression of the hostility of some of the arguments as well as implying that there was a clear winner and loser. Keynes won while Austrian economics was discarded despite containing many elements that could have enhanced economic theory.

In the 1930's the unity of economic thought was taken as given where the *Methodenstreit* was considered a thing of the past. The complete defeat of Hayek restored that unity for several decades. There are advantages to constructive discourse among heterogeneous economic thought as is the case today where Post-Keynesian, New Classical Macroeconomis (Mark I and II), and many others vie for attention with

their interpretations of the business cycle. Many of these diverse writers count Hayek among their intellectual forebears. Unfortunately the Keynes-Hayek-Sraffa debate was rather more destructive of each other's theories than constructive. The real loss is to the evolution of economic theory as a whole.

Denationalisation of Money

The conferment of the Nobel Prize for economics in 1974, in a sense, brought Hayek back from the wilderness of economic theorising. In the decades following his defeat in the 1930's debate he had turned his attention to political and legal philosophy and epistemology. In 1976, he wrote *Choice in Currency: A way to Stop Inflation* followed by *Denationalisation of Money* in 1978. It is the latter of these two works which best expresses his proposal to reintroduce discipline in the form of competing currencies. Hayek's proposal comes complete with a practical programme for its implementation. The work represents the final stage in the evolution of Hayek's monetary thought. It incorporates many of his monetary ideas developed in the 1930's, remaining faithful to his doctrine of the importance of relative prices and the uselessness of the aggregate concept of the general price level. In many ways however, it departs from some earlier recommendations, in particular he no longer sees the gold standard as the most favourable means of ensuring price stability. His philosophical stance is evident throughout. He uses the concepts that he developed in *The Road to Serfdom* (1944), *Individualism and Economic Order* (1948) and *The Constitution of Liberty* (1960). These concepts include the perception of competition as a discovery process, the role of price signals in overcoming information problems and the inability of a central government authority to process all relevant information. They are employed to promote the central proposition; that the market process is the most effective means of ensuring price stability. *Denationalisation of Money* begins with a brief history of the evolution of the idea of currency competition and its historical precedents. Currency competition as advocated by Hayek should be distinguished from the notion of "Free Banking", which refers to a monetary system without a central bank, where private banks issued their own notes in a common and fixed unit. Its practice in the 19th century involved a guarantee of convertibility into gold and silver.

He pointed out that practically all governments in history have used their exclusive power to issue money to '*exploit and defraud*' the people (Hayek, 1978: 33).

Government monopoly of coins in a metallic system was initially needed to establish and certify uniform weights and measures. Subsequently seignorage became an important source of revenue and so Governments enforced the view that national currency was essential to national sovereignty.

Hayek inverts Gresham's law that there is a tendency for bad money to drive out good, making a government monopoly necessary. He contends that Gresham's law only holds if a '*fixed rate of exchange between the different forms of money is enforced*' (Hayek, 1978: 43). Issing (1999), applies Hayek's theory, that good money drives out bad when there are floating exchange rates, to the context of different national currencies. There is some empirical evidence that the Deutchmark and Dollar have replaced depreciating national currencies. However, Issing remarks that Hayek neglected the effect of contagion which has also some empirical backing in recent history of international finance, where there is '*contagious spill-over despite healthy economic fundamentals*' (Issing, 1999: 21). It is possible that in the extreme case of a severe loss of confidence in one currency, the public could withdraw from the monetary system altogether and revert to another form of exchange such as barter, which is hardly conducive to the smooth functioning of the economy.

Hayek proceeds to propose his practical programme taking the example of a Swiss joint-stock bank issuing private currency which is tied to a commodity equivalent, whereby the bank guarantees a constant purchasing power in terms of those commodities. Hayek justifies his choice of raw materials prices as the base to which the currency is tied since they act as a proxy for prices of the factors of production; land and labour, which cannot be measured accurately. Hayek sees the value of money as constant but not fixed, varying against other currencies. The issuing institutions would have a strong incentive to keep the value of their currency stable in terms of purchasing power since any depreciation of the currency will lead people to stop holding it and the banks will go out of business. Central banks have no such incentives. The banks will keep the value constant by controlling its quantity. Competition between banks will not degenerate into excessively cheap money since any expectation of a depreciation from excessive lending will mean the bank will go out of business. Hayek sees the role of the press in communicating any price divergence to the public as essential. He gives a prominent role to computers and new technology in overcoming the logistical problems of many currencies. Issing (1999) addresses the role of digital money and in this respect it may

seem that Hayek was remarkably prescient about the role that new technology would play in transforming the working of the financial markets.

In *The Denationalisation of Money* Hayek suffered from the same misconception with regards to the function of money that Sraffa identified with *Prices and Production.* He sees the basic function of money as a medium of exchange. While he now admits that the store of value and unit of account functions exist he sees them not as functions but as '*consequences of the basic function of money as a medium of exchange*' (Hayek, 1978: 67). He recognises the importance of stability for money as a unit of account but does not dwell for long on the subject. Issing however, stresses the importance of money as a unit of account. If there are as many "numéraires" as issuing banks, which is feasible in Hayek's system, then this will damage financial communication, confusing price signals. Strangely enough, Hayek is not an advocate of floating exchange regimes since to him they are too concerned with the relation between general price levels of different countries and distort relative price movements, since a change in one price invokes a reaction via the exchange rate on all prices. He continues in his opposition to aggregation maintaining '*the uselessness of the Quantity Theory for our purposes*' (Hayek, 1978: 76), preferring the cash balance approach of Walras, Menger and Marshall. Hayek agrees with monetarists on the importance of money in the economic system and that there is no such thing as cost-push inflation. Nonetheless, he disagrees on the Quantity Theory, the efficacy of monetary policy and on the benefits of indexation. He sees the latter as a partial remedy '*weakening the resistance against inflation*' (Hayek, 1978: 82) and prolonging and increasing it.

He is all the time critical of the Keynesian hangover after three decades of government intervention leading to a situation where he sees the government portion of output of 60% in countries like Sweden and Britain as eventually reaching 100%; effectively a totalitarian state.

The effect of currency competition, as advocated by Hayek, resolves his earlier problem in the 1930's of the inequality of Savings and Investment, where stable prices will equate the two. He also returns to the "fictitious" concept of neutral money. To this however he has "no ready answer" (Hayek, 1978: 88).

Hayek goes into detail on how the opposition to his proposal and other practical issues

are to be overcome. He even stipulates the exact method of transition. However the reader must find difficulty in accepting that the process would be anything but smooth and painless. One is reminded of the argument against disinflation, where ideally one would prefer to start from a position of zero inflation but the disadvantages of disrupting the established economic order, with lasting effects on growth, would not outweigh the benefits of zero inflation.

With regards to monetary policy it may seem evident now that Hayek reserved no place for it in his system. '*It simply could not exist*' (Hayek, 1978: 100) and that its termination was the deserved result of the Central Bank having '*discredited itself*'. He argues that a single monopolistic governmental agency can't possess the information needed to set monetary policy appropriately, nor is it capable of acting in the general interest or even knowing what the general interest is, since there are no price signals to summarise the relevant information. Central Banks would be abolished along with national, territorially determined currencies, while balance of payments problems would cease to exist. In Hayek's system there would be no fixing of interest rates, which he regards as another trick of government to get cheap money. Governments would then be forced to balance their budgets. Hayek notes that '*nothing can be more urgent than to dissolve the unholy marriage between fiscal and monetary policy*' (Hayek, 1978: 117).

Issing (1999), identifies the key problem of Hayek's proposal, as arising from his conceptualisation of the market as a discovery process. Hayek has complete faith in the market in contrast to his extreme distrust of the government. He does not admit that government can have any useful role in overcoming market imperfections or incomplete markets. The network externalities identified by Issing include the possibility that an inflationary bank may not be dislodged. He also notes the assumption of '*complete, symmetric and free information*' is unrealistic in banking activities where credit rationing is a rational consequence of asymmetric information. (Stiglitz and Weiss, 1981: 393-410). Hayek believes that the chief task of an '*economic theorist or political philosopher should be to operate on public opinion to make politically possible what today may be politically impossible*' (Hayek, 1978: 17). There is a distinct ring of the "constructivist rationalist" approach to this task. Ironically, it was this approach to economics that Hayek was so critical of in Keynes's policy prescriptions. Throughout his life Hayek criticised those who attempted to build a utopia. Most frequently Keynesianism and Totalitarianism received the brunt of his criticism. However in

Denationalisation of Money his primary criticism of EMU was that it was utopian compared to his more practical proposal (Hayek, 1978: 23). Recent events attest to the fact that quite the opposite is the case.

Hayek was firmly opposed to the European Monetary Union. He *'strongly sympathise(d) with the desire to complete the economic unification of Europe'* but could not give his assent to the entrenchment of the institution of the Central Bank which he was arguing to do away with. Thus it is appropriate that we address the criticisms of one of the leading proponents of EMU, Otmar Issing of the ECB, who is also instrumental in the execution of the transition to the Euro. Hayek saw Monetary Union, with the creation of a single currency as *'more deeply entrenching the source and root of all monetary evil'* (Hayek, 1978: 23). Issing argues that the ultimate aim of EMU is identical to Hayek's: the denationalisation of money. He also contends that EMU has gone some way, since the publication of Hayek's paper in 1976, in realising increased competition in inside money among private banks within Europe, which has been hastened by the technological progress in settlement and transactions.

Conclusion

'Should Prices be allowed to fall in response to real economic growth, or should the money supply be expanded to "accommodate" the increases in real output? This is a question that separates Austrians from Monetarists in modern debate. It is also a question, some have claimed, which separates the early Hayek from the later Hayek...but the evidence ... supports a different view...Hayek of the 1980's is pretty much the same as Hayek of the 1930's' (Garrison, 1984:313).

There was a "drift" rather than "shift" in the focus of Hayek's writings between the 1930's and 1970's. In the early years his focus was on the operation of the market process if consumers' preferences were to be transformed into producers' production plans and how government or bank policy could interfere with the process. Later he focused more on how this market process could operate considering the incomplete and dispersed information on which the process is based on (Garrison, 1984). He had integrated his philosophy, developed in the intervening decades, to enhance the intellectual underpinnings of his economic theory in a way a pure economist could not.

The motivation behind *Denationalisation of Money* was simply to eliminate inflation, which was responsible for the severe bouts of unemployment and recession experienced in the developed world in the twentieth century. In a biography of Hayek, Shackle (1981), identified the three great concerns of his life as an academic: monetary prolifigacy, individual freedom, and the nature of knowledge. He did not pursue these strains independently but wove them into the fabric of his writings, consistent with his approach to dealing with problems of economics, philosophy and politics as a praxeology.

Although his theory may not have changed dramatically in essence between the two periods under discussion, his approach to policy recommendation underwent a metamorphosis. The lack of any firm, practical policy prescription in *Prices and Production* to overcome the Great Depression (besides to do nothing), in stark contrast to Keynes's alternative, was a hindrance to the acceptance of his theory to a more general audience. This was compounded by the complexity of the exposition of his theory. *Denationalisation of Money,* on the other hand, gave clear instructions, in simple language aimed at the layman, as to how to overcome the inflation plaguing the Developed World at the time of its publication. That it was not implemented is probably it being perceived as too radical, but let us not forget that Keynes's theories were also seen as radical at the time. The difference is that there was no less radical alternative to Keynesianism, since Austrian economics had been so successfully eradicated, whereas in the 1970's there was, namely monetarism.

Hayek's contribution to monetary thought has not been incorporated into the mainstream. His works serve as a basis for raising and perhaps even resolving many issues in the future, but his real contribution is that he stood as alternative to the orthodoxy, a different way of seeing the economic world.

Bibliography

Garrison, R. (1984) 'Review of Money Capital and Fluctuations' in LittleChild, S. (ed) (1990) *Austrian Economics Vol.II.* Aldershot: Elgar

Garrison, R. (1989) 'The Austrian Theory of the Business Cycle' in the Light of Modern

Macroeconomics in LittleChild, S. (ed) (1990) *Austrian Economics Vol.II.* Aldershot: Elgar

Hayek, F.A. (1931a) 'Reflections on the Pure Theory of Money of Mr. J.M. Keynes' (Part I). in *Economica* 11:207-295

Hayek, F.A. (1931b) 'A Rejoinder to Mr. Keynes', in *Economica* 11:398-403

Hayek, F.A. (1931c) *Prices and Production.* London: G. Routledge and Sons Ltd.

Hayek, F.A. (1932a) 'Reflections on the Pure Theory of Money of Mr. J.M. Keynes (Part II)', in *Economica* 12:22-44

Hayek, F.A. (1932b) 'Money and Capital- A Reply'. in *Economic Journal 42:*237-249

Hayek, F.A. (1933a) *Monetary Theory and the Trade Cycle* (German Original 1929). London: Cape.

Hayek, F.A. (1976) *Choice in Currencies: a way to stop inflation.* London: Institute of Economic affairs.

Hayek, F.A. (1978) *Denationalisation of Money: an analysis of the theory and practice of concurrent currencies.* London: Institute of Economic affairs.

Hicks, J.R. (1967) 'The Hayek Story' in *Critical Essays in Monetary Theory.* Oxford: Oxford University Press.

Issing, O. (1999) 'Hayek, Currency Competition and European Monetary Union' in *Occasional Paper No.111, Institute of Economic Affairs.* London : Institute of Economic Affairs

Keynes, J.M. (1930) *A Treatise on Money: Vol. 1.: The Pure Theory of Money.* London: Macmillan.

Keynes, J.M. (1931) 'The Pure Theory of Money: A Reply to Dr. Hayek'. *Economica*

*11:*429-430

Keynes J.M. (1936) *The General Theory of Employment, Interest and Money.* London: Macmillan.

Kurz, H.D. (unpublished) at http://www.kfunigraz.ac.at/vwlwww/kurz/information.htm

Lachmann, L.M. (1986) 'Austrian Economics under Fire: The Hayek Sraffa duel in retrospect' in Grassl, W. and Smith, B. (eds) *Austrian Economics: Historical and Philosophical background.* London: Croom Helm

Lachmann, L.M. (1983) 'John Maynard Keynes: A view from an Austrian window'. *South African Journal of Economics* in LittleChild, S. (ed) (1990): *Austrian Economics Vol.II* Aldershot: Elgar

Shackle (1981) 'F.A.Hayek, 1899-' in O'Brien, D.P. and Presley, J.R. (eds): *Pioneers of Modern Economics in Britain.* London: Macmillan.

Sraffa, P.(1932) 'Dr. Hayek on Money and Capital'. *Economic Journal 42:* 42-53

Steele, G.R. (1996) *The Economics of Friedrich Hayek.* Basingstoke: Macmillan

Stiglitz, J. and Weiss, A.(1981) 'Credit Rationing in Markets with imperfect information' in *American Economic Review:71* 393-410

Tieben, B. (1997) 'Misunderstandings and other co-ordination failures in the Hayey-Keynes controversy' in Keizer, W., Tieben, B. and Van Zijp, R. (eds) : *Austrian Economics in Debate.* London and New York : Routledge

White, L.H. (1983) 'Competitive money; inside and out' in *Cato Journal (1) Spring* 281-99 reprinted in Dorn, J.A., and Schwartz, A.J (eds) 1987 *The Search for Stable Money* Chicago: Chicago University Press

Wubben, E.F.M. (1997) 'Austrian and Post-Keynesian Styles of Thought' in Keizer, W., Tieben, B. and Van Zijp, R. (eds) : *Austrian Economics in Debate.* London and Ney

HAYEK ON MONEY

York : Routledge

Zappia, C. (1999) 'Sraffa on Hayek: unexpected influences' in *Piero Sraffa: 1898-1998* edited by Marchionatti, R. London: Routledge.

Mercantilism and the Reconstruction of its Economic Principles

Michael King – Senior Sophister

Michael King discusses the economic principles of Mercantilism. The author examines the primary sources of Mercantilist writings and contrasts this with the reconstruction of Mercantilism by Smith and Keynes. He concludes that these reconstructions were biased and misrepresented the tenets of Mercantilism.

Introduction

From the haze of subjective writings and opinions on the economics of mercantilism, the influence of two men stands head and shoulder above the crowd. Helped by the advent of analytical economics, both Keynes and Smith threaded together the economic principles of the era into a systematic doctrine. They are responsible for the two most important ex-post rational re-constructions of Mercantilism's economic principles. Given that Mercantilism describes the economic thought and policy in Europe from the medieval times to the early to mid 18th century, there are considerable impediments to the formulisation of ex-post re-constructions. These problems will be discussed at length. Since the re-constructions of Keynes and Smith are "crude generalisations", we must track carefully the progress of economic thought over three hundred years. With an understanding of the developments which occurred over the period, we can rate the validity of the re-constructions. In doing so we will survey the central themes of economic thought throughout the era; the specie-wealth identity, the theory of money, the balance of trade thesis, unemployment, interest rates, attitudes on consumption and the end game of Mercantilism. In the process the advancement in thought over the three hundred years will be highlighted and contrasted to the somewhat static reconstructions.

Investigations into the economics of Mercantilism typically take the form of the proposition advancing ex-post, reconstructions of the periods' economic principles, the opposition's rebuttal, details what actually occurred and the conflict between the two.

Before beginning our investigation into the reconstructions, it is important to note that for the purpose of this essay, policy will not be used as a proxy for the thought of the period. As indicated in the following section, the ideas of the writers were seldom reflected accurately in governmental policy.

MERCANTILISM AND THE RECONSTRUCTION OF ITS ECONOMIC PRINCIPLES

Problems of Reconstruction

'Crude classifications and false generalisations are a curse of organised life'
– George Bernard Shaw 1856-1950

Attempting to categorise the economic principles of any twenty-year period in pre-scientific economic times would be a tall order. Attempting to categorise three hundred years is another task entirely. As Mr. Shaw points out, generalisations may encapsulate certain themes but do considerable injustice to reality, which is usually more complex.

Mr. Shaw highlights the first problem of reconstruction. The period between 1450 and 1750 is characterised by uncoordinated, incoherent theoretical developments, marked by endless controversy. The writers tended to concentrate on one topic and no single writer was able to synthesise the various writings into a consistent doctrine. Any attempt therefore to assemble the economic ideas into a coherent doctrine is achieved by imposing a far greater sense of unity and logical coherence upon the periods literature than it in fact possessed.

Given the incoherent nature of the writings, attempts at reconstruction rely to varying degrees on policy as a proxy for thought. Tariffs, restrictions and incentives were not applied in an economical and optimal manner. Political considerations given to new ideas depended on the authors' relationship with what the classics identified as the cosy cartel between the merchants and the political establishment. There is sizeable credibility in the classical claim that the minority, the merchant class were out to line its pockets at the expense of the rest of the civil population. As Ashley put it the 1600's English Tory economic writer such as Child, Davenent were motivated by political aims not economic analysis[1]. Their end, he claimed, was not to select trade routes and markets for liberalisation on the basis of optimal political gain but only when politically desired. The highly suspect correlation between economic literature and policy of the era implies that surveying Mercantilist policy to track the ideas of the writers is flawed. An interesting example of this cosy cartel thesis at work is the suspicious disappearance of Dudley

[1] Schmoller and Ashley (1896)

North's pamphlet *Discourses upon trade* of 1691. As Roger claims, the work *'is and has been ever since, utterly sunk, and a copy not to be had for money.'* Thus, a clear line must be drawn in the sand between literary and intellectual developments and the implemented economic policy. In the most Smith and Keynes avoided this complication. Whereas the historical schools socio-political interpretation, from an economics point of view, suffers badly from this quandary.

The third flaw in the reconstruction of past ideas is the inability to model and observe economic conditions of the time. The lack of understanding of these conditions undermines any reconstruction. The less monetarised, more segmented economies of the 15th, 16th and 17th centuries are likely to exhibit very different characteristics to the 18th Century European Economy. With the transfer to the social sciences of attitudes that were prevalent in the physical sciences, the later part of the Mercantilist era has been characterised as a transitional time containing the origins of scientific economics. Unfortunately, this occurred too late to facilitate precise estimation of the particulars of the Mercantilist economy

Finally, precisely due to the unquantifiable nature of the period, ex-post rational reconstructions are inherently subjective. As we can see from the three principle reconstructions, this problem lies centre stage, as each school attempts to advance its own school of thought. Coleman highlights their motives; '*without systematisation, no destruction; without destruction of the old, no formularisation of the new*'[2].

The Reconstructions

The three most important ex-post re-constructions are that of Smith, Keynes and the historical school. Each of these formalisations has in turn changed the perception of this period among onlookers.

The Smithian Reconstruction

The term Mercantilism (system mercantile) was first mentioned in Marquis de Mirabeau's *Pilosophie Rurale* in 1763, but Adam Smith was the first to develop the idea

[2] D.C. Coleman (1969)

into a systematic doctrine. Adam Smith, the father of laissez faire economic policy used his description and subsequent demolition of Mercantilist ideas and principles as a launch pad for his new "enlightened" classical school of macroeconomics. According to Smith (1776), Mercantilists believed that to grow rich is to get money, and '*wealth and money are in short considered in every respect synonymous.*' He jests that the pre-medieval Tartars were closer to the truth when they openly believed that wealth consisted of cattle. He traces the early 17th century altering of government policy from the prohibition of specie exportation to balance of trade massaging, and accrediting this policy change to Mun and Misselden. Smith described Mercantilism as '*an aggressive and fallacious hunt for treasure*[3].' He implies that societies ultimate aim is to accumulate and hoard treasure. In short, for Smith, Mercantilism's view was that since specie was wealth, power and prosperity were brought about by specie accumulation. This accumulation was achieved through favourable trade, i.e. a permanent trade balance surplus. Smith's reconstruction of Mercantilist economics has had a lasting influence on how mercantilism, those three hundred years of economic thought, is seen today. Evidence of this can be seen from the Oxford English Dictionary's definition of Mercantilism as *'the economic doctrine and legislative based on the principle that money is wealth alone.'*

The Keynesian Reconstruction

For Keynes, Mercantilism's preoccupation with the inflow of specie was no '*purile obsession*'[4]. He extracted what he saw as the economic deficiencies of the period such as dearth of investment and need for governmental intervention, to provide backing for his own school. Domestic investment, he claimed was governed in the long run by the rate of interest and foreign investment was determined by the size of the favourable balance of trade. He maintains that, when one assumes away government investment, pre-occupation with these two is understandable. Since substantial foreign loans are not practical, and interest rates are governed by the quantity of precious metal, changes in the quantity of gold and silver depend primarily on the balance of trade. He accredited them with having an insight into an acceptable policy by which to stimulate economic growth. In his full blown defense *'Notes on Mercantilism'*, Keynes claims that once it is

[3] Smith (1776)

[4] Keynes (1936)

realised that the economy does not automatically tend towards a state of full employment, the whole classical case against protectionist policies is undermined. Keynes implied that, unlike the Smithian contradiction, employment was the major Mercantilist consideration.

The Historical Reconstruction

The third reconstruction of Mercantilism is of little interest economically. Rocher, Schmoller and then their English disciples Cunningham and Ashley redefined Mercantilism in terms of the ultimate goals of "Power to the State", "unification", and for some writers, "autarky". The Prominent Swedish Economist, Eli Heckscher reinforced this idea claiming that economic & monetary policy and protective trade was used on the adhoc basis to serve the ultimate aims of the system: political unification and national strength. There is no doubt that the political structure of the time used economic policy to achieve international advantage. The success of the historical school in defending Mercantilism as a rational policy for socio-political advancement does not alleviate the stigma of intellectual error in the economic policies and literature of the period. In fact Heckscher goes as far to say, '*there is no grounds whatever for supposing that the Mercantilist writers constructed their (economic) system...out of any knowledge however derived*[5].'

As the Historical school subordinates the role of economics, it is of little relevance under the remit of this essay. Nevertheless it is undermined by its assumption that economic thought was fully reflected in economic policy.

Importantly, both the Keynesian and Smithian reconstructions have been heavily influenced by the writers desire to advance their own school. Keynes used his reconstruction to advance support for government involvement in the economy, in order to achieve full employment and optimal investment. On the other hand Smith choose central tenets that can be easily disproven to accelerate the political impact of laissez faire.

[5] Heckscher (1965)

The Evidence

In considering the evidence of the Mercantilist period, I hope to show not only the ever-changing nature of the period but to do so in relation to the two economic reconstructions.

Specie equals wealth?

Central to the Smithian and implicit in the Keynesian reconstruction is the identity that wealth is gold and silver. Does this identity bind Mercantilist thought over the three hundred years?

In the early 16th Century, Armstrong reiterated the deep-rooted belief that it was better to have money than goods and that the purpose of goods is to purchase money from abroad ("love of money, fear of goods"). This perspective based on a rational fear of illiquidity caused partly by poorly developed credit institutions was widespread in both the civil and commercial spheres. If we analyse Mun's writings, the representative Mercantilist in the 1630's he advocates the exporting of so called wealth '*it would be very beneficial to export money as well as wares*'[6]. This doesn't go as far as to fully repudiate Smiths accusation of him but it indicates that he saw wealth as trade, the movement of money and goods but not in the hoarding of money alone. To Mun, hoarding by individuals was erroneous. The cause of Spanish military failures was the mistaken reliance on specie as opposed to trade, '*disability of the Spaniards by their native commodities to produce forraign wares for their necessities whereby they are forced to supply the want with money*'[7].

The defining opinion on this bullionist tradition is by Edwin Cannan[8], who differentiated between Bullionists, earlier Mercantilists and analytically poor Mercantilists, typically the later and analytically sound writers. Towards the end of the 17th Century, Barbon began to expose the Bullionists mistake, claiming it was a grave mistake to believe that

[6] Mun (1664)

[7] Mun (1664)

[8] Cannan (1976)

money had an "intrinsic" value by itself. In his pamphlet, *'Discourse of trade'*[9] gold and silver were considered commodities whose price depended on their use and quantity. Progressing even further from Bullionist ideas, the writings of William Petty finally put an end to their fallacy in enlightened circles when he showed that money was but 1% of national wealth and that natural wealth was mostly made up of property, land, cattle etc. Petty went as far as regarding labour as stored up wealth, advocating health programmes to maintain human capital. As we can see, Bullionism was destroyed by the emerging modern theory of wealth. Where does Mun fit on this continuum? He is clearly not a bullionist as Smith depicted (nor did he fully understand the modern theory of wealth). The period in which Mercantilist writers believed in this identity is the time of Malynes, before Mun.

The Theory of Money

The Smithian reconstruction of Mercantilist economic literature portrays a complete misunderstanding of the modern quantity theory of money. Mercantilists did believe that economic development depended upon an increasing quantity of money. Some commentators claimed that it is clear in this advocation that they did not fully understand the quantity theory of money. Using the equation of exchange MV=PT, it is clear that they emphasised the impact of M, the quantity of money on T, the volume of traded goods rather than on P, the average prices of these goods. In hindsight it is easy to criticise the Mercantilists for this mis-interpretation. But as Kelleher points out institutional stickiness, ignorance and confusion and a hoarding tendency among the population lead to conditions unlike the 18th century where an increase in the money supply would have significant stimulative real effects in 16th & 17th centuries[10]. Thus in the interval between the acquisition of money and the rise in prices, real benefits did accrue to industry, a phenomenon that Hume later developed. The short run in the 17th century was longer than in any later century. This however calls into question the viability of increasing the quantity of money as a long-term policy. The Mercantilists seem to have been myopic in this respect. Were Mun's policies designed for the short-run? He did develop them for as a direct response for 1630's depression. This may have been the case but his ideas were subsequently reflected in almost a century of writings.

[9] Barbon (1690)

[10] Kelleher (1996)

In similar fashion to the Specie-Wealth controversy it was the later Mercantilists who exposed the mis-reading of their predecessors. Interestingly, the Frenchman Jean Bodin recognised the relationship between the quantity of money and the general price-level as early as 1569. He offered five reasons for the rise in the general level of prices in Western Europe during the 16th century, the most important being the increase in the quantity of gold and silver resulting from the discovery of the New World. Petty showed an advanced understanding of the modern quantity theory of money, claiming that if one wished to increase output or the number of transactions in the economy, for a given money supply the velocity must increase. Locke's writings were along similar lines, revealing that prices vary in a definite proportion with the quantity of money in circulation.

In calling Mercantilist economic policy irrational Smith glanced over the economic conditions that ensured real effects from increasing the money supply. Given Petty and Locke's development of the modern theory of money, the three hundred year time definition of Mercantilism also undermines his findings.

Balance of Trade Thesis

The Balance of Trade Thesis was the one constant in Mercantilist thought over the three hundred years. All pre Smithians were convinced that prosperity via free trade only became possible if consistent with a favourable balance of trade. Perotta (1991) highlighted three very distinct forms of the thesis. The earliest Mercantilist balance of trade theory was based on the maxim "one country's gain is another country's loss". International trade consists merely of moving wealth from one country to another. Malynes was representative of this early balance of trade thesis. In his period there was a local fear in the advanced countries of a scarcity of money. This fear was represented in legislation prohibiting people from taking gold out of the country.

The second theory, belonging to the representative Mercantilists, criticised calls for controls on gold exports. For them, it was better to allow the export of gold, which is necessary for imports, provided a larger quantity of goods was exported in exchange, resulting in an increase in the nations quantity of gold. Malynes attitude towards specie exportation was very distasteful to the merchants Misselden and Mun. Mun's central observation was that England benefited from the operations of the East India Company

despite the fact that its payments to India in gold and silver vastly outnumbered the payments of India to the East India Company[11]. Mun held that imports should consist of raw materials and semi-fabricated materials, whereas exports should consist of finished goods produced by labour intensive methods. His policy would be that well regulated trade should be ordered so that a maximum number of people are employed as *'...the more there are employed in a nation the richer the nation grows'*[12]. An interesting defense of this classic Mercantilist balance of trade thesis was espoused by the British historian Charles Wilson who argued that the prevailing trading circumstances of the time provided justification for the desire for hand money (good one)[13]. In order to maintain international liquidity, Britain had no alternative but to squeeze colonial trade for specie, as it was unable to offer the Baltics and India produce in exchange for their wheat and oriental goods respectively. Even Hecksher admitted that the British had good reason to be concerned with the Indian drain on Specie flow[14].

The most advanced Mercantilist balance of trade theory proceeds as follows. A favourable balance of trade is achieved by selling goods that have exhausted their productive potential in exchange for goods which have this potential. This theory began to dominate by the end of 1600's when the gradual expansion of the production base changed the view of the relationship between foreign trade and production. Foreign trade became the means of strengthening domestic production, wealth and employment. Evidence of this can be seen in the frequent condemnation of luxury goods importation and frequent calls to import raw materials in exchange for manufactured goods. The advanced theoretical underpinnings of this theory like selective protection and incentives based on products with different productive potentials have been adopted right up to the present day but is still considered irrational by the classical school. Barbon identified the *'greater productivity rule'* in the 1690's when he wrote, *'only difference between the good lies in the number of workers they employ'*[15].Likewise the author of

[11] Mun (1664)

[12] Mun (1664)

[13] Blaug (1997)

[14] Heckscher (1965)

[15] Barbon (1690)

'Considerations' claimed that a nation would do well by importing what is produced abroad with greater productivity.

Importantly it was the Mercantilists Hume and Cantillon who *'rang the death knell of Mercantilism'*[16] and the balance of trade thesis, in particular with their development of the Specie Flow Mechanism. The argument maintained that purely automatic forces tend to establish a natural distribution of gold and silver between trading countries. Any newly mined specie in one country will raise its price level relative to those of other countries; the resulting import surplus must be financed by a specie outflow, inducing the same reaction in the specie receiving country. In a visual illustration foreign trade and gold are similar to water in two connected containers that is constantly seeking a common level, thus the continuous favourable balance of trade policy is self-defeating. Crucially, elements of this specie-flow mechanism argument surfaced as early as the 1630's. Mun realised that an inflow of specie raised domestic prices and that "selling dear and buying cheap" tends to turn a balance of trade against a country.

If one merges the Specie Flow Mechanism with the newly developed Quantity Theory of Money then, concern over the long-run state of the balance of trade was unnecessary and flawed. As Viner points out one of the great mysteries of history of economic thought is that the improved theoretical advancement towards the end of the 17th Century prompted Smith to categorise the Mercantilists as confused and self-contradictory[17]. Is it not that they realised their own flaws?

Unemployment

In order to consider the Keynes reconstruction that the balance of trade thesis was a rational policy to increase investment and alleviate unemployment, we must consider the type of unemployment that existed in the Mercantilist era. In some respects, the English economists of the 17th and 18th Century sounded like precursors of Keynes. They urged spending on luxury goods and urged spending on public work programmes[18]. The basic

[16] Blaug (1997)

[17] Viner (1969)

[18] Blaug (1997)

flaw in Keynes interpretation, as pointed out by Heckscher, was that unemployment in the Mercantilist era was virtually unknown prior to the industrial revolution, as Blaug points out the problem was not Keynesian involuntary unemployment but what was referred to as *'an idle and debauched populace'*. Unlike Keynes's implication, unemployment in the Mercantilist era is structural not cyclical. As Blaug summarises the unemployment problem is not underemployment in a mature capitalist economy but actual unemployment in overpopulated underdeveloped countries in Asia and Latin America. Keynes was not alone in this misinterpretation, Petty who advocated government to stimulate employment, was very much a proto-Keynesian. A second argument against Keynes's reconstruction is that Mercantilism didn't formally discuss or advocate foreign investment. Foreign investment wasn't highlighted in the literature as important until the 1760's and James Stuart. I believe that not only did Keynes assume the wrong type of unemployment, but he also assumed in error that the end game of the balance of trade thesis was foreign investment. The balance of trade thesis had more to do with increasing the money supply and strengthening domestic production and employment. Keynes reconstruction is flawed primarily because he incorrectly applied 20th century unemployment to the 17th Century and assumed incorrectly that Mercantilist writers understood and emphasised the role of foreign investment.

Interest rates

Although in some respects the controversial usury law argument is of less relevance to the evaluation of the ex-post economic reconstructions of Mercantilism, it does embody one crucial change in thinking, which transcends the issue, from which it emanated. Josiah Child in his work *Brief Observations Concerning trade and Interest on Money*[19] recommended the enforcement of usury laws to bring down the rate of interest. He cites two principal reasons for the desirability of such an action; to eliminate the competitive advantage given to the Dutch traders and allow English merchants to expand trade, to enable the state to borrow at a lower interest rate. In contrast, 20 years after Petty had emphasised the natural forces at work in the economy, Locke driven by the natural right of individuals questioned the practicalities of government imposed usury laws. He did so in his paper from 1691, *Some Considerations on the Lowering of Interest and the Raising the Value of Money*. He believed that it is impossible to regulate the rate of

[19] Child (1668)

interest, as entrepreneurs will always find a way around a new regulation. The implication of Locke's argument was that for the first time in the Mercantilist era the long-standing assumption that the economy required active management for safe passage had been challenged. Locke unearthed the idea of self-equilibrating market forces in the credit market, hinting at the classical idea of the pre-established harmony of an unregulated market.

Attitudes on Consumption

It is generally agreed that the Mercantilist era focused economic forces towards production. The early Mercantilists viewed excess and luxury consumption as frugal and in some instances morally wrong. Similar to the later modernisation of other issues, the later Mercantilists contradicted their earlier counterparts who believed that the consumption of luxury wares should be encouraged rather than opposed. Smith and the Mercantilist writers viewed this perspective as incorrect. The later Mercantilists however developed modern ideas on the role consumption can play in the economy. As Barbon proclaimed, '*covetness is a vice, prejudicial both to man and trade, it starves the man & breaks the Trade*'[20]. Dudley North was the first to develop the Smithian greed concept where the main driving force was the exorbitant desires of people. Society will ultimate benefit from people motivated by their own self interest. Crucially it was the 1690's when traditional attitudes on consumption began to change. Once again, the Mercantilist idea died many years before the Mercantilist period supposedly ends, unlike what the reconstructions have us believe.

The End Game of Mercantilism: Increased Money Supply or Employment

The legacy of Smiths reconstruction, whether intended or not, has been that the endgame for Mercantilism and its policies was an increase in the money supply. In contrast Keynes realised that employment was the underlying motivation of the Mercantilist writers. In the 1530's Clement Armstrong claims that foreign imports '*hath destroyed all handicrafts whereby great no of common people should have work... (instead)...must live idly*'[21], thus indicating that even as early as 1530, employment was the core Mercantilist aim. As Heckscher puts it, Mercantilists '*killed two birds with the one*

[20] Barbon (1690)

[21] Keynes (1936)

stone'[22], eliminating unwelcome imports resulting in unemployment and increasing the total stock of money, in order to reduce the interest rate and hence to encourage employment further. Hence, it seems that Keynes was more in tune with the ultimate aim of Mercantilism.

One of the great disservices that Smith has done to the understanding of the period is to establish Mercantilism and their own classical economics in direct opposition to each other. In reality however, Mercantilism is far from the theoretical opposite of the laissez faire system. Mercantilist authors and statesmen not only believed in, but harped upon "freedom", especially freedom of trade. In fact, the expression *'La liberte est L'ame du Commerce'* occurred hundreds of times in the correspondence of Colbert. From the opposite direction, Viner concludes, *'Adam Smith was not a doctrinaire advocate of laissez faire ...he did not believe that Laissez Faire was always good'*[23]. According to Keynes, Smith was extremely moderate on the Usury laws. Believing in a low rate of interest to encourage savings into investment and not debt, and supported moderate application of the Usury laws. Bentham criticised him on this issue heavily. It was a clear departure from his invisible hand principle. While the laissez faire ideology may have been pure, its application was not. But Mercantilism never represented the opposite ideology. It was closer to an amalgamation of free trade and protectionism that yielded the desired balance of trade effects. Mercantilist writers did not advocate protectionism per se. The mis-appreciation of this has been the basis of several misunderstandings. As illustrated by the interest rate controversy, the principle difference between Mercantilism and laissez faire is the strong belief in the need for the economy to be regulated by the dexterous hand of the politician as opposed to a self-equilibrating invisible hand. As we know very well, the truth is somewhere in between.

Conclusion

The Smithian and Keynesian ex-post reconstructions are not innocent of the four problems indicated earlier. They suffer from biased motivations of the writers and the lack of knowledge about the economic conditions. In addition, they both suffer from

[22] Heckscher (1965)

[23] Viner (1969)

imposing uniformity on to a three hundred year period, characterised by innovation, change and a deficiency in intellectual stability.

As previously stated, Keynes's reconstruction was flawed on two counts, mis-application of modern unemployment to the Mercantilist era and assuming Mercantilists were motivated by increased foreign investment.
It is evident that from our analysis that Smiths reconstruction of Mercantilist economic thought takes two particular beliefs from two different periods. He merges the two and proclaims this to be the central tenet of three hundred years of economic thought. As we have seen the later Mercantilists became aware of the serious analytical errors of their predecessors. They recognised for example that specie is not a measure of the wealth of a nation, trade can be mutually beneficial to nations and that advantages will accrue to nations that practice specialisation and division of labour. Does, in terms of time, shortening the Mercantilist time line vindicate Smith? It does, only partially. If we ignore the fact that Smith singled out Mun as chief proponent of his reconstruction and if we reduce the Mercantilist period to approximately prior to 1625, then the Malynes and pre-Malynes idea that money equals wealth does co-exist with the earliest balance of trade thesis in the literature.

If we use the Smithian definition and the truncated time-line, we can avoid the contradictions evident in most ideas caused by the improved theoretical advancement of the later Mercantilists and hence avoiding Viner's conundrum. Any notion that Mercantilism is synonymous with protection, and diametrically opposed to laissez faire economics put forward by the "neo-Mercantilists" and classical writers are flawed. This is not only because an increasing number of the later writers recommended a reduction in the degree of government intervention with statements of classical liberalism, but also because prior to this protectionism and free trade were applied on an ad-hoc basis.
With all due respect to both Smith and Keynes, they did a great disservice to the economic writers of the period 1450 to 1750. The best advice to any student keen on learning about the period would be to first avoid the all three reconstructions and rely instead on the primary texts. The only service they did for the period is to make it one of the most controversial periods in the annals of economic history.

Bibliography

Ashley, W. J. and von Schmoller, G. F. (1896) *The Mercantile System and its Historical Significance.* New York: MacMillan.

Ashley, J. (1897) 'The Tory Origins of the Free trade Doctrine' in *Quarterly Economic Review.*

Barbon, N. (1690) *Discourse of Trade.*

Blaug, M. (1997) *Economic theory in retrospect.* Cambridge: Cambridge University Press.

Child, J. (1668) *Brief Observations Concerning Trade and Interest on Money.*

Colman D. C. (1969) *Revisions in Mercantilism.* Methuen & Co Ltd.

Cunningham, W. (1903) *The Growth of English Industry and Commerce.*

Heaton, H. (1955) 'Heckscher on Mercantilism' in *Journal of Political Economy.*

Heckscher, E. F. (1950) 'Multilateralism, Baltic Trade and the Mercantilists' in *Economic History Review*

Heckscher, E. F. (1965) *Mercantilism.*

Hinton, R. W. (1955) 'The mercantile System in the time of Robert Mun' in *Economic History Review 3.*

Humphrey, T. (1999) 'Mercantilists and Classics: Insights from Doctrinal History' in *1999 Richmond Economic Quarterly.*

Kelliher, M. (1996) 'Mercantilism Reappraised' in *Student Economic Review.*

Keynes, J,M. (1936) *The general theory of employment, interest and money* London :

Macmillan.

Locke , J (1691) *Some Considerations on the Lowering of Interest and the Raising the Value of Money.*

Magnusson, L. (1999) *Mercantilism: Shaping of an Economic Language.* London: Routledge

de Malynes, G. (1623) *The Maintanance of Free Trade.*

Misselden, E. (1622) *Free Trade and the Means to Make Trade Flourish.*

Mun, T. (1664) *England's Treasure by Forraign Trade.* New York: Augustus..

North, D. (1691) *Discourses Upon Trade.*

Schumpeter, J. (1954) *History of Economic Thought.*

Smith, A. (1776) *The Wealth of Nations* (ed.) Edwin Cannan

Supple, B. (1958) 'Currency and Commerce in the Early Seventeenth Century' in *Economic History Review Vol X.*

Viner, J (1969) *Power v's Plenty as objectives of foreign Policy in the Seventeenth and Eighteenth Centurie (in Colman, D. C. 1969).*

Wilson (1949) 'Treasure and Trade Balances: the Mercantilist Problem' in *Economic History Review.*

Anti-Trust: USA vs. Visa and MasterCard

Jessica Benson - Senior Sophister

Jessica Benson investigates the case of USA vs. Visa and MasterCard. The author examines the practices of Visa and MasterCard, and whether these practices damaged consumers and competition in the market. She concludes that these practices blunted innovation and reduced competition in the credit card market.

Introduction

This case deals with two issues, the governance rules of Visa and MasterCard and the exclusionary rules, which Visa and MasterCard operate. I will give a brief overview of the relevant markets involved. I will then summarise the issues involved and the court's findings of fact. In the main body of the essay, I intend to critically analyse and assess the economic issues involved and the impact these have on consumer welfare. I will conclude with the measures that I think should be taken to enhance consumer welfare.

The Market for Credit Cards

There are two relevant product markets in this case, the network services market and the issuing market. The market for network services that support the use of credit and charge cards is highly concentrated. There are four significant network service competitors, American Express, Discover, Visa and MasterCard. American Express and Discover are for-profit corporations, Visa and MasterCard are not-for-profit joint ventures owned by associations of thousands of banks. Merchants and issuers are consumers of network services. The second relevant product market is the issuing market. This is the market for credit/charge cards issued under these brand names. Here American Express and Discover compete with each other and with thousands of Visa and MasterCard member banks. This is not a concentrated market, no single issuer dominates the industry however banks constitute a very significant distribution channel.

Competition at the network services level plays a major role in: determining the overall quality of brands; investment in advertising; the creation of new products, features and cost-saving efficiencies; and the discount rate which is charged to merchants. Competition among issuers determines the price people pay and the variety of card features they can obtain.

Merchants' demand for general-purpose cards is derived from consumers demand to use these cards, merchants' attitudes reflect consumers. Consumers' perception of merchant acceptance is vital to a network i.e. if consumers perceive high merchant acceptance, they are more likely to demand that brand and increase their transaction volume on that brand, at the same time merchants are more likely to accept a brand if they see more consumers with those cards.

Visa and MasterCard control over 73 per cent of volume transactions on general-purpose cards in the U.S., they control 85 per cent of the market in terms of cards issued. There are high barriers to entry in the card network services market. There are high costs of establishing a network and developing a brand name. It is difficult to develop merchant acceptance without an initial network of cardholders as noted above. No company has entered the network services market since Discover in 1985. Citibank concluded that an entrant would need to capture 20-25 per cent of market share to be successful. The card network services business is driven by scale, increased scale lowers network costs and increases networks ability to offer services at lower competitive prices.

The issues and findings of fact

The two issues that this case deals with are the governance rules of Visa and MasterCard and the exclusionary rules that Visa and MasterCard operate.

Governance Duality
Governance duality permits banks to have *'formal decision-making authority in one system while issuing a significant percentage of their credit and charge cards on a rival system.'* The plaintiff suggests that these overlapping financial interests reduced the incentive to invest in or implement competitive initiatives that would affect their other card product. The plaintiff argues that Visa and MasterCard have failed to compete with each other by constraining innovation and investment in new and improved products. They claim that this failure to compete delayed and blunted innovation in:

- Chip-based smart cards.
- Encryption standards for Internet transactions.
- Advertising.

- Premium cards.

The government's proposed solution was that an issuer (bank) who served on the Board of Directors of either company agrees to issue credit, charge and debit cards almost exclusively on that associations network (known henceforth as dedication). This is in fact the direction the industry is taking with dual governance virtually at an end and dedication occurring. In any case, the court found that governance duality is not anticompetitive.

Exclusionary Rules

The penalty that banks face for issuing American Express or Discover cards is forfeiture of the association members' right to issue Visa or MasterCard. The plaintiff argues that this weakens competition and harms consumers by:

- Limiting the output of American Express and Discover in the U.S.

- Restricting the competitive strength of American Express and Discover by restraining their merchant acceptance levels and their ability to develop and distribute new features such as smart cards.

- Effectively foreclosing American Express and Discover from competing to issue off-line debit cards which will soon be linked to credit card functions on a single smart card. Off-line debit cards are the future focus of credit card relationships. They require access to Demand Deposit Accounts (DDA) which only banks have.

- Depriving consumers of the ability to obtain credit cards that combine the unique features of their preferred bank with any of the four network brands.

- Issuers (banks) restrict competition among themselves by ensuring that so long as all of them can not issue American Express or Discover none of them will gain competitive advantage.

Overall the plaintiff claims that while Visa and MasterCard have not conspired to increase price, exclusionary rules have significantly reduced product output and consumer choice (and in turn welfare) in the issuing market and have reduced price competition in the network services market.

The court found that exclusionary rules created an output restriction on the number,

type and quality of goods produced that is particularly anti-competitive in its effects on consumer welfare (similar to the effect of a price restriction). The exclusionary rules were repealed with the court claiming it would result in increased output and consumer choice and the strengthening of American Express and Discover networks by increasing their scale and relevance.

There appears to be an inherent contradiction in the Justice Department seeking a remedy that would force banks that sit on the Visa or MasterCard board to issue new cards only under the brand of the association they govern while banks that do not sit on either board would have the freedom to issue any number of card brands they choose (American Banker, 22/08/00; FT, 30/08/00). At the same time small networks such as Discover would be further disadvantaged if large banks who sit on Visa or MasterCard boards were forced to dedicate themselves to either Visa or MasterCard (Wolffe, FT, 19/07/00).

Economic Issues

Essentially what we are interested in is the impact of dual governance and exclusionary rules on consumer welfare. I intend to examine each in turn focusing on the pro-competitive and anti-competitive arguments, which I find most plausible in each incidence.

Dual Governance

I see dual governance as a horizontal issue. Visa and MasterCard are potential substitutes for each other. Banks can sit on the board of Visa or MasterCard and continue to issue the competing brand. It appears that there is a strong incentive not to compete vigorously against each other. *'Antitrust is rightly suspicious of any horizontal restraint on trade'* (Schwartz & Eisenstadt, 1982: 4). Agreements between firms who produce substitute products tend to be at the expense of the final consumer, as agreements tend to dampen competition between competitors. It was claimed that while there were no explicit agreements, competition was dampened in the areas of advertising, encryption standards for the internet, premium cards and chip-based smart cards. I will look at the anti-competitive arguments, briefly at the advertising issue and then at the pro-competitive arguments that I see as most relevant in relation to dual governance.

Anti-Competitive Arguments

I see the failure to introduce smart cards as the strongest anti-competitive argument, however many justifications have been given for it. The plaintiff claimed that

consumer welfare was affected because they had to rely on American Express to innovate through the Blue Card. This has been brushed off as nothing more than a *'marketing coup...as the rest of the economy is not yet smart enough to let it do much more than any other charge card does'* (Economist, 17/01/00). Visa and MasterCard have both shown that there was no business justification for introducing smart cards because of the high costs and the small gains involved. Even if Visa and MasterCard were true competitors they would have an incentive for the other to introduce the card because of scale issues involved. Finally, even the fact that the introduction of smart cards was favoured by banks in countries without dual governance as a means of gaining competitive advantage can be put down to a more advanced wireless infrastructure in those countries (Economist, 17/07/00). Despite these points I would contend that governance duality made Visa and MasterCard complacent in innovating in this area. Chip cards are dependent on application developers to write the software to support innovative new uses of the card. Software developers have no incentive to write applications for hardware that does not have wide distribution. The introduction of smart cards should create a snowball effect: as scale increases, functionality should increase. So initially costs will outweigh the gains, however I do not see this as a valid argument for not introducing a smart card. As Visa and MasterCard had exclusionary rules in place, they did not face the prospect of widespread distribution of smart cards by American Express or Discover. At the same time governance duality meant that they were safe in the knowledge that the other (the only competitor that did have access to wide distribution channels) would not innovate in this area. I would contend that consumer welfare may have increased had smart cards been introduced. A combination of governance duality and the exclusionary rules operated by Visa and MasterCard blunted innovation in this area.

Advertising

In the case of advertising it appears that Visa and MasterCard competed in all ways other than actually naming each other in their ads. There was no advertising information that consumers lacked as a result of MasterCard's and Visa's decision regarding advertising. Visa compared its services and products to MasterCard's in promotional materials and advertising directed at member banks and argued that Visa was superior. Both Visa and MasterCard offered cash incentives to member banks in return for dedication agreements and agreements over mail solicitation.

Pro-Competitive Arguments

In the case of implementing an internet security standard it appears that there are strong pro-competitive arguments for Visa and MasterCard working together.

Vertically, it helps to align upstream and downstream firms, which avoids the wasteful duplication of costs. Two different standards in the marketplace would be costly and inefficient. They would require dual issuing banks to implement two standards to accept transactions and merchants to operate two technologies at market place. This involves duplication of costs for all parties. It is alleged that duality may have lead to a delay in the introduction of internet security standards by around four months. However it seems clear that the introduction of two conflicting standards could have negatively impacted on consumer welfare to a greater degree than this delay.

This points us to another welfare increasing argument. Efforts by members to drive Visa and MasterCard co-operation on working bulletins, charge back rules and software changes are all operational in nature promoting efficiencies in network systems by reducing duplication and costs. Standardising backroom operations at issuing institutions are pro-competitive because of cost savings.

The government's proposed solution to the dual governance issue is dedication. It has already been noted that there appears to be an inherent contradiction in proposing this solution while trying to abolish exclusionary rules. This would mean that banks on an associations board could only issue that brand while all other banks could issue any brand they wish. Historically issuance duality gave MasterCard the opportunity to obtain business from members which otherwise might have only issued cards under the Visa brand name. This increases consumer choice, which improves consumer welfare. At the same time small networks such as Discover would be further disadvantaged if large banks were forced to dedicate themselves to either Visa or MasterCard. Especially as the credit card industry is driven by scale.

Conclusion on Dual Governance

On balance I think that governance duality as it stands is not anti-competitive. If full dedication was enforced it would deprive consumers of the ability to combine the unique features of their preferred bank with either of the brands. Reducing consumer choice in this way would reduce consumer welfare. At the same time Visa and MasterCard's boards appear willing to vote to allow vigorous competition and share shifting.

Exclusivity Agreement

Visa and MasterCard's exclusivity agreements constitute a vertical restraint. Vertical restraints involve firms in different complementary activities, they often increase

efficiency in the buyer seller relationship. *'Vertical relationships thrive on one another's efficiency. Each desires increased output and lower prices of the other. It should therefore be clear that the interest of parties imposing vertical restraints are generally not antithetical to those of ultimate consumers'* (Schwartz & Eisenstadt, 1982: 4). However, vertical restraints may facilitate collusion among established competitors by significantly excluding existing competitors (foreclosure) and promoting price-discrimination. Specifically, what we are dealing with is exclusive dealing which *'denotes a vertical relationship in which one party can buy from or sell to only the other party'* (Schwartz & Eisenstadt, 1982: 88).

Welfare increasing functions

Vertical restraints can increase welfare by combating the conflict between the incentives of the manufacturer and those of an individual dealer, notably the tendency of an individual dealer to free-ride on a products' reputation. *'Where exclusive dealing is used to overcome free-rider problems, it is generally welfare enhancing since it leads to increased investment in valuable assets'* (Schwartz & Eisenstadt, 1982: 89). Visa and MasterCard claim that American Express or Discover would free-ride on the training that they have provided to banks. As American Express and Discover have not incurred the costs of this training, they could offer their services at a cheaper rate, thus free-riding on Visa's and MasterCard's investment. Here it is argued that exclusive dealing is protecting Visa and MasterCard's property rights. However the most important property rights in this case appear to be at the bank issuing level the rights over customer relationships. Exclusive dealing plays no part in protecting these.

Visa and MasterCard claim that exclusive dealing prevents American Express or Discover from cherry-picking the most attractive banks to issue through. Presumably the argument behind this is that Visa and MasterCard issue through all banks, the most attractive and smaller less attractive banks. This wide distribution is positive from consumer's point of view as it increases choice. If American Express or Discover were allowed to issue through banks they would choose only the most attractive banks, this would reduce Visa's and MasterCard's profits in this area so reducing their ability to service less attractive smaller banks. MasterCard has been cherry-picking Visa's best banks using price breaks and other incentives, this has pro-competitive effects (American Banker 1/08/00).

Another pro-competitive argument for exclusive dealing is that it can prevent excessive entry. There may be inefficiencies associated with American Express and Discover being allowed to issue through banks as they may invest large sunk costs in trying to take profits from Visa and MasterCard. Rather then actually increasing

the market (which is pro-competitive) they may wastefully duplicate investments in trying to reshuffle profits.

Finally an argument in favour of foreclosure is that while vertical restraints may delay entry, they merely prevent an entrant (American Express or Discover) from gaining unfair advantage. The entrants costs may be raised by the incumbents (Visa and MasterCard) vertical practices, but even with these practices the entrants cost may be no higher than that originally incurred by the incumbent. According to this argument *'vertical restraints should be permitted even if they discourage entry because, like patents, they ultimately increase welfare by protecting incentives for innovation and pioneering entry in new markets'* (Schwartz & Eisenstadt, 1982: 23). However allowing entry may still be desirable. Clearly, all patents have an expiry date, how long should such benefits last?

Welfare decreasing functions

Exclusive dealing can be designed to foreclose competitors by denying them distribution outlets. Schwartz & Eisenstadt (1982) argue that for exclusive dealing to actually raise the distribution costs to rivals, it is necessary that the manufacturers (Visa and MasterCard) possess a high share of the product market, control a large share of distribution outlets and that entry into distribution be costly. I would contend that these three conditions hold in this case. Visa and MasterCard control 75 per cent of the market in terms of transaction volume while banks issue over 85 per cent of general-purpose cards and, given the scale economies in the industry, entry into distribution is costly (Visa 1998 found that branch solicitations cost $29 per account acquired while direct mail solicitations cost over $60 per account acquired). Vertical restraints may also reduce welfare by enabling a firm to exploit its existing market power through increased price discrimination (I wish to look at price-discrimination specifically in relation to merchants).

It has been alleged that in the 1920's automobile manufacturers signed exclusive dealing contracts with distributors partly in order to raise the cost of distribution to prospective manufacturers and discourage their entry (Schwartz & Eisenstadt, 1982:17). This appears to be analogous to this case.

Visa and MasterCard sell to particular banks on condition that those banks do not buy off American Express or Discover. If banks are good distributors, it is possible that Visa and MasterCard are trying to tie up the best distribution outlets (member banks are a unique distribution source because of their experience, expertise and control and access to the "primary financial relationship in America" the checking

account). If this were the case, in a normal competitive environment, banks would bid for lower prices from Visa, MasterCard, American Express and Discover. This is pro-competitive and good for consumer welfare. Banks already play Visa and MasterCard off against each other for lower prices. Adding American Express and Discover to this would increase the number of service providers from two to four enhancing price competition and benefiting consumers. However banks cannot play networks against each other because of the exclusionary rules in place and the fact that they face major barriers to exiting their relationship with Visa and MasterCard. Entering an agreement with American Express or Discover would require a bank to convert all Visa or MasterCard accounts to American Express or Discover, causing major customer disruption and potentially damaging customer relationships. Banks would have to liquidate or sell existing Visa and MasterCard accounts, terminating the bank's Plus and Cirrus ATM network membership, which are tied to Visa and MasterCard. In Europe where no exclusive rules exist, '*evidence suggests that tie-ups, such as National Westminster's short-lived UK venture with American Express are rare*' (Wolffe, FT, 19/07/00). Whether they are rare or not though is somewhat irrelevant, it is the fact that they have the potential to take place that is relevant.

Visa and MasterCard exclusionary rules foreclose the market. They limit the output of American Express and Discover in the U.S. by limiting their access to distribution channels. Due to the fact that the credit card industry is driven by scale, they restrict the competitive strength of American Express and Discover by limiting their ability to distribute their cards. This increases costs and may lower their merchant acceptance levels (this will be addressed below). As has been noted under governance duality, smart cards (specifically American Express's Blue Card) would benefit from a broad distribution network, this has been limited because of exclusionary rules (American Banker 04/08/00).

Exclusionary rules deprive consumers of the ability to obtain credit cards that combine the unique features of their preferred bank with any of the four network brands. Finally in discussing the future of the industry it was noted that off-line debit cards are highly significant. Banks have access to DDA, which are required for such cards. The exclusionary rules prevent American Express or Discover from accessing these consumer relationships and the unique expertise of banks.

Merchants are consumers of network services. At the same time merchants' attitudes reflect consumers' attitudes, merchants demand for general-purpose cards are derived from consumers' demand to use them. If American Express and Discover are limited in terms of distribution it will affect merchant acceptance. It is very

difficult to analyse the effect on consumer welfare of an increase or decrease in interchange rates. However Visa and MasterCard interchange rates rose by 13 per cent in 1999, consumers did not switch brands because they did not know they were paying more for the goods. Merchants did not switch because they cannot afford to stop accepting Visa and MasterCard (American Banker, 01/08/00). Competition from American Express and Discover at the issuing level is likely to cause Visa and MasterCard to be more responsive to the interests of merchants. The welfare effects of price discrimination are ambiguous. Visa and MasterCard successfully price discriminate *'Since price-discrimination increases total profit extractable for a given degree of market power, the resources devoted to obtaining this market power will increase. Posner views such dissipation of resources for monopoly (rent seeking) as the major inefficiency of price discrimination'* (Schwartz & Eisenstadt, 1982:29). Schwartz and Eisenstadt (1982) argue, *'if market power is acquired through lobbying and litigation, Posner is correct; if acquired through R&D and patenting the effect is less clear.'* I think that it is clear that the former situation is true in this instance.

Finally a number of banks demonstrated that the issuance of American Express was a desired option for them. American Express and Discover, due to their closed-loop systems, can offer certain data collection skills that MasterCard and Visa can not.

Conclusion on Exclusivity Agreement

Removing exclusionary rules increases competition at the issuing level. Competition at the issuing level determines the price consumers pay, and the variety of card features they can obtain. This has a positive impact on consumer welfare. At the same time, increasing competition at the issuing level will strengthen American Express and Discover. This will increase competition at the network services level where the creation of new products, features and cost saving efficiencies occur. As the card network services industry is driven by scale it will lower network costs ultimately having a positive impact on consumer welfare.

Overall Conclusion

Governance duality did not have significant adverse effects on competition or consumer welfare. In fact if full dedication was enforced, it would reduce consumer choice and so would have a negative impact on consumer welfare. Exclusionary rules have suppressed competition in the issuing market that in turn has had a negative effect on competition in the network services market. In my opinion, this has resulted in a blunting of innovation in terms of smart cards for customers, a

restriction in output, higher prices for merchants that are then passed on to consumers and higher costs for American Express and Discover. I see the exclusionary rules as being anti-competitive, they have had adverse effects on consumer welfare and so should be abolished.

Bibliography

American Banker. 'Associations Turned Down in Bid for a Dismissal' (01/08/00) http://globalarchive.ft.com/globalarchives/articles.html

American Banker. 'Cost Analyses Undercut Smart Cards, Visa Testifies' (04/08/00) http://globalarchive.ft.com/globalarchives/articles.html

American Banker. 'Card Industry 'Model of Competition' Prof. Says' (22/08/00) http://globalarchive.ft.com/globalarchives/articles.html

The Economist. 'Is it a carve-up? (17/07/00)

Financial Times. 'Card Lessons' (30/08/00) http://globalarchive.ft.com/globalarchives/articles.html

Schwartz,M & D.Eisenstadt, (1982) (revised July 1983) 'Vertical Restraints', *Economic Analysis Group Discussion Paper, U.S. Department of Justice Antitrust Division,* EPO 82-88)

United States District Court, Southern Division of New York, 'United States of America (Plaintiff) v. Visa U.S.A. Inc., Visa International Corp., and MasterCard International Incorporated (Defendants)', Barbara S. Jones United States District Court.[1]

Wolffe,R 'Plastic slow to bend under antitrust pressure', *Financial Times* (19/07/00) http://globalarchive.ft.com/globalarchives/articles.html

[1] All facts used in this analysis are taken from this case unless otherwise stated in the text.

The Prospects for a Pan-European Financial Regulator

Michael Ohle – Senior Sophister

Michael Ohle examines the development of financial regulation at a European level. The author outlines the benefits of financial regulation for creating a single market for financial services, and a deep liquid capital market. He concludes that it is not yet clear whether the EU countries will choose a US style federal regulator or opt for the benefits of competition between regulators.

Introduction

Financial regulation exists for three main reasons. It is there to provide a safety net to prevent the collapse of a bank, insurer or investment manager that may cause the collapse of others, It is also there to promote the integrity of the financial system and to protect individual consumers form malpractice and fraud. Finally, it acts as a watchdog for financial markets, policing and prosecuting. This essay examines the issues involved in the regulation of financial markets across Europe. The issue of a Euro Securities and Exchange Commission (SEC) or pan-European supervisor authority is examined as a possible solution to the current regulatory patchwork. Particular emphasis is placed on the bureaucracy in Brussels and the dissimilar legal systems throughout the Union.

We are quite a long way from a single market for financial services. Both the banking and securities industry are pivotal to the financial market yet the extent of their similarity in terms of regulation ends there. Banking enjoys a wide regulatory framework, even if the application of rules varies. The "passport" directive of 1989 set out the principle that once a bank had a licence from its own government it could set up branches in any EU jurisdiction. The directive also put home country supervisors in charge of "prudential oversight" while the bank had to abide by host country's regulatory rules (Economist, Aug. 19th, 1999).

In contrast, securities regulation and supervision across Europe has no discernible structure. Bureaucratic red tape and high fees still plague retail investors if they want to invest in foreign shares. Countries have different attitudes to shareholder rights and taxes. There are no EU wide rules on accounting, information disclosure and the treatment of minority shareholders. The European authorities recognising this proposed two directives covering stock market listing requirements and prospectuses. Both failed to be adopted fully by national governments.

The Present Environment

Different regulatory structures exist throughout the member states of the European Union. The British system groups the entire financial system under one regulatory body- the Financial Services Authority. The British claim that the system espouses the benefits of economies of scale, streamlined management and greater accountability and transparency of the financial system. The other popular choice is the French "twin heads" approach. Two separate regulatory bodies control the regulation of banks and securities markets. The French claim that there exists a conflict of interest between the two sectors, hence the need for two bodies. The Commission des Operations de Bourse (COB) regulating securities defends the retail investor while the commission of the Bank of France serves banking interests. And besides, claim the French, a single regulatory body, such as the Financial Services Authority (FSA), is too large and cumbersome to operate effectively. The Germans have three separate authorities dealing with banking, insurance, and securities respectively. The present German finance minister would like to see a single regulatory body through the amalgamation of the three separate authorities. This however is meeting stiff opposition from the Bundesbank as well as the state governments, which control Germany's eight bourses. The other twelve member states fall roughly between these three categorisations.

Fragmentation such as this reduces efficiency by reducing the depth and liquidity of the market thereby making the cost of capital higher than in America. Per head of population there is five times as much venture capital in America as there is in Europe (Economist, March 1st, 2001). Entrepreneurs find it difficult to find start up capital in Europe.

National governments still stick to protectionist investment rules for investment and pension funds. Italian government rules require pension funds to invest a considerable portion of the money that they manage in government bonds. In France, a recent tax break for equity investment was restricted to investment in French companies. As a result, the average American investment fund is six times bigger than its European equivalent, and between 1984 and 1998 the average real return on pension funds was 10.5% in America and 6.3% in EU countries that impose restrictions (Economist, March 1st, 2001).

The merger of Deutsche Borse and the London Stock Exchange exposed cracks in the system. Regulatory supervision was split between London and Frankfurt as

neither exchange wanted to be seen as the "junior" partner. Likewise, the proposed three way bank merger in France between Societe Generate, Paribas and Banque Nationale de Paris in 1999. Because such a large-scale merger had never been attempted before, the French authorities often seemed as though they were making things up as they went along (Financial Times, Jan. 23rd, 2002). Adding these cases to the pressure for change form the development of Internet banking, globalisation and the desire for a US style market centric financial system, it is clear that in Europe the financial market place is severally lacking in coherent direction.

Acknowledgement of the difficulties involved is widespread. Achieving consensus on what to do about it is problematic. Fresh impetus was given to the single market in financial services when after the launch of the Euro, Europe's leaders endorsed the Commissions Financial Services Action Plan at the Lisbon summit in March 2000. As a spin-off from the plan the French proposed a committee to be set up under Alexandre Lamfalussy (former chairman of the European Monetary Institute (EMI), the forerunner of the European Central Bank) to investigate the possibility of a pan-European regulator.

The Lamfalussy Report

The committee was primarily concerned with the urgent measures needed to streamline EU securities markets. The Lamfalussy report advocates a single "passport" for stock markets along the lines of the previous banking directives. International accounting standards and a single prospectus for issuers are recommended. Many of the proposals made by Lamfalussy and his team of "wise men" are mere restatements of articles of previous directives that were not fully adopted by EU governments. While Lamfalussy favours the British model of regulation the committee made no definitive response to the question of a pan-European regulator. The report centres on a new streamlined legislative process that would revolve around the creation of a European regulators committee and an EU securities committee. It was hoped that these new bodies would speed up the legislative process and exert more control over the enforcement of directives.

At present, the Commission makes a legislative proposal to the Council of Ministers and the European Parliament. They then engage in a time-consuming co-decision making process, which takes on average more than two years. The Lamfalussy plan calls for a four-stage decision making process. At the first level, the Council of Ministers, the European Commission and the European Parliament would design the "framework" of legislation to be passed to the next level.

At this second level the "securities committee" made up of representatives from the Commission and the member states would agree within three months on the technicalities of the new legislation, through consultation with market participants and consumers. Levels three and four would involve the co-operative implementation of legislation between national regulators and the new "regulators committee" (Economist, March 1st, 2001).

Predictably, the Commission and the Parliament have been at logger heads over parliaments claim to review legislation proposed by the two powerful committees set up under the Lamfalussy plan. Parliament claims that with the advent of these new decision making bodies, democratic accountability would be removed from the decision making process (Financial Times, Jan. 23rd, 2002). Indeed that may be so, but if Parliament were given the legally binding right of review of legislation passed by the Lamfalussy method then legislation would be further delayed. The committee flatly rejects the right of "call back" on new legislation.

The committee opted instead for safeguard measures similar to those conferred on the Council of Ministers by the Commission. These would include providing the Parliament with all available information during the framing of new legislation and the option to review legislation four years after its implementation (Financial Times, Jan. 23rd, 2002). By proposing these two new committees Lamfalussy aims to inject a sense of urgency into proceedings that for all the elected representatives talk about democratic accountability is what is really needed. Paradoxically, these proposals have delayed even the most basic measures to streamline the financial market by over a year due to the legal wrangling in Brussels. Understandably many commentators voice the desire to leave the Commission and Parliament completely outside of the reform process. The layers of bureaucratic red tape in Brussels are causing as much trouble as the failed adoption of EU financial directives.

A Pan-European Regulator

Does the creation of a European securities committee herald the birth of an EU-wide SEC? The Securities and Exchange Commission was set up in 1934 with the legal remit of supervising and policing not just stock exchanges but all public capital markets. It plays a central role in America's oft-fragmented regulatory structure. Indeed it has been credited with creating deep, liquid, efficient markets with a strong investment culture. Naturally this is to where the EU would look for guidance on the regulatory conundrum.

Most professionals fear that it would add a fresh layer of regulation on top of national ones. So long as legal systems and enforcement remain national and not supra national, the regulatory structure seems likely to remain national two. The lack of a common legal jurisdiction is a major problem. The existing variation in financial intermediation across European countries is a consequence of their dissimilar legal structures (La Porta *et al*, 1997). The structure of finance in a country depends on the legal rights of shareholders and creditors as well as on the degree to which the relevant laws are enforced (Cecchetti, 1999). Legal systems can be grouped into four main categories: English common law, French civil law, Scandinavian civil law and German civil law. Evidence suggests that those countries with a common law system such as the UK and the US support the most developed equity markets with the greatest investor protection. The French civil law system is next, followed by the German and Scandinavian systems. If this view is correct, that the legal system determines the financial structure, this will have serious implications for the reform of the European financial markets.

Most EU member states now consider a single supervisor for all financial services the best solution at a national level. They recognise that the traditional boundaries between banking, securities and insurance markets are rapidly blurring. Likewise there is support for a pan-European regulator to end the mish-mash of regulatory regimes. The French are all for it, the British are opposed, with the Germans stuck in the middle.

There are those who espouse the benefits of competition between regulators across national borders (Economist, March 1st, 2001). Far from generating a race to the bottom (lax regulation), competition nurtures efficiency. To compete effectively markets need to be efficient and consequently well regulated. Competition between national regulators realises effective regulation. These virtues have been recognised by the EU in its "single passport" policy. National stock exchanges have merged forming alliances in the pursuit of greater efficiency. Perhaps the popularity of the single regulatory model may be dampened if the benefits of regulatory competition were voiced more vociferously. Undoubtedly globalisation of both the capital markets and the equity investor throws the difference in regulatory structure into much sharper light.

Conclusion

Change is in the air. It is clear to all involved that the present regulatory patchwork

cannot continue if the goal of a single market in financial services is to be achieved by 2005. The Lamfalussy proposals are a step in the right direction. The births of the two committees under the Lamfalussy plan leave open the possibility for the creation of a Euro-SEC. The EU authorities should concentrate their energies on producing directives that will plug existing loopholes in legislation. The broader issues of reform of the bureaucratic decision making process as well as the legal system are equally important as the choice between a national or pan-European regulatory body. Bureaucratic red tape and legal wrangling between the EU's institutions severely delays the implementation of legislation. Lack of a single legal jurisdiction compounds the problem with enforcement of directives. A pan-European authority is undesirable, if not impractical. It is extremely tricky for a national authority to balance often-conflicting objectives, let alone a supra-national authority. How can a single regulator strive to protect investors, police financial institutions and watch markets in 15 different jurisdictions? If it were desirable, some form of common jurisdiction would be essential.

Bibliography

The Economist 'No SEC's Please, We're European' *(*August 19th, 1999.)

The Economist 'Global Capital Rules, Okay?' (March 1st, 2001.)

The Economist 'Regulator's Arbitrage' (May 3rd, 2001.)

The Economist 'A Ragbag of Reform' (March 1st, 2001.)

Financial Times. 'Reform of EU Securities Rules Moves a Step Closer' (January 23rd, 2002.)

Barber, L. (2000) 'How to Harmonise Financial Services?' in *Europe*, Washington, Issue 399.

Cecchetti, S.G. (1999) 'Legal Structure, Financial Structure and the Monetary Policy Transmission Mechanism' Federal Reserve Bank of New York, *Economic Policy Review*, Vol. 5, Issue 2, pp: 9-28.

La Porta, R., Lopez-de-Salines, F., Shleifer, A. and Vishny, R. (1997) 'Legal Determinants of External Finance' in *Journal of Finance*, Issue 52, pp: 1131-50.

Argentina: The Efficacy of an Exchange Rate Anchor

Paul Kenny – Senior Sophister

Argentina's experience with hyperinflation is investigated by Paul Kenny in this essay. The author examines the differing methods of controlling hyperinflation and the effectiveness of Argentina's fixed exchange rate with the Dollar. He concludes by outlining why the exchange rate anchor failed Argentina and the cost of this failure.

'This kindness will I show.
Go with me to a notary, seal me there
Your single bond; and, in a merry sport,
If you repay me not on such a day,
In such a place, such sum or sums as are
Express'd in the condition, let the forfeit
Be nominated for an equal pound
Of your fair flesh, to be cut off and taken
In what part of your body pleaseth me'. – Shylock

From William Shakespeare's *The Merchant of Venice*

Introduction

Hyperinflation is a devastating economic phenomena. While it does not occur regularly, and is isolated to particular types of economies, the severity of the consequences associated with it demand the attention of economists. Further, the adverse effects of hyperinflation may not fall solely on the domestic economy, as through the increased contagion effects from globalisation and international interdependence, it has a greater potential to impact on a wider scale. For these reasons, it is imperative that the means by which a struggling economy can halt hyperinflation are examined.

In this essay I shall discuss firstly the causes and characteristics of hyperinflation. Then using Argentina as an example, I will illustrate the implications that the myriad of social and political factors have on a country's economic development and how these can feed into high inflation. I aim to show the difficulties faced by an economy experiencing hyperinflation and illustrate the proposed solutions before specifically examining the efficacy of Argentina's stabilisation policy; the corner stone of which was the Law of Convertibility, which created a new currency, the Argentinean Peso

and guaranteed its exchange rate at one-to-one with the US dollar.

Hyperinflation

'Inflation is always and everywhere a monetary phenomenon' – Milton Friedman[1]

Most economists acknowledge the claims of the Quantity Theory of Money as being true (Mankiw, 1998)[2]. Inflation essentially occurs when the authorities print money at a higher rate than the economy is growing. Usually, this process is not deliberate, and is the result of the misinterpretation of economic data and unpredictable economic shocks. Hyperinflation (monthly inflation in excess of 50%) is peculiar however, in that the government, effectively prints money to finance its deficit. Countries, like Argentina, faced with a budget deficit must finance it either by borrowing domestically or abroad, or by printing money. As the country's total debt rises, capital markets dry up, and along with the associated inability to raise revenue through taxation; the authorities can have little choice but to finance the deficit by means of the inflation-tax. Unless the government corrects the underlying fiscal position, it will have to finance the deficit by printing more money. As inflation rises, the purchasing power of money declines, and the demand for money falls. As demand for money falls, like a good so does its price; the real money stock declines and the government must print yet more money to finance its swelling deficit. The detrimental effects of this spiral are perpetuated by the time-lag involved in collecting tax revenue known as the Tanzi-Oliviera effect; as taxes demanded are based on nominal income, after a few months of hyperinflation, the real value of revenues decreases so rapidly that it is worth little by the time it is received. As the deficit increases, so does the dependence on seignorage; hyperinflations are thus a vicious circle that can only be halted by restructuring of the country's fiscal position. Unremitting government fiscal profligacy cannot continue; eventually, their "pound of flesh" will be due.

In the case of hyperinflation, prolonged growth in nominal money to finance the deficit is the problem; but what is the cause? Underlying social, political and economic factors provide the impetus behind inflation. It is no coincidence therefore, that hyperinflation has been endemic in certain economies of the world. In

---

[1] Friedman & Schwarz, *A Monetary History of the United States 1867-1960* (Princeton, N.J.: Princeton University Press for NBER, 1963).

[2] For a detailed discussion of the Quantity theory of money, see above, Friedman...

the aftermath of war, countries often find themselves buried in hyperinflation; Germany in 1922-23, and Hungary in 1945-46 provide examples of this. Former socialist republics of Eastern Europe, such as Russia and the Ukraine, have also experienced prolonged hyperinflations following the collapse of Communism. Latin American economies make up the last major group. This latter grouping perhaps provides the most interesting example of hyperinflation, as the factors that underpin them seem at first less palpable. Argentina is typical in many ways of the Latin American economies that have experienced such high levels of inflation. Like them, civil and political strife provide the backdrop to Argentina's economic development, but what is peculiar in its case, is the relative position of affluence that the county had at the beginning of the last century compared with the current situation of a county that is insolvent in all but name.

Argentina's Development in the 20th Century

Argentina began the 20th century among the world's most prosperous economies. The country held a strategic importance in Latin America, and although Argentina remained neutral during WWI it played a major role as supplier of foodstuffs to the Allied forces. In 1929, the country had a per capita income roughly equivalent to that of France, but the world economic crisis of that year had major ramifications for Argentina. The 1930s and subsequent war years were characterised by political turmoil and associated poor economic performance. Following WWII, the populist Peron government came into office, and in October 1946, President Peron promulgated an ambitious five-year plan for the expansion of the economy. The following years saw the Argentine system become increasingly authoritarian as the Peronistas secured their positions of power. In March 1949, Peron established a new constitution, which removed a previous article that prohibited a president of the republic from a successive term in office. The Peronista party took advantage of the new law, and in July 1949 re-nominated Peron as its presidential candidate for 1952. While the opposition refuted the legitimacy of the new constitution and the press spoke out against the illiberality of the political system, the Peronista majority in congress further entrenched its position by the introduction of legislation that provided prison terms for persons who dissented against the government. Many opponents of the regime were jailed in subsequent months. In January 1953 the government inaugurated a second five-year plan. The focus of this plan would be on increased agricultural production rather than industrialisation, which had been the goal of the first five-year plan. 1953 also saw the establishment of important economic and trade agreements with several countries, including Great Britain, the USSR, and Chile. The country's current account moved into surplus for the first

time since 1950, but inflationary pressures, which had resulted in a cost of living increase of more than 200% since 1948, did not abate.

The Peronist government was eventually overthrown in a brief but bloody uprising during which approximately 4000 people were killed. Representative government was restored on May 1, 1958. Despite the persistent rise in the price level, some degree of economic stability had returned by early 1959 thanks to the aid of substantial foreign loans and credits, in particular from the United States. Argentina's participation in the Latin American Free Trade Association (LAFTA), founded in 1960, had helped to foster a growing trade with other countries in the region. In July 1963, Arturo Illia was elected president. Illia announced a program of national recovery and regulation of foreign investment and tried to control rising prices, shortages, and labour unrest by fixing prices and setting minimum-wage laws. His policies were resisted however and the result was a military coup in June 1966. General Lanusse, the third of successive military leaders, took presidential office in 1971. In the early months of this regime, a return to civil rule was proposed and an economic program designed to hold down the inflationary spiral announced, but by 1972, the country became increasingly torn by violence, including strikes, student riots, and terrorist activities. The social fabric in Argentina continued to deteriorate rapidly.

The return of the Peronistas to power in 1974 did little to halt the decline in economic conditions; civil strife still plagued the country. In 1975 more than 700 people were killed at the hands of both right and left wing terrorists. The cost of living increased by 335%, and strikes and demonstrations for higher wages were frequent. On March 24, 1976, another military junta seized power. The junta dissolved the legislature, imposed martial law, and ruled by decree. The brutal Videla regime was blamed for thousands of political killings, arrests and disappearances in a widespread terror campaign. Following defeat in the Falklands conflict in 1982 the country was near bankruptcy. With an unprecedented international debt, and inflation at more than 900 percent, Argentina held its first presidential election in a decade in October 1983. When the new government was instated, the foreign debt was restructured; fiscal reforms (including a new currency in 1985 called the Austral which was equal to 1,000 pesos) were introduced; but inflation remained unchecked. State bodies had developed an institutional reliance on deficit spending financed by means of the inflation-tax.

For Argentina, the trade balance tends to be favourable when world demand for food is high. In the late 1980s, Argentina's balance of trade had continued to be strongly

positive; it had annual imports and exports of about $3.9bn and $9.6bn respectively. However at the end of that decade there was a dramatic vicissitude in world commodity prices, the sector upon which Argentina was most heavily reliant. Argentina's current account fell into deep deficit, and the associated budget deficits had left the county in major economic crisis. In 1989, Raul Alfonsin was forced to resign as president amid hyperinflationary chaos, which saw angry mobs looting and rioting in the streets. Inflation averaged 3,080% (with some commentators estimating a peak of 5,000%) in that year. When the Peronist candidate, Carlos Saul Menem was elected president in May 1989, Argentina's economy was deteriorating rapidly; his administration had to act fast. Under Menem, stabilisation programmes were initiated in both 1989 and 1990, but each failed, leaving the economy still encumbered with high inflation.

Hyperinflation: The options

There are a number of generally accepted principals that must be employed to end hyperinflation. Orthodox stabilisation policies have two broad components (Blanchard, 2000)

There must be significant consolidation of the fiscal position.
On the expenditure side, institutional reform is needed to improve the productivity of the public sector often involving privatisation policies. Reform of the social security system may be needed, as are across the board cuts in capital expenditure. On the revenue side, tax take must be maximised. Both the optimal rate of taxation, and increased participation in the tax-system must be addressed.

Credible monetary reform is needed.
This can be achieved either through an official decree, establishing an independent Central Bank and proscribing it from issuing money to buy government debt; or more credibly, by adopting an exchange rate peg to a country with low inflation; or again more radically, the full adoption of the anchor currency. These measures have the effect of limiting the government's ability to finance the deficit by seignorage.

Some argue for the introduction of price and wage controls. However if the first two steps are met, such heterodox policies should not be needed. Other facilitating reforms may be included in the stabilisation plan (McAleese, 2001)

- Trade liberalisation.
- Liberalisation of capital.
- Financial sector reform.
- Restructuring of liabilities from foreign to domestic creditors.
- Deregulation of labour markets.

What did Argentina do?

Argentina had experienced five successive failed stabilisation plans from 1984 to 1990, including one in each of the last two years (1989 and 1990), so what could it now do different? Because of the degree to which economic stabilisation plans are married to political and social stability, in essence one cannot exist without the other. The repeated attempts of Argentinian authorities to redress the inflation problem were continually met with public and institutional resistance. Without the requisite credibility of the government's commitment to reducing the inflation-tax, people were unwilling to accept moderation in wages and inevitable short-term decline in output associated with contractionary measures.

In April 1991, Carlos Saul Menem's government introduced the Law of Convertibility, which guaranteed one-to-one convertibility of the new currency, the Argentine peso (worth 10,000 australs, or 10,000,000 of the original peso moneda nacional or paper peso) into dollars. This effectively prohibited the monetary authority from creating money other than to buy net foreign reserves to preserve the exchange rate. At the same time, the government introduced many accommodating policies, including widespread structural reforms aimed at redressing Argentina's endemic fiscal profligacy. A rapid privatisation policy was put in place and reforms were made to the social welfare system. Capital spending was slashed, and labour and financial markets were restructured. In a further move, although the ruling party had previously appeared diametrically opposed to free market ideals, international trade and capital liberalisation policies were introduced to improve the balance of trade position.

The results of the Government's reform program were dramatic. The traditional Keynesian interpretation would anticipate contractionary effects to result from demonetisation, (whereby nominal money declines at a greater rate than inflation,

resulting in a decrease in the real money stock and pursuant higher interest rates) and from a retrenchment of the fiscal position (which reduces aggregate demand and hence output). Argentina's experience was however contrary to this expectation; the country experienced strong economic growth in the 1990s, with average growth from 1991-94 of 7.7%. The size of the economy expanded from an estimated $141bn in 1990 to $298 billion in 1998. Almost instantly following the peg to the dollar, Argentina moved from a position of experiencing hyperinflation, to one of the world's lowest rates of inflation (fig.1). Consumer price inflation was negative in 1999, and wholesale prices rose by a mere 1.2%. The Federal Government's fiscal deficit receded from an average of about 6-8% of GDP for most of the 1980s to 1.4% in 1998. The Argentine reforms seemed an indisputable success. Despite a short-term blip following the Mexican peso crisis of 1995, which resulted in an estimated contraction of 4.4%, the economy returned to real GDP growth of 5.5% in 1996 and 8.1% in 1997.

Fig. 1. Source: IMF, International Financial Statistics (various issues)

Argentina: Annual Inflation %	
1987	131
1988	343
1989	3080
1990	2314
1991	172
1992	25
1993	10.6
1994	4.2
1995	3.4
1996	0.16
1997	0.3
1998	0.7
1999	-1.8
2000	-0.7
2001 Q1	-1.0
2001 Prog	-0.0

However...

After years of inflation, the domestic capital market remained thin throughout the

1990s, and the rate of monetisation low for a country of Argentina's income level. As a consequence, the proportion of public domestic debt was very low. Both government and large private industry continued to depend on short-term loans from foreign capital markets to finance spending. At the same time, the lack of domestic credit restricted access to funds for small and medium industries. The Argentine economy was thus highly vulnerable to external shocks. Despite the government's efforts to redress the large amount of external indebtedness and the dependence on external capital flows to finance increased investment levels, the economy remained exposed. The investment-led growth of the early 1990s saw significant increases in output, but the period did not produce matching increases in job creation. High unemployment meant continued internal social instability despite the seemingly steady macro economy. The fickle nature of international capital flows to Latin America following events like the Mexican currency crisis of 1995 and the Brazilian crisis of 1997 put the Argentine economy in a precarious situation.

After growth of 3.9% in 1998, the country went into recession in 1999, with the economy contracting by 3.1%. As lenders began to doubt the ability of Argentina to repay its loans, capital inflows began to wane. This fed into a reduction in output, further job losses, decline in consumer spending, deflation and a steep downward spiral of the economy resulting in recession. The slump led to a sudden increase in the federal deficit to 2.6% of GDP (excluding privatisation revenues). The currency crises in Asia in 1997 and Russia in 1998 had significant negative implications, but it was the Brazilian devaluation (Argentina's largest trading partner) that had the more severe impact. Tied to the dollar, Argentina's currency was by far overvalued. The US economy went through a boom of unprecedented size and duration in the 1990s, which had two important effects on Argentina; the real value of the dollar appreciated against other national currencies bringing with it the value of the peso; and interest rates at the Federal Reserve rose steadily, implying upward pressure on Argentine lending rates. The resultant loss of competitiveness, and deterioration of the balance of payments was becoming unsustainable. A fall in world commodity prices and adverse weather conditions compounded the situation.

The economy could have perhaps ridden out the storm were it not for the seemingly rather innocuous events of February of 1999. What began as a banking scandal involving allegations of corruption by two high-ranking officials in the Central Bank, resulted in demands for the resignation of Pedro Pou, the governor of the Central Bank. Pou's enemies wanted a devaluation and jumped on this opportunity to instate Domingo Cavallo to the position of governor. Cavallo had been known for his inclination towards adopting a fixed exchange rate based on a basket of

currencies rather than the dollar alone. Cavallo argued that the dollar was now an inappropriate choice for a currency anchor. The notion of two countries either operating under fixed exchange rates or more extremely, adopting a single currency was explored by Robert Mundell. He asserts that for two countries to constitute an optimal currency area, two conditions must be met. The participating economies should experience similar economic shocks so that similar policies would be optimal in any case; or failing this, there should be high factor mobility between the states. The divergence between the US and Argentine economies over the course of the late 1990s had made the dollar an entirely inappropriate anchor currency for Argentina.

The success of a currency peg, as in the case of Argentina may ultimately depend on the credibility of the system, which arguably in turn depends on economic fundamentals. Either way, speculators saw Cavallo's proposal for what it was: a devaluation. The integrity of Argentina's peg to the dollar had come under enormous pressure. Market participants became increasingly sceptical of Argentina's ability to sustain the current exchange rate, and began a run from the currency. About $20 billion is believed to have fled the economy last year[3]. Much like the self-fulfilling nature of exchange rate crises, the increased risk of a devaluation forced up domestic interest rates in order to encourage the retention of domestic verses foreign bonds. The 30-day deposit rate went up to 8% in 1999, choking off investment and burying the country in recession. Further, in order to preserve the currency, the government bought up pesos with its foreign reserves, further weakening its balance of payments position. Recession had resulted in an estimated deficit of $9 billion in 2000[4].

Where to then?

By 2001, the Argentinian currency was clearly overvalued, but the government persisted with the peg, and perversely hoped to achieve a devaluation through deflation; a painful process to which no doubt, the near 20% unemployed in Argentina would testify. Towards the end of 2001, draconian capital controls, limits on bank withdrawals and regulation were all imposed in the name of the currency peg. The Argentinian authorities failed to recognise that the use of an anchor currency was a means, not an end in itself. Although at this time there were proponents of full dollarisation to solve the crisis, this in fact would have done little

[3] *The Economist*, January 12th, 2002

[4] The Irish Times, January 7, 2002, P.14

to help the situation. While speculation against the currency would have been ended, the same fundamental economic problem would have remained. The currency was overvalued, and a nominal devaluation was needed to correct it.

By December 2001, it is alleged that Pesos were already trading on the streets at 1.10 to the dollar. Political turmoil ensued once again; the public taking to the streets in protest, on December 21st, 27 people died in the riots, which ultimately toppled President Fernando de la Ruà. A degree of stability was finally restored with the instatement of Eduardo Duhalde, a populist from the Peronist party, as the fifth president in two weeks. Mr. Duhalde's government adopted an emergency law to end the 10-year parity with the dollar. The currency was temporarily fixed at 1.40 Pesos to the Dollar for trade and capital transactions while it would be allowed to float for other exchanges. While ultimately necessary, the devaluation will undoubtedly cause problems; 80% of loans are in Dollars while wages are paid in Pesos. A nominal devaluation thus raises the value of external debts. However, the alternative of trying to achieve the devaluation through deflation rather than a nominal devaluation of the peso is no more attractive, as deflation raises the real value of debt to just the same extent. To ease this pressure, the government pledged that Argentinians will be allowed to repay dollar debts of up to $100,000 with pesos at one-for-one. Yet at the same time, measures such as the $1,000 limit on bank withdrawals remain in place, and will do little to engender public support. The savings of ordinary citizens are literally being wiped away as spiralling inflation lowers the real value of their savings, which they cannot access.

Conclusion

All in all, a nominal devaluation and the subsequent adoption a floating exchange rate, similar to that of other peripheral southern hemisphere economies like Australia or New Zealand, was the only realistic option for Argentina. The use of the one-for-one peg to the dollar, while initially successful in establishing the credibility of the state's commitment to countering inflation, should have merely provided the basis on which Argentina could carry out the necessary fiscal and structural reforms to ensure future prosperity. Despite years of stability-led growth up to 1995, which saw a substantial reduction in the fiscal and current account deficits, still not enough had been done. Following the recession of that year, the extent of Argentina's dependence on international capital markets became clear and although money returned to the economy, arguably the initial confidence of investors in the Argentine economy and the sustainability of the peg system itself were irreparably damaged.

Finally, let me answer the question I posed at the beginning. Is the use of an exchange rate peg an effective means of controlling hyperinflation? There is not an entirely succinct answer to this. To the extent that the credibility of the authority's commitment to ending inflation is achieved, it is useful. Credibility can have the vital effect of establishing realistic and sustainable expectations of wage growth, upon which fiscal and structural reform can take place, but without quick and decisive action to turn around the fiscal deficit (the fundamental problem behind hyperinflation), the restructuring of foreign-held debt, and the reorganisation of domestic labour and capital markets, the currency peg alone will almost certainly fail.

In the words of Anne Krueger, First Deputy Managing Director and acting Chair of the Executive Board of the IMF in September 2001,[5]

'Firm implementation of fiscal consolidation is needed to ensure the sustainability of the public debt and to produce a lasting decline in the risk premium on Argentine debt and of domestic interest rates, thereby creating the conditions for a recovery of economic activity.'

Sadly for Argentina, such reform and consolidation of the fiscal position was needed long before then. The future for Argentina is uncertain.

Bibliography

Blanchard, O. (2000) *Macroeconomics*. New Jersey: Prentice Hall.

Honohan, P. & Lane, P. (Autumn 1999) 'Pegging to the dollar and the euro', in *International Finance*.

Madden, D. (2000) 'Taxation, Debt and the Public Finances', Ch 4 in O'Hagan, J. W., *The Economy of Ireland: Policy and Performance of a European Region. Dublin:* Gill & McMillan.

Mankiw, N. G. (1998) *Principles of Economics*. Orlando: The Dryden Press.

McAleese, D. (2001*) Economics for Business: Competition, Macro-stability and*

[5] IMF, Press Release NO. 01/37, September 7, 2001.

Globalisation, London: Prentice Hall.

Microsoft (1997) Encarta Encyclopaedia. Standard [CD-ROM].

Miles, D., & Scott, A. (2001) *Macroeconomics: Understanding the Wealth of Nations*. New York: John Wiley & Sons.

The Economist. (December 22, 2001) 'Patience Wears Thin', p.63.

Online References

Hanke, S. H., (Apr 28, 2001), 'Argentina's Boom and Bust', Cato Institute, http://www.cato.org /dailys/40-28-01.html,

International Monetary Fund www.imf.org

Krugman, P., 'Argentina's Money Monomania' http://www.wws.princeton.edu/~pkrugman/mania.html

WorldBank, www.worldbank.org

The Single Currency, and why Britain won't join the party

Ross Leonard – Junior Sophister

Ross Leonard begins this essay by exploring the history of Europe's single currency, the Euro. He then outlines the reasons for Britain's opposition to joining, as well as the arguments for and against a single currency. He concludes that Britain's reluctance to join is as much to do with British nationalism as economic arguments.

'If ever there was a bad idea, EMU is it.'

In such a way, Professor Rudi Dornbusch of MIT welcomed the Euro. However the successful introduction of Euro notes and coins at the beginning of 2002 throughout Europe is the culmination of an economic project begun in 1957 with the Treaty of Rome. This has seen the birth of one of the largest single markets in the world and the re-emergence of Europe as a massive economic power block. However, despite the initial progressions made through these developments, a number of countries have decided to remain outside the Euro-Area (including Britain). Euro-sceptics cry-fowl of the very thought that countries should give up their individual national currencies, and therefore at some level a degree of sovereignty. However there is much more to their argument than simple scare-mongering. In this essay, I shall attempt to outline the benefits and costs associated with joining the single currency. I shall then progress onto a discussion of the circumstances in Britain and issues surrounding the possibility that they will join at some point during this government's term of office. However, to allow some perspective, let us first explore the birth of the Euro.

The Birth of the Euro.

The Treaty of Rome, signed in 1957, involved the creation of a common market in Europe. This was followed by an agreement in 1969 that a Monetary Union was indeed desirable, and in 1970 the Werner Report was produced which provided a framework for such a Monetary Union. However it is not until 1978 that we see the first real indications of what was to come, when the Exchange Rate Mechanism (ERM) was introduced. This involved a system of fixed but adjustable exchange rate parities. The idea being that each currency was fixed to an imaginary currency, but adjustable by up to +/- 2.25%. As with the Euro, Britain did not join immediately. It did not join until 1990, and when it did join, it was generally believed to have joined at too high a rate. Thus in 1992/93, the ERM suffered massive speculative attacks (backed by George Soros among others) which eventually forced Britain to pull out

and saw the dramatic collapse of the ERM.

However, this may not have been the disaster that it seemed like then. 1990 (the year Britain joined the ERM) is seen as the start-point for Stage 1 of the European Monetary Union (EMU). Stage 1 involved the full participation by all members in the EMS (the ill-fated exchange-rate mechanism), the liberalisation of Capital movements, increased policy co-ordination and finally, and perhaps most importantly, the completion of the single market. Despite the collapse of the ERM, Europe moved to Stage 2 of EMU with the signing of the Maastricht Treaty in 1992. This provided the basic blueprint for EMU and set out a range of criteria for membership including convergence criteria. While in 1994, the European Monetary Institute, the predecessor of the European Central Bank (ECB), was created. Thus finally, Europe moved to Stage 3 in 1999, with the introduction of the Euro in non-cash form and the locking of exchange rates for the twelve participants. And now, in 2002, for the first time since perhaps the Roman Empire, the vast majority of the citizens of Europe share the same tangible currency.

Why Euro?

Although the Euro is without direct precedent, monetary union and single currencies do exist today. The Unites States has an economy and population similar in magnitude to the euro-area, and runs the most successful economy with a single currency and monetary policy. Thus there must be some tangible benefits to a single currency. But what are they?

- *Increased Price Transparency and Competition.*
  Increased price transparency allows easier price comparisons between countries, and make it harder for companies to get away with charging artificially high prices, thus reducing the overall level of prices and forcing companies to become more competitive and efficient.

- *Elimination of Foreign Exchange rate risk and associated hedging costs.*
  The removal of foreign exchange risk will lead to an increase in the expected return on investments within the Eurozone. This will spur investment and lead to greater development and economic growth in the Eurozone.

- *Simpler accounting and treasury management systems.*
  Simpler accounting and treasury systems will reduce costs of doing business in foreign countries, thereby increasing financial opportunities and allowing

exporters to compete more efficiently throughout the Eurozone. This is also true for Foreign Direct Investment, as multinationals operating in the Eurozone will no longer have twelve different currencies to deal with but one.

- *Lower interest rates in general.*
  This lowers the cost of borrowing in both the public and private sector. The importance of lower interest rates in promoting economic activity is demonstrated by the aggressive rate cutting undertaken by the Federal Reserve, ECB and Bank of England over the last two years in order to stave off recession.

- *Stable Prices in the medium term.*
  The ultimate objective for the ECB is price stability over the medium term, and given both France and Germany have enjoyed price stability over the past fifty years, it is reasonable to assume that this will continue. Therefore, such a situation is likely to be of greater benefit to countries like Spain and Italy. Price stability is important as it increases certainty and business confidence and therefore encourages economic activity.

Thus the overall effect of the single currency will be to promote economic activity and thereby increase growth and prosperity throughout the Eurozone. However if this were the only dimension in the debate, then all of Europe would have been racing to join, and since this is not the case, there must exist some costs or associated risks to joining the Euro. Britain certainly felt that the costs and risks were too substantial to commit themselves. Thus again, we must ask ourselves, what are these risks?

- *Loss of sovereignty.*
  Many commentators appear to believe that a single currency is only a pre-cursor to even closer political union. This would then involve the loss of national identity, control over taxation, further fiscal restraints, and handing over the reigns of power to "Brussels Bureaucrats".

- *Loss of control of Monetary Policy.*
  The loss of control over Monetary Policy is often seen as the main enemy in this debate. Joining the Euro means that nations may no longer set interest rates. This means that within the Eurozone, if a nation's economy is out of step with the rest of the Eurozone, then it will not have interest rates which are appropriate for its stage in the cycle, thereby impeding economic recovery, or

exacerbating an overheating in the economy.

- *Loss of use of Devaluation as a means to stimulate economy.*
  One of the key mechanisms for adjustment to economic shocks is a devaluation of a nation's currency. This allows exporters to compete more competitively on foreign markets, while making imports more expensive, thereby giving a boost to domestic producers too. Joining the Euro eliminates this instrument therefore severely restricting our ability to adjust to shocks.

So there you have it, the Euro is good or bad, depending fully on how you weigh up the benefits and costs. Let us now delve more deeply into the above issues. According to generally accepted theory, the means for readjustment to economic shocks are:

- Labour Mobility.
- Wage Flexibility.
- Income Distribution.
- Exchange Rate fluctuations.

In the case of the Euro, we have now given up the fourth instrument for adjustment, namely exchange rate fluctuations. Many economic commentators suggest that such a drastic measure should only be taken if the other three are particularly effective. Although this is certainly evident in the USA, it is not the case in Europe. Although labour is free to move within the Eurozone, there is little evidence to suggest that it actually does. In addition, due to the strong labour-protection laws and prominence of trade unions in much of the Eurozone, there is also little wage flexibility, and finally, although there is a European Community Budget, in the majority it goes to financing the Common Agricultural System (CAP) system of benefits. Thus, although it would appear that the Eurozone should have to rely heavily on exchange rate fluctuations to bring about readjustments, according to David Currie of HM Treasury, *'exchange rate flexibility provides a poor alternative'* and that this *'underlies the need for Europe to tackle the structural problems which create inflexibility in the first place.'* This suggests that elimination of exchange rate fluctuations as a means to boost an economy is a huge step forward for the lumbering dinosaur that is Europe. The theory being that devaluing one's currency in an attempt to boost the economy is a soft option anyway, allowing governments to

ignore their structural problems. Thus, the creation of the Euro will force governments to address the structural problems that plague Europe's economies.

A similar argument can also be applied to the use of interest rates to spur the economy. It has been noted that too often, the use of interest rates has been abused in the past, with governments manipulating Central Banks to achieve short-term gains rather than acting in the long-term interests of the national economy. Thus, by allowing the ECB (who will have the long term interests of all of Europe at heart) to take control of interest rates, far from damaging the economy, we are in fact ensuring the best chance that policies will be followed which will lead to more long-term growth and prosperity. Despite this, relinquishing control over interest rates can have serious effects on a nation's economic viability, and these effects should not be overlooked. The central issue here is as to whether the economies of the nations involved follow the same economic cycle. Such a problem developed here in 2000 and 2001, when the Irish economy was still booming compared to the sluggish growth of our European cousins. This meant that, because the Irish economy formed such a small part of the Eurozone in total, interest rates were set at a rate appropriate to countries experiencing low and sluggish growth. This led to a breakout of inflation in Ireland, which at one point reached 7%. Because Ireland is such a small part of the Eurozone, this was not seen as a major problem, however, were Germany and France to get out of step, this could cause massive problems for the setting of interest rates. This is one of the major obstacles to Britain joining the Euro, in that historically, the Eurozone and Britain have not followed the same economic cycle, however, more of this anon.

Another issue which is often quoted is the problem of free-riders, and the debt trap. This centres on excess borrowing by some governments, this would supposedly result in higher interest premiums on debt throughout the Eurozone, thereby forcing up the cost of borrowing for all members. However, conventional wisdom would seem to suggest that market forces would preclude such a situation from happening. After all, just because nations share a single currency, it does not mean that the market will judge them to have the same credit risk and therefore share the same risk premium. In this case, David Currie again expects to see that *'In EMU, different governments will be required to pay different rates of interest on their Euro debt, depending on their credit rating.'*

Thus, although there are credible benefits to the creation of the single currency, there are inherent risks and costs involved. For example, few commentators have mentioned that while the costs of changing to the new currency are shared by all

businesses, it is only those that export that will see a direct benefit, thus the Euro can be seen as a once off redistribution of wealth, away from smaller regional operations to those who operate on the export market. That said, the introduction of the Euro has undoubtedly been a resounding success in the participating countries. Its introduction has been better received and run more smoothly than any officials could have hoped for. It has strengthened financial markets and led to the birth of what is now the largest overnight swap market in the world, the Euro overnight index average (EOINA) reference rate, the euro-bond market is now the second largest bond market in the world and new issues of euro-denominated bonds have even outstripped new issues of dollar-denominated bonds. The Euro has also become an important international currency, with it playing a role in the exchange rate regimes of more than 50 countries outside the Eurozone. The Euro is also listed as the second most held official reserve currency. Iran have announced that they are to issue its first bonds since the 1978 Islamic Revolution, and that they are to be issued in Euro, because the Iranian Central Bank deemed that the Euro would be easier to manage. These positive signals for the Euro have seen its supporters gain momentum. However, in recent polls, the majority of people in Britain would not vote for the Euro, and British commentators complain that any attempt to join the Euro will only end in a disaster similar to the ERM.

The British Perspective.

'EMU is portrayed as Alice in Wonderland economics, but risks creating Malice in Blunderland.'
(G Leach, 1999)

'EMU is not a narrow technical operation ... it has vast political implications.'
(Financial Times)

Thus the possibility of joining the EMU has been greeted by some in Britain. In fact, the Euro has become such a heated topic, that the Conservative Party even tried to run their election campaign as a "Save the Pound" campaign. When remembering Britain's previous experience with exchange rate programs with Europe (ERM), such attitudes are not surprising. However, perhaps they are misjudged and narrow, and then again, maybe they are not. Whether or not Britain joins the Euro will be the most important decision by the people of Britain in the next century. Both joining and remaining outside the Eurozone have massive consequences for the British economy and people. I hope that the previous section will have cleared up any doubts about the relative benefits and costs to joining the Euro, or indeed any such

monetary union. But what about the particular circumstances with regard to Britain.

The Five Tests.

To judge whether a referendum should take place on the Euro issue, the Chancellor of the Exchequer has devised a series of prerequisites, known imaginatively as the "five tests". Each test sparks its own debate, and indeed each test is sufficiently hazy as to make broad definitions possible. So let us now deal with each test in turn.

Would joining the economic and monetary union (EMU) create better conditions for firms making long-term decisions to invest in the United Kingdom?

This question relates to the implications on Foreign Direct Investment (FDI) of joining the EMU or staying outside. By joining the Euro there are obvious benefits to be had. In the last section, we mentioned that joining the single currency will lead to the elimination of exchange rate risk and associated hedging costs. Undoubtedly, joining the Euro will eliminate exchange rate risks and associated hedging costs for multinationals who use Britain as an export-base for Europe. Such multinationals will no longer have to buy currency hedges that safeguard their export earnings against currency movements against the Euro. It is quite possible that negative exchange rate fluctuations can erode profits significantly by reducing the value of goods and services that are exported. For example, assume the exchange rate between Britain and the euro is parity (i.e. one for one), a good (which cost GBP75 to make) is exported from Britain to the Eurozone where it is sold for EUR100, during the sales process the Sterling/Euro exchange fluctuates and at the time the good is sold, the exchange rate stands at GBP0.60 per Euro. Therefore, when the proceeds from the deal are repatriated to Britain, they are now worth only GBP60, meaning the exporter makes a loss of GBP15, instead of a profit of GBP25, if the exchange rate is fixed. Such an example is over-simplistic and includes an absolutely massive movement in the foreign currency markets, however it serves to illustrate the point that currency fluctuations can have massive implications on company accounts. Thus to have a system of fixed exchange rates would surely be beneficial to firms making long-term investment decisions to invest in the United Kingdom as it guarantees stability and transparency between Britain and the major market that is the Eurozone.

That said, Euro-sceptics point to the fact that since the birth of the Euro in 1999,

Britain has continued significant FDI growth despite being outside the Eurozone. Statistics from the Office of National Statistics show that in the financial year of 2000/2001, there was a 36% increase in FDI in Britain year on year. Thus it would appear that membership of the Euro is having no effect on decisions to invest in Britain. In fact, FDI is attracted to Britain because of factors such as culture, language, a de-regulated, business-friendly environment and low levels of taxation and corruption. This argument is certainly not without sense. Certainly Britain, with its relatively lax labour legislation and pro-entrepreneurial government, is a prime destination for FDI for good reason. Euro-sceptics thus argue that joining the Euro would have no effect on decision-making in the long-term for Investments in Britain.

In conclusion, it is my opinion that joining the Euro would indeed create better conditions for firms making long-term decisions to invest in the United Kingdom. Euro-sceptics are merely scare-mongering when saying that the Euro will not add a new dimension to Britain. Although Britain may well remain a prime destination for FDI in the long-term without entering the Euro due to its pro-business stance, adding the dimension of the Euro to that can only further increase Britain's advantages in this area. Thus adding fixed exchange rate stability to cultural, language, de-regulated, business-friendly environment and low levels of taxation and corruption as reasons to invest in Britain.

How would adopting the single currency affect our financial services?

This question, we will take to mean would adopting the single currency affect the position of London as one of the pre-eminent financial centres in the world. Certainly London has lost out in one sense, in that London should have been the location for the ECB whereas it is now resident in Frankfurt. Thus in a manner, London has lost that further prestige which would have occurred had the second most powerful Central Bank in the world located in London. However the position of London as one of the major world financial centres has remained unchanged. In this case, it was the euro-philes who were guilty of scare-mongering. In fact according to the Guardian newspaper, Lord Levene, the Lord Mayor of London in 1999, used to warn about the threat to London, but the evidence was so overwhelming that he quickly changed tune. This is no surprise. The creation of the Euro, although it eliminated currency trading between the Eurozone's currencies, it created a surge in trade between the Euro and other currencies. In addition, as noted earlier, the creation of the Euro led to the establishment of what is now the largest overnight swap market in the

world, the EOINA reference rate, and the euro-bond market is now the second largest bond market in the world. New issues of euro-denominated bonds have even outstripped new issues of dollar-denominated bonds. In fact, recent figures show that Britain accounted for 19% of the global market for bank lending (France 8% and Germany 7%), 59% of foreign equity turnover (France 1% and Germany 2%), 32% of foreign exchange dealing (France 4% and Germany 5%), 36% of over the counter (OTC) derivatives turnover (France 9% and Germany 7%) and two thirds of the international bond market. Thus whether or not Britain joins the Euro, it should have little effect on the position of London as a leading financial centre. Which makes this test now irrelevant.

Are business cycles and economic structures compatible so that we and others in Europe could live comfortably with Euro interest rates on a permanent basis?

This is the key question as to whether Britain should join the Euro or not. There is no contention that historically, Britain's business cycle has indeed been out of step. In fact according to the International Monetary Fund's (IMF) World Economic Outlook, October 1997, during the period 1964-1990, the British economy had the lowest correlation coefficient with Germany, of any EU country. This heightens the possibility of asymmetric shocks. As explained in the previous section, an asymmetric shock, or the simple occurrence that an economy becomes out of step with the rest of the Eurozone has the effect that a nation will be subjected to a monetary policy that is completely inappropriate for its current situation, thereby exacerbating the problem. The IMF is not the only body to come out with evidence to suggest that the British business cycle has been out of step with that of Europe's. HM Treasury data show that during the 1980's and early 1990's, Britain had a negative correlation coefficient for GDP Growth with Germany. That means that whenever Britain needed higher relative interest rates to prevent overheating, Germany needed the opposite. On this basis, it would seem that Britain would never pass the test of having similar business cycles with Europe. However, a case can certainly be made that in the late 1990's and early 2000's, Britain's business cycle has indeed begun to become more in tune with that of Europe's. This is demonstrated by the global slowdown which begun in the US before spreading to Europe and Britain. The simple fact that Britain and Europe slowed at the same time and the reaction in each case was the aggressive rate cutting by both Central Banks perhaps points to a new era of convergence between Britain and Europe. In fact, this is one of the arguments by euro-philes, that joining the Euro would further this

phenomenon. In fact, when you aggregate quarterly growth (over an eight quarter period) for a selection of the Eurozone, you get an average figure of 0.6%, which is exactly the same as the figure for Britain. Thus perhaps Britain and Europe are indeed converging on the same business cycle as we head into the new Millennium.

This test also states that Britain should not join the single currency unless economic structures are compatible with those in Europe. In fact, once more this is an area where there are significant differences between Britain and Europe. For Example:

- Britains unemployment rate, public sector spending levels and taxation levels are significantly below those of many Eurozone countries.

- High levels of pension fund assets mean that Britain is less exposed to the high levels of pension liabilities which face many Eurozone countries in the near future. For example, the Organisation for Economic Cooperation and Development (OECD) has estimated that the net present value of current pension arrangements to be 98% of GDP in France and 139% of GDP in Germany compared with 19% of GDP in Britain. Although these estimates are fraught with error and often subject to a very wide margin of error, it does highlight a glaring structural difference in the economies of the Eurozone and Britain.

- British households tend to be much more sensitive to changes in interest rates than their Eurozone counterparts. This is due to the high level of borrowings by households (mainly in the form of mortgage finance) which is mainly at a variable rate of interest, in comparison to German household's debt which is chiefly at a fixed rate of interest. Thus were Britain to join the EMU, interest rate changes would have a much larger effect on the British economy, and thus Britain would experience much stronger economic and business cycles relative to Germany, thereby undermining stability. In fact according to David Currie, *'this is a good argument for ... remaining outside EMU.'*

In fact according to Greame Leece (IoD, 1999) the differences do not stop there, but continue with facts such as Britain having the lowest share of gross public debt to GDP and the lowest share of public spending to GDP, among others. Thus it would appear that there are substantial differences in economic

structures between the Eurozone and Britain. However, the test asks not whether there are differences, but whether these difference in economic structures are so significant that Britain and others in Europe could not live comfortably with Euro interest rates on a permanent basis. To this the answer must certainly be, that if the business cycles of Europe and Britain are converging, then in time, so will their economic structures. After all, this is part of the point of the Euro. One of its latent benefits will be the structural reform of their economies, thereby most likely bringing them closer to the British economic structure or at least close enough that Britain and others in Europe could not live comfortably with Euro interest rates on a permanent basis.

If problems occur, is there sufficient flexibility to deal with them?

This question would appear to have occurred as a direct consequence of the failing of the ERM in 1993, and the subsequent forced policy reversal in Britain. However, the resolution of this test relies solely on your interpretation of "flexibility". Certainly the membership criteria of maximum budget deficits of 3% and maximum debt/GDP ratio's of 60% should indeed allow the flexibility to provide boosts to a flailing economy without undermining an economies long-term health. After all, these measures and restrictions were drafted so as to allow sufficient flexibility in economic downturns to stimulate the economy without over doing it. In addition, part of the reasons for the creation of the singly currency was to provide a better chance of the long-term economic growth and prosperity. Thus, such restrictions were created with such an objective in mind and therefore should, and do, provide the means for nations to respond to economic problems.

Will joining EMU help to promote higher growth, stability and a lasting increase in jobs?

In the previous section, we outlined the benefits of joining a single currency. All these benefits pointed to the ability of a single currency to promote higher growth, and a lasting increase in jobs. With respect to stability, the ECB's ultimate objective is price stability over the medium term and, if as it is generally assumed, the ECB has been founded on the principles of the Bundesbank, then Britain cannot argue over a record of maintaining price stability. Over the final forty years of its existence, the Bundesbank maintained an average yearly inflation rate of just over 3%, compared with an average yearly inflation rate of over 6% in Britain. Thus in terms of test 5, Britain

should indeed join the Euro.

Thus ultimately, according to tests one, two, four and five, Britain should indeed join the single currency program. However, test three still has to be met, and perhaps more importantly, seen to be met. Certainly, there is a prevalent thought amongst commentators that this new millennium will see closer economic structures between Britain and the Eurozone, as well as closer business cycles. If this were to occur, than it would be an act of economic madness for Britain to "save the pound."

Is there a political dimension?

Of course there is a political dimension. To even mutter the words European Monetary Union without a thought for what part politics plays is laughable. However to suggest that a single currency means a single state is equally laughable. After all, there are many examples of countries who enjoyed a single currency without giving up national sovereignty. Ireland maintained a currency union with Britain between 1921 and 1979 without becoming part of Britain, and Belgium and Luxembourg have long enjoyed the benefits of a single currency without surrendering sovereignty. Thus if the debate over sovereignty is not that which should occupy the minds of British nationals what is it? Put simply, the debate centres upon what role does Britain see itself having in a future Europe. Time and time again, Britain has remained an outlier on European affairs only to join later anyway. This has meant that Britain's ability to shape the development of Europe has been severely restricted. For example, Britain did not join the European Economic Community until 1973, it was also a belated entrant to the ill-fated ERM, and already it is late to the party that is the Euro (Although perhaps with good reason, as discussed above). However if Britain is to have any say upon the future development of Europe it must get involved now. While remaining outside of the EMU, Britain is open to accusations of not being fully committed, to sneers that since it will not directly affect Britain, why should Europe take Britain's interests on board at all? Therefore, if Britain has in interest in the continuing development of Europe, then surely it must become involved in the single currency program as early as possible. On top of this. Britain is presently in a situation of possible great political influence. After all, Britain is led by a government which won a resounding victory in its last election. The Anglo-American economic model has proved itself to be far more successful than the EU model and Britain has succeeded in achieving productivity gains over the last few decades that Germany and France can only sniff at. In addition, Britain has appeared to be sounding out allies for its economic model

in Spain and Italy, both of whom are expected to post fast economic gains due to their increasingly open economic models.

Another factor is that Britain, Spain and Italy all have recently elected governments with considerable public support. Compare this with the situation in both Germany and France, who's economic models have resulted in their becoming economic dinosaurs. In addition, Germany and France's political leaders are now shortly facing into elections which are expected to be keenly contested. Thus, today, Britain is in a position of unparalleled historical ascendancy in terms of its domestic affairs when compared to the other major economic powers of Europe. Since the economic strife is forecast to continue in both Germany and France as they adjust to structural challenges, surely now is the time for Britain to step up to the plate, and become a major influence in the further shaping of Europe. This however, can only be achieved by further committing to Europe, and therefore joining the Euro. This brings us back to the original question, upon what role does Britain see itself having in a future Europe?

Concluding Remarks

'If the shoe fits, wear it'.

So Dr Willem F. Duisenberg spoke in a speech given in November 1999. At present for the Eurozone, the shoe does indeed fit, although perhaps a little uncomfortably. The same would be said of Britain were they to join the Euro too, but the real question for Britain is surely, do they want to wear it?

Bibliography

Currie, D. (1997) '*The Pro's Cons of EMU*'. Report for HM Treasury.

Denny, C. '*The euro, a special report by the Guardian*'

Duisenbuerg, W. '*Economic divergences in the euro area: the consequences for economic policies*'- speech delivered at Nieuwspoort in The Hague, Netherlands, 5 November 1999

Leach, G. (1999) '*The UK and Euro - Better out than in?*' IoD Research

Noyer, C. '*Success factors of the euro and the ECB*'

at the symposium *World Economic Climate after the Introduction of the Euro*, organised by Japan Center for International Finance and Sumitomo-Life Research Institute, Tokyo, 13 February 2002.

www.thesinglecurrency.net -*Pros and Cons of the Euro*

Wall Street Journal Europe.

Why Patients aren't Virtues

David Comerford – Senior Freshman

David Comerford investigates the wisdom of the recent proposal to extend health insurance to all. He examines the health systems of a number of different countries and he concludes that the proposal is not a feasible or well thought out solution to the problems of the Irish health system.

Introduction

A recent proposal by Ruadhri Quinn, leader of the Irish Labour Party, to extend health insurance to all members of society attracted considerable praise for its progressiveness. However, it is my contention in this essay that when exposed to commonsensical scrutiny, detached from the murky policy quagmire that is our present context, the logic behind Mr Quinn's suggestion disintegrates.

Let us firstly look at the state of the health service in Ireland as it stands. It is obviously the case that any radical suggestion such as this is the product of a crisis which mere tweaking will not fix. Politicians are loath to upset the applecart unless the applecart in question has already spilled its load. In the case of the Irish healthcare system, this is universally acknowledged as the case.

Despite having an age profile significantly younger, and consequently less reliant on healthcare, than our European colleagues, Ireland still manages to spend more on average on health. Not only that, but our mixture of public and private service provision means that although healthcare is universal, there are significant delays for those who cannot supplement government investment in it.

This is not a new experience for Ireland and indeed over the course of the past five years, in view of our newfound prosperity, the government undertook what they considered to be remedial action. However, their view of remedial action did not involve apple proofing the cart but rather, stretching a metaphor to breaking point, paving the road with money so that when the apples inevitably do fall, they will have a softer landing. There is no disputing the fact that the government did indeed spend twice as much on health last year as they did in 1996, but that is a far cry from claiming that the healthcare provided by the state was twice as good. So where did the money go?

We would hope that it bought us improved hospital treatment. Well, unfortunately, the powers that be are reluctant to let us know, since the most recent figures we have to work with are from 1996. We have also been told that the number of people employed by the state directly in the provision of healthcare is 80,000. Back in 1996 that figure was 67,775. But if trends are consistent, and in the public sector they tend to be, the vast majority of those new recruits are employed in administration. In 1979 doctors, nurses and dentists made up 60% of those employed in healthcare. In 1996, they accounted for less than half. We also know for example that nursing wages increased since then.

That is not to say that even if the government had invested our money in more doctors, we would be seeing a doctor any sooner. If there is any market in which supply creates its own demand, healthcare is that market. When Canada increased its number of doctors by 5%, the total workload for doctors increased by 4%.[1] The main reason for this was not the reduction in largest cost to the consumer at point of entry to a free service, i.e. the time cost, although it is a significant factor. Rather, Cullis and West report, the reason was found to be that *'increased availability leads to demand generated by increasing repeat visits'*. So it seems that the demand was not autonomous, but had been instilled by suppliers. This ability of suppliers to insist on consumption is the primary reason for state intervention in the health sector.[2]

There are many more explanations for increased state expenditure in health. The nature of health is such that at any given time consumers are not aware whether or not they should be demanding health services, and if they should, they are ignorant of which to demand. Culyer cites a survey in London that showed that 95% of people had felt ill in the preceding fortnight, but only 20% went to a doctor[3]. Even if the rest had gone to a doctor, it is doubtful that they would have gained much. He goes on to cite studies which have shown that doctors are only eighty percent successful in diagnosis. The odds of being restored to full health are further hampered by discrepancies in treatments, such as thirty prescriptions for an identical ailment.[4] The bane of the health economist's job, however, is the fact that even after

[1] Cullis and West ch.4

[2] O'Hagan Ch. 3

[3] In Grant & Shaw, Current issues in Economic Policy

[4] In Grant & Shaw, Current issues in Economic Policy

all these steps have been taken, there is no measurement to gauge output from investment in health; the bane of all our lives is that there is no measurement to gauge our health.

Consequently, Grant concludes, policy should focus mainly on identifying the effective procedures, identifying the least costly procedure and allocating the resources appropriate to undertake these procedures[4]. So let us analyse the current system according to this criteria and then compare it to Dr Quinn, Medicine Man's, model.

Diagnosis

The procedures which are identified by the current system are procedures identified by doctors. There has never been any suggestion that we could get rid of doctors, even if we wanted to. However, what we can do is limit their conflicts of interest so as the procedures they are recommending are the procedures that they consider the most effective. An example is the cash back scheme that rewards GPs for prescribing generic drugs rather than branded drugs. It is well known that drug companies charge huge rents on their products, but because doctors are spending other people's money, pharmaceutical companies realise that they can be easily persuaded to opt for one product over another. An illustration of this is health conferences which are sponsored by drug companies. The effectiveness of this lobbying is spelt out by the constant mergers and take-overs that plague this industry, with the result that there are now only a handful of gargantuan players left in the market.

Fuchs points to the *'technological imperative'*[5] which drives doctors to prescribe and consumers to demand expensive treatment. Not only are the machines used in these expensive procedures, but so too are the staff who are specially trained to operate them. Since there is no measure of output, there is no way of telling for certain if these procedures are indeed more effective. For example, intensive care treatment in coronary care units has yet to be established as being any better than bed rest[6]. The government does not actually plug out life support machines in cases where they have been deemed inefficient, but at least they have a vested interest in determining the effectiveness of procedures, as they are the bill payers.

---

[5] Cullis and West, Ch. 4

[6] In Grant & Shaw, Current issues in Economic Policy

Ultimately, the government wants to keep costs down, whereas individuals can pass the bill on to private insurance companies, who can just pass the bill on to the other members. In order to fully explain why the insurance company is not particularly concerned by receiving an unnecessarily hefty bill, I'll first have to take a look at the peculiarities of the Irish health insurance industry.

The Voluntary Health Insurance (VHI), scheme was a government ordained one. This has lead to problems. As Alan Shatter of Fine Gael said, it is no longer tenable for the Minister for Health to perform the *'contradictory role of regulator of private health insurance, owner of the VHI and price fixer for private beds in public hospitals'*.[7] Despite his complaints however, the Minister for Health retains these functions. The good news is that he is no longer a monopolist. In 1996, the health insurance industry was finally opened to competition after three years of bureaucratic wrangling. The competition is very limited however. Firstly, there is only one other provider, BUPA Ireland. Secondly, the Irish model of health insurance was kept intact. *'Irish insurance is based on solidarity between insured generations, community ratings, open enrolment, lifetime cover and risk equalisation'*[8]. Consequently, a premium bears no correlation with the individual's risk. Costs are aggregated and then distributed among members. Therefore, the individual has no incentive to change risky behaviour. Smoking is a huge area of debate in this regard as its dangers have been conclusively proven. Despite that fact, the 1999 White Paper on health insurance refused to allow insurance companies to charge smokers a higher premium than non-smokers. Ostensibly, the relative inelasticity of insurance premia meant that such an action would have no effect. Despite the fact that this logic undermines the rationale for excise taxes, Ireland retains community ratings.

Insurance competition had a lot more going for it in the UK in the 1980s. In that case increased competition led to non-smoker discounts, no claims bonuses and discounts for nominal fee payment. For the consumer, these measures had a double impact, both beneficial to society. Firstly, by rewarding healthy behaviour, competition in insurance directly promoted health. This is something that the public monopoly in Ireland has only ever done ineffectually and ineffectively. Secondly, by introducing nominal fee payment, insurance companies brought home to consumers

[7] Irish Times 1-8-98

[8] O'Hagan , p. 329

the very real costs incurred by the health sector. This awareness palpably reduces the moral hazard of indiscriminate hospital use. With the knowledge that hospitalisation is by far the most expensive part of the healthcare system[9], it goes without saying that Britain will produce health more efficiently, in the parlance of economists,. Britain's 7.9% of GNP spent on health care, when compared with Ireland's 8.3%.

Another important aspect is the incentives insurance creates for producers. Insurers provide full cover only for approved hospitals and by rewarding them with customers, encourage quality. Only partial remuneration goes to customers of disfavoured ones. The onus is therefore on the hospital itself to improve quality. This form of competition has the advantage of avoiding price competition and the necessary trade-offs that entails. For example, Norwich Union went so far as to offer £250 per night cash back for patients who opt for cheaper treatments. In the market place, consumers will rationally continue to use cheaper hospitals until they feel spasms of pain, which they would rather spend £250 a day to avoid than carry on suffering. The result is that hospitals are encouraged to engage in price wars. Meanwhile, Norwich Union attracts more customers, customers are offered £250 and all the benefits of a night in hospital to feign diseases and hospitals cut corners to get the money from the insurance companies. Given that that we never know our own state of health, we are unlikely to guess when £250 worth of damage has been done until it is too late.

It is this same immeasurability of health that gives rise to moral hazard. Since treatment is either paid for by government or, if it can be afforded, by an insurance company, the financial costs to the consumer at time of purchase are zero. This gives rise to a rational phenomenon with irrational consequences. Consumers will demand healthcare until the marginal utility of so doing is equal to the opportunity cost of their time. Those who can most accurately identify a potential health risk are those who are best informed. These tend to be people who are formally educated to quite a high level or those who educate themselves in health. Both types of person tend to be people on higher than average income. Since wages are the most tangible form of opportunity costs for time, those on higher wages will place more value on, and will demand quicker treatment. It is the way of the market, therefore, that those who are on higher incomes value their health more highly and are able to pay for it. Having established that delays are the blight on Irish healthcare, we can thus explain the

[9] O'Hagan, cited by Dr. Sean Barrett. In 1983, 73.4% of health budget went to hospitals

Also Tussing, Dale, The Irish Times, 31-1-01

popularity of private health insurance amongst the Irish.

So let us now identify the least costly procedure. We have already established that hospitals are the most expensive procedure. This is true in terms of both accounting and opportunity costs. O'Hagan has noted that Ireland is more expensive than most in the OECD for hospital beds, and that our costs more than doubled between 1966 and 1979. Dale Tussing draws this premise to its conclusion when he observes that funding should go to GPs, who are the gatekeepers to the system. The Irish system falls at this hurdle. Private customers are sent directly to consultants, whereas those in the public sector are piled on to a waiting list. Since consultants receive a salary for public patients, once they have reached their quota of public patients it is far more profitable for them to take private patients, as they will pay fee per item. The inequality continues after the visit to the consultant. Consultants have priority over 20% of hospital beds, and empirically these are filled with private patients.

Prognosis

The conclusion that Ireland has a two-tiered health sector is, in the light of all this evidence, a valid one. However, the jury is still out on the way to reform it, or how best to allocate the resources to the most effective procedures, if you will. This brings us neatly back to Ruadhri Quinn's suggestion. Any public policy decision, as with most decisions, comes down to whether the costs outweigh the benefits. If we are better off, overall, as a result of adopting this policy, then we should adopt it. It is my contention, however, that in an Ireland in which, let us invoke the ceteris paribus assumption, nothing has changed in the health system other than provision of health insurance, this plan is not feasible.

There is, in Ireland, universal health coverage. This is the status quo. Given that the primary complaint is the delay in attaining treatment, removing this delay should be the aim of our reform. Mr Quinn has no option but to share with us the above findings. There are no value judgements in my analysis of the current healthcare system. He has recognised that the return on health insurance is speedy treatment. We are thus far at least, in agreement

Where we differ is in the conclusion he draws from this. Ruadhri's argument is that since we are trying to achieve speedy treatment for all, logically we should extend health insurance to all. What he has failed to notice is that private insurance gains priority treatment, which in this case, happens to be speedy treatment. However, thinking logically, if we all have priority treatment, none of us can have priority

treatment. If we are all on an equal footing going into a doctor's surgery, we will receive a meritorious position on the waiting list, but we will remain on the waiting list. Our suppliers, the individual doctors and nurses are still the same. The consumers, buying from the same producers, remain the same. All that has changed are the middlemen. And even then, the government remains the supplier of suppliers (I cannot envisage health insurers educating doctors), all that insurers do is buy for consumers. The result is an inefficient addendum to a prescription that is already too long.

The results are obvious. Private insurers would not even have the government's self-control when they receive hospital bills. Since the Irish insurance system is community based, no one individual's premium is any worse off than anyone else's in that same company. However, risk equalisation means that if either of the two suppliers is seen to be making a supernormal profit because their clients are costing less for treatment, they will have to refund the other company the difference. It is a logical, if instinctively perverse, conclusion then that there is a disincentive to keeping costs down, as those savings are transferred directly to the competition. Indeed, if medical costs are constantly rising, insurance companies' profits as a proportion of revenue can remain the same, while their real profits rise. In order to observe this, one must merely look at the American model. Here the health service accounts for 13% of GNP, though it is not universally provided. Rents from insurance and drug companies alone make up 2% of America's GNP[10].

Conclusion

While universal private insurance coverage may seem to fulfil the Labour Party's objective of equalising the playing field, it ultimately does so by raising it on a platform twenty metres high. To redress inequality, healthcare priorities should be redressed, there is already universal access. The problem with Ruadhri Quinn's proposal is that I do not even credit it with enough sophistication to be egalitarian. There are already degrees of coverage within health insurance. If the primary incentive for buying health insurance is skipping the queue, then the wealthy will be willing to pay it. The government already spend over £8000 per household on healthcare. Subscriptions to health insurance companies are typically less than one thousand pounds per household. It is foolish to believe that the wealthy are not prepared to pay more. If the government anticipates this and puts a cap on health insurance premia, we are left with a universal, per capita, equal payment towards the

[10] Wren, Maeve Ann - The Irish Times 17-10-01

community's health requirements. Effectively, health insurance premia would amount to no more than another tax, and one which has already been paid at that. The government would then be doing that most inefficient of things, subsidising a private sector middleman. The product would remain the exact same as under a system in which private insurance is banned outright, except it would cost more and be decided by the middlemen instead of the ultimate consumers. To make his system work without reforming the health care industry substantially, Mr Quinn will have to change human nature. If he believes he can do that, he has confused a placebo with a panacea. In trying to level the playing field, he has only moved the goalposts and upset the apple cart, and the result is as chaotic as it sounds.

Bibliography

Cullis, J. and West, P. (1979) *The Economics of Health*, Robertson.

Culyer, A. (1975) 'The Economics of Health' in Grant, R.M. and Shaw, G.K., *Current Issues in Economic Policy*. Alan.

O'Hagan, J. (2000) *The Economy Of Ireland.* Dublin: Gill & Macmillan.

The Irish Times, Various authors.

The National Pension Reserve Fund: A Prudent Measure?

Ivan McAdam O'Connell – Junior Sophister

Ivan McAdam O'Connell investigates whether Charlie McCreevy's National Pension Reserve Fund is a wise response to the demographic time-bomb of unfunded pension liabilities. The prospects for this fund are investigated and the Irish response is compared with the response of other countries. The conclusion reached is that the fund is the most prudent response to the uncertainties of future pension liabilities.

Introduction

When Otto von Bismarck enacted the state pension in 1889, with retirement at 65, life expectancy was 45. Today life expectancy is 76 in the Organisation for Economic Co-operation and Development (OECD), countries and rising. This illustrates the extent of the dilemma facing many governments across the developed world, which face huge unfunded pension liabilities as their populations' grey. The Irish government faces unfunded pension liabilities of 25 billion at present and this figure will rise considerably in the near future.

The government's response has been the creation of a budgetary reserve fund with the aim of part funding the future liabilities incurred by the social welfare and public service pension schemes. To this end over €6 billion has already been deposited in the newly created '*National Pension Reserve Fund*' (henceforth the 'fund') and legislation has been enacted committing future governments to deposit 1% of GNP (approx. €750 million in 2001) into this fund until at least 2055.

This commitment of such a large amount of public funds to the purchase of financial assets for investment marks a new departure for the role of the government in the Irish economy. The economist [1]Danny McCoy (of the Economic and Social Research Institute) has put the scale of this expenditure in context, as being equivalent to a holiday in Spain for every worker in the country. So while the fund may be relatively uncontroversial in today's relatively benign economic climate, it has important implications for the Irish economy going forward in areas such as taxation, the role of the state, equity and many others. Corrigan (2000) estimates that this fund will equal 42% of GNP by 2025, so it can be seen that the scale of this

[1] Speaking in Trinity College in February 2001.

fund is so large for our small economy that it cannot but have implications for the Irish economy going forward. We all hope to grow old some day and we trust that the state pension system will provide a safety net against poverty in old age. The sustainability of this system is now inextricably linked to the success of this fund. Therefore its implications for the economy need to be carefully examined, particularly in light of the present deterioration of the public finances, the global economic slowdown, the constraints placed upon the economy by the Stability and Growth Pact and the Irish economy's reliance on capital mobile multinationals for much of our prosperity. Whether this fund can help smooth the path of the Irish economy or constrain it further is therefore the important question.

In this essay I intend to address these questions and others arising from the establishment of this fund. Firstly I wish to examine the extent to which the fund is a necessary and an appropriate response to the problem of unfunded pension liabilities. Then I shall examine the important consideration of whether this fund, as proposed, is fair and equitable to those involved, particularly on intergenerational grounds. Finally I will look at the implications this fund will have for the Irish economy in light of the unprecedented economic boom of the past decade and the uncertainty of the future.

Do we need a Pension Reserve Fund?

In the press statement accompanying the establishment of the fund, the Minister for Finance sets out the reasons for the funds establishment as a prudent response to the "demographic time-bomb" of unfunded pension liabilities. The reasons mentioned by the minister are that the ratio of those in the active proportion of the population to those aged 65 and over will go from 5:1 today to 2:1 in 2056. The cost to the exchequer of maintaining pension provision at today's level will be 8.1% of GNP in 2026 and 12.4% of GNP by 2056 compared to the present cost of 4.7%. The CSO report 'Population and Labour force projections' (1996) predicts that the number of over 65's will increase from 414,000 (11% of the population) in 1996 to 1,018,000 (27% of pop.) in 2056. Perhaps a more shocking illustration of the scale of the problem is that over the period to 2056 contributions to social insurance would have to increase by 19% to maintain current levels of pension payments in real terms, but by 227% if, as may turn out to be the more realistic case, pensions were to keep pace with earnings.

This would seem to be a scenario that would place an unsustainable burden on those working and possibly undermine the viability of the Irish welfare state. Social

security might then be seen as being so heavy a burden that it would be seen to be *'worsening the problem it tried to solve'* (The Economist, Oct. 1998). The high social security contributions in this scenario would act as a severe tax on jobs, lowering employment and depressing the entire economy. But as any economist knows statistics can be used to tell any story you want. Could it be that the minister has not taken all factors into account?

A debate surrounds this issue, and the fund has certainly been controversial among politicians and is likely to become more so as an election nears and the public finances are stretched further. A number of economists have questioned whether the situation is really as bad as the minister contends. Some even contend that the minister is jumping on the bandwagon and *'making an invalid extrapolation from international trends'* (McCarthy, 1995). When looking at support ratios it is important to take into account the numbers of dependants under 15 as well as those over 65. When these various dependants are given a weighting in terms of their cost to society (i.e. pensioners cost more than children), it is found that over the next few decades while OECD countries in general will experience support ratios lower then anytime in their histories, Ireland will be no worse than in 1990 and better off than in 1960. Ireland has faced such difficult times before, in 1986 there were 170.7 dependants for every 100 people in the labour force and 227.7 for every 100 in work, this figure will have fallen to 154.9 by 2006. Reflecting these findings, a World Bank report predicted that dependency ratios will peak for OECD countries as a whole in 2036, but dependency ratios will not peak in Ireland until the very distant 2150. Also while contribution rates for PRSI may have to rise here, rates are only 13.4% of average labour costs compared to 26% in the Euro zone as a whole and a staggering 37.2% in Italy (Colm Rapple, The Irish Times, March 2001).

The extent of the problem faced by the Irish economy is therefore likely to be much less severe then in other countries, especially in Europe, due to the structure of our pension system. In Ireland at present, like in the U.K., the social welfare pension is largely seen as a poverty prevention measure. Benefits are only equivalent to 28.5% of the average industrial wage and we have no earnings related pension, whereas in economies such as Germany's pension benefits are targeted at being 70-75% of previous earnings. This is reflected in the relatively large scale of private pension provision in Ireland, the industries funds are equal to 45% of GNP compared to just 6% in more generous Germany. Other economists such as Disney (1997) express the belief that it is not the increase in the number of pensioners that should be of concern, but rather the scale of improvement in pension payments. By his predictions if the economy was to expand at 2% (below the ESRI forecast for the

Irish economy) and pensions were linked to the Consumer Price Index (CPI), that the cost of providing pensions would fall as a percentage of GNP from 4.7% today to 4.1% in 2035.

These figures present an alternative view to that of the minister, the reality though is probably closer to the minister's projection. Pension payments have already been increased above the CPI during the ministers term and as the economy grows and politicians seek to appeal to the growing grey vote, it is hard to see them resisting pressure to increase payments further. The re-distributive effects of such increases may even be desirable. It would not in my opinion be desirable to see pensions fall to as low levels as predicted in the UK. The UK has taken a firm line on encouraging private pension provision and their policy of increasing payments in line with inflation only will see pensions drop to as low as 8% of average incomes. Also remarks by Hughes (1996a) that *'population projections are subject to considerable margins of error and the error is likely to increase with the length of the projection period'* mean that there is a considerable risk to the economy from unfunded pensions and it would indeed be prudent to make provisions for this risk and the ministers decision is all the more understandable given the healthy state of the finances at the time of the funds establishment. The argument is not as strong in light of the recent deterioration in the state's finances but most forecasters predict a return to surpluses and a rosy outlook for the Irish economy over the medium term. So this may indeed be a fortuitous window of opportunity to make provision for a liability we know with reasonable certainty will materialise.

Are the government's proposals the most appropriate response?

If we accept that pension provision poses a significant threat to the Irish economy in the near future, then we should ask whether the 'National Pension Reserve Fund' is the most appropriate response. The Budgetary strategy for ageing group report (July 1999) estimates that the fund will only provide 1/3 of the cost of future pension liabilities during the expensive years around 2050. Therefore is this the best means of saving for these costs?

The size of the government's contribution is less than 1/3 of the interest payment on the national debt in 1999. The question of whether refinancing costs on the national debt, which this money could have paid back, will be more than the return on the funds assets is a crucial one for establishing the merit of the project. Prof. Feldstein in his book *Privatising Social Security* (1998), claims that social security contributions are much more productively employed in a pension fund then in the

government coffers. In Ireland the return on private pension funds have averaged 10.9% p.a. over the last 10 years but only 3.8 - 4.4% p.a. since 1964. It is probably unrealistic to expect as high a return from a government run pension fund than from commercial pension funds to which Prof Feldstein is referring. Iglesias and Palacious (2000) have found that returns are inversely related to the degree of political interference, for this fund this should be minimal as the fund is managed by an independent commission, though it is probably unrealistic to rule out all interference when the commissioners selection and appointment will be a political decision. Consideration also needs to be given to the costs of administering the fund as well as the monetary and non-monetary returns from alternatives such as investing in education, infrastructure or lowering taxes. This debate has been enlivened by pre-election calls from Fine Gael to use the fund for various projects around the state. This is just the sort of interference that will hamper the fund though and only public opinion and all-party commitment to the fund will be able to safeguard the funds independence, which is vital to its success.

Aside from the strict return from the investment, the fund has a number of macroeconomic benefits compared to a normal budgetary approach. It helps diversify public expenditure (especially useful during the surpluses of the past few years) and this may help keep public pay demands down and curtail economically dubious projects such as the "Bertie Bowl". The high visibility of the fund may also make both employees and employers aware of the costs of pensions and recruitment. The fund will also perform a stabilising role, taking more out in a boom and less in lean years. There is also concern coming from America's debate over how best to use surpluses that paying down all of the national debt may have detrimental effects on an economy, as government debt performs a useful role in financial markets. Fears remain though about the prospect of governments owning large proportions of private firms through such investment funds and whether this would be a backward step in freeing up the economy. To many, such as the Chicago School of economists, this is a blatant overstepping of the state's role as facilitator in the market, allowing the market to function efficiently but not interfering. In the opinion of John McHale (2000) though, by setting up the fund already the government misses the macroeconomic benefits to leverage pension pre-funding to achieve wage restraint by public sector workers.

The potential pitfalls of the fund's administration has already been illustrated by the Jefferson Smurfit group's submission to give a higher weighting in the fund's portfolio to Irish equity, such as Jefferson Smurfit stock (Jane Suiter, The Irish Times, March 2001). An equivalent fund the 'Norwegian Government Petroleum

Fund' is precluded from investing in its home market and from holding more than 3% of a firms share capital to prevent such interference by the government in the market as warned of above. This example has unfortunately not been followed in the Irish case, as it would certainly cut down on political interference and lobbying, though the manager of the fund has stated (March 2001) that the funds weighting for Ireland will be 1%, close to its weighting in the international equity market.

While the fund may suffer from a number of deficiencies and possible hazards as outlined above, there is probably very few alternative uses for the money that offer value for money and do not suffer from more in-efficiencies, the Irish economy is still running close to full capacity and construction inflation is such that it is difficult to identify alternative worthwhile uses of the money. The decision to create the fund should therefore be analysed in light of the economic situation. It may have been as much a political decision about how to deal politically with budgetary surpluses as a plan to deal with the pension "time-bomb". If the macroeconomic benefits such as control of government expenditure materialise, it may prove to have been a tool of astute economic management as in the long-run *'policy options which encourage low unemployment and economic success are likely to be more important in ensuring that future pension costs can be financed than the precise form of the pension system'* (Fahey and Fitzgerald, 1997).

Is this an equitable response?

'Social insurance is an instrument of social democracy' (Aaron, H., 1992), it is a key provision of the welfare state, which sought to boost the productivity and equality of society by freeing citizens from concerns about their welfare. The fund may have merit and value, but that should not preclude consideration of whether it is fair or not. The social insurance model is based on an intergenerational contract whereby each generation has agreed to fund the previous generation's retirement in return for a promise that the next generation will make adequate provision for their retirement. The governments fund while probably affordable appears to break this contract. This generation is now being asked to fund both its own pensions through contributions to the fund as well as maintaining the pay-as-you-go pension system for the previous generation. It is questionable whether such intergenerational transfers are equitable or, using Danny McCoy's analogy, whether the government has the right to take the option of that holiday to Spain away from today's workers.

The method of generational accounting developed by Auerbach and Kotlikoff is particularly useful for examining this inequity. This form of analysis is a more

useful measure of the various costs and benefits to each generation than simply looking at yearly flows of transfers. As welfare systems grew in the last century retiring workers were able to receive larger benefits then they had paid for as ever-larger numbers of workers supported them. This process is now reversing itself, painfully so in 'baby boom' countries such as Germany that, as already mentioned, provides very generous benefits. The next generation of pensioners now has expectations of benefits that a smaller workforce will not be able to afford as easily. Research by Raffelhieschen and Walliser (1999) using generational accounting in Germany found that future generations will face a 156% higher burden then the present generation in supporting pensioners, this translates into a very unaffordable lifetime tax rate of 54.5%!

This calls into question the very integrity of the existing welfare state transfers on an equity basis (McCarthy, 1995). There are already imbalances in the demands being placed on different generations, though less so in Ireland then in other developed countries. The imposition, on top of this of the cost of the pension reserve fund would seem to place an unduly heavy burden on the shoulders of one generation. Such intergenerational inequity may place the continuation of the welfare state in danger. The climate engendered by the notion of the "demographic time bomb" is conducive to abandonment of public pension provision completely. Such sentiments are growing in economies such as America, but the cost of such a move though would unfairly fall most heavily on the poor. It is important that the extent of the challenge facing industrial economies is not overplayed, as this may cause a shift towards pure market provision, and private insurance provision is known for market failure. To what extent the governments fund aggravates or alleviates this danger to the less well off in society cannot be ascertained at this stage but warrants monitoring.

The economic implications of the fund for Ireland?

This fund holds out the possibility of easing substantially the pain that will inevitably occur as our population ages. We may be spared large fluctuations in the government's finances and it should help our economy maintain a competitive labour tax regime. All these are very worthwhile goals but 2055 is a very long way off and any projections of economic growth and population over this period are only educated guesses. Who knows how the global economy will fare over the next half century and the spectre of global terrorism has made the situation all the more unpredictable. 1% of our GNP is now locked away for the sole benefit of future pensioners regardless of any relative needs of others during the intervening period. Is it wise to have tied our hands in this manner?

A doomsday scenario would see us having to cut back spending in other worthwhile areas such as health or education, or borrow at high interest rates in order to pay the contribution that is fixed by legislation. Is this really so unlikely, we would have had to borrow for this year's budget if it were not for the creative accounting of Charlie McCreevy. Do we help future generations support the costs of pensions better by leaving them financial assets or by investing in badly needed infrastructure which will boost the productive capacity of the economy and make future liabilities more affordable? As the present world downturn has shown, recessions are very hard to predict, therefore can we say now that we can afford to put this money away every year? It may happen, that instead of the fund helping to keep taxes down, that we may be forced to increase taxes in order to pay the contribution. Given Irelands present reliance on low taxes to attract Foreign Direct Investment a mistake in the funds design could hamper our economic development severely.

The 'Stability and Growth Pact', which limits budget deficits within the Euro-zone to no more then 3%, has important implications for the fund. The government's choice of a budgetary reserve fund rather then a strict social insurance contribution pension fund means that any draw downs from the fund during the demographic squeeze will not positively affect the general government balance, which is the measure used by the EU to measure the budget deficit. So any help from this fund will not give us any greater flexibility then a 3% budget deficit even in the years of the highest pay-outs, which will probably be a time of large expenditure on other areas such as health care as well. The format of the fund appears to have constrained the country's budgetary position as much as it has helped it, whereas paying down the national debt would at least lower the cost of interest repayments and help the

budgetary balance. Two German Lander (states) set up similar funds to ours in 1995. Three years later Schleswig-Holstein had to abandon its fund due to poor economic conditions. It had been forced to borrow to fund its contribution at considerable cost. This should be a warning about the dangers of such a fund; while our budgetary position is relatively strong at the present our fund does not even have the option of abandonment if it were to become too expensive.

The build up of such a large fund may also breed complacency about the payment of the other 2/3 of the large and growing pension liability. If this were the case it would make it more difficult to make reforms to the pension system to make it more affordable, such as reversing the trend towards retiring earlier and earlier. Between 1994 and 1997 the rate of increases in pension payments at 20.3% only lagged behind earnings increases by 0.1%, it may now prove difficult to stop this scale of increase if the public could look at a large fund available to pay for the increases.

Conclusion

It is a very difficult task to predict the future course of the Irish economy as the last few months have shown. This implies risk and this fund should at first slightly increase that risk and then most importantly hopefully reduce the risk to the economy. This is how the fund should be judged and to the extent that I believe that the potential cost to the economy is smaller then the damage the greying of the population could inflict, I agree with the minister that this fund is a prudent response to the challenges ahead. While there is a large body of evidence which downplays the potential risks of the "demographic time-bomb", I'm mindful of facts such as that emigration has been the norm for Ireland for a long time and its resumption is possible and would significantly increase dependency ratios and financial pain here, as would an increase in unemployment. We have not yet in my opinion proved that we are capable of maintaining our prosperity and therefore we should put some of our present wealth away for that rainy day. I also believe that this fund is probably the most useful and beneficial use of our money that politicians are likely to come up with.

The fund also has positive stabilising effects for our growing economy, when compared to even more capital expenditure or lower taxes. Whether the fund will generate much of a return seems more doubtful. This is money that could pay down debt, so it must at least make a return that equals the cost of interest on the national debt not repaid. Already there is much pressure to have the fund used for less then sound projects dreamed up by politicians and the high returns on equity seen in the 1990's are not likely to be repeated any time soon with corporate profits languishing

in a trough. While the National Treasury Management Agency has proved the worth of such autonomous agencies in managing state finances by saving millions by prudent management of the national debt, this is a more challenging proposition as the funds visibility will make it too good a target for parish pump politicians to resist.

In terms of intergenerational equity the fund does seem unfair, but in so much as the cost of these pension liabilities must be met at some time, it is probably least painful to do so now with the fruits of the Celtic tiger years still with us. Any time we lose will just put the cost on a smaller number of people.

As a stakeholder in this economy I hope that this fund is successful and if it does prove to be, the prospects for the Irish economy seem very positive indeed especially in comparison with our European neighbours. I also believe that the fund is politically ambitious and imaginative and should be commended, many other countries with more to worry about have dodged the issue. I for one shall be watching the development and evolution of the 'National Pension Reserve Fund' very closely over the next 50 years.

Bibliography

Auerbach, A., Gobhale, J. & Kotlikoff, L. (1994). *"Generational accounting: A meaningful way to evaluate fiscal policy."*

O'Dea, C. (Mar. 6th 2001). The Irish Times.

Corrigan, J. (2000). *"Thoughts on the Management of the National Pension Reserve Fund.,"* Mimeo. Dublin: National Treasury Management Agency.

CSO Report: *"Population and Labour Force projections 1996 to 2026"*. Dublin: Government publications.

Feldstein, M. (1998). *"Privatising Social Security."* Chicago: Chicago University press.

Government publications, (1994). *"Final Report of the National Pensions Board"*, Dublin.

Government publications (1997), *"Actuarial review of Social Welfare Pensions*

report", Dublin.

Government publications (May 1998), *"The National Pensions policy initiative",* Dublin.

Government publications (July, 1999), *"The Budgetary strategy for ageing group report",* Dublin.

Hughes, G. (Mar. 6th 2001). The Irish Examiner.

Iglesias, A & Palacios, R. (2000). *"Managing Public Pension Reserves Part 1: Evidence from the International experience.",* Social Protection discussion paper No. 00/03. The World Bank.

Lane, P. (Aug 2001). *"The National Pension Reserve Fund: Pitfalls and Opportunities, in Economic Problems of Ireland in Europe."* Dublin: Economic and Social Research Institute.

McAleese, D. (Nov. 2000). *Commission on Public Service Pensions; Final Report.* Dublin: Government publications.

McCreevy, C. (Nov. 23rd 2000). Speech by the Minister of Finance on the National Pension Reserve Fund Bill 2000, www.gov.ie.

O'Flanagan, S. (Mar. 6th 2001). The Irish Times.

Rapple, C. (Mar. 6th 2001). The Irish Times.

Suiter, J. (Mar. 6th 2001). The Irish Times.

The Economist (Oct. 22nd 1992). 'Privatising peace of mind.'

The Economist (Feb. 22nd 2002). 'Pensions Survey.'

The Financial Times (Feb. 19th 2001). 'Pensions Logjam.'

Shannon Airport: An Engine of Economic Growth?

Stephen Butterly – Senior Sophister

The history and significance for Irish Economic development of Shannon Airport is investigated by Stephen Butterly. The importance of Shannon airport for balanced regional development is highlighted and the author concludes that Shannon represents a valuable piece of infrastructure that is under-utilised today.

Introduction

It can be said that throughout its history, Shannon Airport has suffered from a perpetual crisis of identity, from its earliest days in the formative years of the modern state of Ireland, through the economic peaks and troughs of the 60's, 70's and 80's, and on through the recent era of rapid economic growth. From one perspective, Shannon Airport was a symbol to be proud of, acting as an institution that bridged the considerable gap that is the Atlantic between east and west, a reminder both of our independence as a nation, and our ever deepening integration with the wider world. Conversely, Shannon Airport also proved to be a strikingly visible manifestation of our economy's inability to fully provide for the youth of this country, as it was a gateway through which tens of thousands were forced to emigrate in search of a better life elsewhere.

What does Shannon represent today? Is it an institution that should be nurtured and encouraged, a platform upon which further economic growth can take root? Or is it a relic of the past, a lumbering piece of infrastructure that serves no purpose in a modern, dynamic economy? In order to address these questions fully, I propose to structure this essay around three themes:

- Tourism - Challenges and Opportunities.
- Shannon Airport & Regional Economics.
- The Government, Shannon & Dublin.

Tourism - Challenges and Opportunities

Ireland, and the western seaboard in particular, has been blessed with a natural and relatively unspoiled beauty that lends itself readily to tourism. This fact has not been lost on the citizens of this country, and as such, tourism has grown to dominate the

economy in the West.

However, although it is almost tautological to mention the repercussions of the events of September 11th on tourism, it is an unfortunate and unavoidable fact that tourism is one sector of the economy that will struggle for the foreseeable future. Estimates vary, but figures such as a 750,000 decline in the numbers of visitors from the USA, and an overall decline of 25% in the numbers of tourists visiting the West this year, are sufficient in themselves to quantify the difficulties ahead.[1] Shannon Airport, which relies on leisure travel for more than 60% of its business, will feel a direct impact. Already, cutbacks by carriers such as Aer Lingus, British Airways and Delta have resulted in some 10,000 fewer visitors through Shannon Airport per week, and when one considers the report of the Shannon Development Committee (SDC) which suggests that €1.25million flows into the economy weekly from every 3,000 visitors, the scale of the impact becomes even more significant.[2]

The question we must ask ourselves is whether or not Shannon Airport is in a position to turn this situation around, to save itself and sectors of the western economy from potential ruin. In short, I believe there is considerable untapped potential at Shannon Airport that, if properly managed, could provide a considerable economic stimulus to Ireland at both regional and national levels.

Shannon Airport is ideally located in a central position between many of Ireland's regional tourist centres, such as Killarney, Ennis and Galway. However, for many years, its has lost out to the "Dublin based consensus" that exists in this country, in terms of it being under-utilised as a mechanism for attracting new tourists.[3] The Fitzpatrick Consultants report on the Spatial Spread of Tourism reinforces this view, by stating that the 1994-1999 Operational Programme for Tourism, designed to increase spatial spread, has failed. For example, whilst tourism on the whole grew some 126% in Ireland between 1988 and 1998, the figure for Dublin was closer to 200%.[4]

---

[1] Irish Independent, 30th November 2001.

[2] Irish Independent, 29th November 2001

[3] Clare Champion Report

[4] Fitzpatrick Associates Economic Consultants, 2001

This situation is hardly surprising given that, even pre-September 11th, direct air traffic to the west has been declining in relative terms, with nearly 85% of the growth at Aer Rianta airports over the past decade occurring at Dublin Airport. Table 1 below provides some recent statistics on growth at Dublin and Shannon Airports.

Table 1. Adapted from Aer Rianta Annual Report (2000)

Year	Passenger Numbers		% of Aer Rianta Growth	
	Dublin	*Shannon*	*Dublin*	*Shannon*
2000	13,843,528	2,408,252	72.33	15.3
1999	12,802,031	2,188,154	68.45	20.52
1998	11,641,100	1,840,008	90.52	1.24
1997	10,333,202	1,822,064	89%	5.83%

Those with a strictly conventional economic bias may argue that the higher growth rates at Dublin Airport have been merely a case of supply reacting to demand, and of course there is an element of truth in this argument. However, there is another side to the argument, and as such I find myself strongly lead towards the position put forward by the Shannon Development Committee who claim that *'...in the case of airlines...because of their own strategic priorities and powerful marketing capabilities...they can set out to lead demand, clearly with considerable success.'*[5] This logic, i.e. that the people follow the planes rather than vice-versa, is the crux of the argument regarding Shannon Airport; what it needs to provide is efficient, frequent, value for money access to the west to allow this region to exploit its natural tourism advantages. As the Fitzpatrick report continues, *'a destination's resource base and its accessibility are the two most crucial factors in determining success.'*[6]

In my mind, access at Shannon Airport should continue to consist of both short and long haul services. Debate has taken place for many years regarding the transatlantic

[5] Thompstone, 2001

[6] Fitzpatrick Associates Economic Consultants, 2001

stopover at Shannon Airport, with successive Governments supporting the maintenance of the enforced stopover. However, this is a clear example of the kind of strategic policy that needs to be left behind as basing the economic future of Shannon Airport on a relic from the protectionist era that serves no economic purpose, other than protecting a few hundred jobs at the airport, is ludicrous. Shannon Airport needs to become dynamic in attracting viable long-haul carriers, particularly on transatlantic routes, based on economic reality rather than political interference; indeed, the Fitzpatrick Consultants believe that Shannon should clearly be designated for direct international services and for tourism charter services[7]. As regards short-haul services, with particular reference to low-cost flights, it is in this area that I believe the majority of potential for Shannon to lie. Ryanair's Michael O'Leary is keen to stimulate tourism in the entire western seaboard by introducing new flights at Shannon, and IBEC are adamant that *'cost-competitive access and connectivity are the key to the long term future growth of the region*[8]*.'* The expansion of competitively priced routes from major European locations directly into Shannon Airport would open up the west to an entirely new form of tourism. That of the lucrative three and four day "flight-break" market that is currently dominated by Dublin, due to the lack of fast and direct access to anywhere else in the country.

Shannon - An Economic Necessity

According to the National Development Plan (NDP) 2000-2006, a necessary condition for economic success is *'to bring together elements of regional policy to achieve balanced regional development*[9]*'*. However, it is glaringly obvious to most people that the greater Dublin area is the primary policy driver in this country, and as such the regions are often overlooked. Transport policy and practice are no different in this respect, with the bias towards Dublin serving to hinder growth potential in these regions.

The situation at Shannon Airport is a case in point. For example, whilst the western regions can, according to the SDC, claim responsibility for 33% of the economic

[7] Fitzpatrick Associates Economic Consultants, 2001

[8] Limerick Leader, 1st December, 2001

[9] Government Publications, 2000

activity in Ireland, Dublin Airport is responsible for almost 85% of the traffic flowing through this country.[10] Another illustrative example of the under-service at Shannon Airport pertains to the recent loss of early morning and late night return services between it and Dublin, and more worryingly, the loss of same day return connectivity with 14 major EU cities such as Brussels, Frankfurt and Rome.[11] Such curtailment surely represents the antithesis of the situation one would expect to prevail in a small, highly open economy. In response to these concerns, IBEC and ICTU have identified *'the securing of new business at Shannon as the greatest challenge if jobs aren't to be lost'*[12]. Indeed, IBEC has gone as far as agreeing, in principle at least, to providing short-run financial support to any airline providing frequent, cost-competitive, business-friendly service at Shannon Airport.[13]

Without going into detail of the mechanics of how to attract new carriers to an airport like Shannon, I would now like to address the underlying issues regarding the importance of Shannon Airport to the economics of regional Ireland.

Foreign Direct Investment:
Constant regional access is vital if FDI is to continue unabated into the Shannon region; time-poor multinationals need to be able to access their sites as quickly as possible. The success of the "Shannon Free Zone" through the years highlights the interest that multinationals have in investing in the West. However, it goes without saying that a fully functioning airport is one of the vital pieces of infrastructure upon which their decisions are based, particularly when one considers the export-oriented policies that these companies generally adopt. It should be noted also that the benefits of such FDI do not accrue to the Shannon region alone; a more appropriate way of looking at the airport is as a gateway that diffuses growth throughout its "zone of influence" i.e. the western, and to a lesser extent the southern, seaboards.

Import/Export Requirements:
The Shannon region specialises in many high-value, low-bulk products such as

[10] Thompstone, 2001

[11] Irish Independent, 29th November 2001

[12] Irish Times, 3rd December 2001

[13] Limerick Leader, 1st December, 2001

electronics, chemicals, engineering and pharmaceuticals, products that are ideal candidates for export by air. Indeed, in the year 2000, over 180 companies such as Tellabs, Molex and Cybex exported some 43,000 tonnes of cargo through Shannon Airport.[14] Given Ireland's orientation towards modern industries, and the accompanying pressures of globalisation, JIT (Just-in-Time) production and sophisticated supply-chain management requirements, the need will increase for a level of responsiveness that only an efficient air transport system can give.

Cargo Hub:

Currently, the west of Ireland has an underdeveloped air-cargo infrastructure, and consequently it must rely heavily on road transport of freight via airports such as Dublin, London-Heathrow and even Frankfurt.[15] Not only does this delay production and cause undue levels of road congestion, it also represents a 'missed opportunity' for Shannon Airport in terms of establishing itself as a cargo hub. Table 2 demonstrates this missed opportunity in recent times, by showing how growth in cargo transport at Shannon is remaining somewhat static relative to Dublin.

Table 2. Adapted from Aer Rianta Annual Report (2000)

Cargo Transport at Shannon (% of Dublin)	
2000	35.59
1999	31.62
1998	32.70
1997	32.21

Cargo transport is a function for which Shannon Airport is ideally placed to exploit. Firstly, it has the spare capacity that simply does not exist at Dublin, with the cargo growth rate of 21% versus 9.9% at Dublin over the years 1997-1998 indicating possible capacity restraints at Dublin. The COFAR Airport Studies would concur with any redistributory move towards Shannon; as they say, Secondly, Shannon Airport is not constrained by the night-flight curfews affecting many other airports, and as such could operate on a continuous basis. In fact, such are the time constraints of modern production, the ability to operate through the night would lend

[14] RTE News, 13th November 2001

[15] Yahoo Finance, 18th March, 1999

Shannon a considerable advantage.

The Government, Shannon & Dublin

There are several adjectives one could use to describe the Government's position on both Dublin and Shannon Airports – confused, weak, and out-dated all seem appropriate. Indeed, the debacle surrounding the construction of the low-cost Pier D at Dublin Airport, which is now almost certain to proceed, is hardly the first instance of infrastructural development in this country in which Government action has been lacking.

Two examples, chosen from many, clearly highlight the reasons why I lack faith in our Government's policy stance on air transport. The first one refers to the fact that the Government claim to support the continuation of the Shannon stopover, and yet it is the withdrawal of flights from transatlantic routes by "their company" i.e. Aer Lingus, that is placing considerable burden on Shannon at the present time. Secondly, in a recently released report prepared by the Department of An Taoiseach to investigate the effects of September 11th on Irish tourism, the only reference to Shannon Airport was '*to develop appropriate strategies to increase traffic through Shannon*'[16]. The inadequacy of this response is exacerbated by the recognition by the Government of both the direct impact Shannon has suffered in the wake of the attacks last autumn, and the current under use of resources at Shannon.

Debate has taken place in Ireland for a considerable period of time as to how various actors and institutions would like to see aviation progressing in this country. One side of the argument is synonymous with the Government, and Minister O'Rourke in particular. For several years, the minister has made it clear that she does not subscribe to the conditionally of providing a low-cost base at Dublin Airport for Ryanair in return for Michael O'Leary opening up new routes from Shannon. Her department wishes to see the development of flights at Shannon regardless of the "Dublin designs" of low-cost carriers, and advocates marketing support and other financial concessions to new routes established at Shannon.

Michael O'Leary sits at the opposite end of the spectrum, believing that his efforts to stimulate aviation in Ireland are constantly thwarted by an Aer Rianta monopoly that creates Europe's highest landing fees at Dublin Airport. The development of a low-

[16] Seanad Debates, 29th November 2001

cost hub at Dublin is his primary objective.

The recent release of a report by Riagis Doganis has not provided total clarity on the issue. On one hand, the report criticises the use of low-cost access as the primary stimulus for attracting carriers, as he believes this cost has little impact on routing decisions, particularly at hub airports like Dublin. Doganis points to Stansted airport as evidence that high costs have not deterred investment by Ryanair in the past.[17]

Table 3. Obtained from The Irish Times – 26/01/02

Airport	Charge (£Stg.)
Gatwick	13.09
Stansted	13.09
Frankfurt-Hahn	8.19
Beauvais	7.73
Glasgow-Prestwick	10.10
Dublin	9.61

It should be noted, however, that Michael O'Leary disagrees with the cost statistics as shown in Table 3, probably based on the fact that these statistics include tax charges.

However, the report would also have pleased Ryanair, in that it sees the development of Pier D at Dublin as a viable option, provided it is open to all airlines. In relation to Shannon, the report will disappoint many in that it offers little in the way of suggestion for this airport other than reiterating the Government held position of providing more marketing and financial support.

In my opinion, much of the debate surrounding the future of Irish aviation is not of the healthy variety that advances economic democracy. Rather, much of it is little more than petty squabbling, steeped in political history. Clearly, it is the removal of this political aspect that holds the key for the future, necessitating the ending of the Aer Rianta monopoly to allow airports such as Shannon and Dublin to be dynamic in attracting new business in a manner that is just not possible under the restrictive current arrangements.

[17] Irish Times, 26th January, 2001

This argument presupposes the existence of there being enough "room" in the economy for two airports such as these; this is a supposition that I believe to be easily justifiable. I have identified earlier how important Shannon is to regional economic development, a fact that confers benefits on a national scale also, in light of the pressure that such development alleviates in the Dublin region. The converse is also true; as Bord Failte have commented, a rising tide at Dublin also helps the regions. Rapid growth at Dublin Airport, and to a lesser extent at Shannon (see Table 1) shows how important efficient airports are to our open economy. Currently, an imbalance exists, with congestion issues at Dublin coinciding with under-use of the 4 million passenger potential at Shannon. The need for increasing capacity at both airports in future will also become a primary objective. The Dublin Chamber of Commerce[18] has predicted passenger numbers of 23-28 million for Dublin by 2010, with the corresponding figure for 2020 being 30-35 million, according to the COFAR Study.[19] With long-term development at Dublin expected to push capacity up to only 20 million by 2010, it is clear that Shannon, with its full international facilities, has a vital role to play both on its own merits, and as an alternative to Dublin.

Conclusion

Although Ireland's economic miracle of the 1990's has made this small island a high-income economy, there is a danger in confusing us with the truly wealthy countries of this world, such as Germany, Sweden or the USA. Why do I make this distinction? Basically, I do not feel that we have the underlying infrastructural solidity of the kind that provides these countries with a relatively stable and unshakeable type of long-term prosperity. As such, I find the position of ambivalence towards Shannon Airport adopted by many in this country rather confusing. Shannon Airport represents a fine piece of infrastructure of the kind that this country generally lacks, and rational economic thought indicates that it could easily be used more effectively as a driver of growth. If I could make one recommendation to the Government of this country, it would be to turn Shannon Airport over to the competitive private sector, so that those who are willing and able to exploit the viability of the airport can have the opportunity to do so.

[18] Dublin Chamber of Commerce, 1997

[19] Stanley Associates, 2000

Bibliography

Aer Rianta. *Annual Report 2000.* www.aer-rianta.ie

Clare Champion (Online Edition). 'New Tourism Alliance Seeks Low Cost Access to West'. www.clarechampion.ie

Dail Debates. (27th November, 2001) Official Report. www.irlgov.ie

Department of Public Enterprise. (11th November, 1999) Press Release. *O'Rourke Calls on Ryanair to Utilise Shannon.* www.irlgov.ie

Dublin Chamber of Commerce. (1997) *Dublin Airport – An Engine for National and Regional Growth.* Dublin: Dublin Chamber Publications.

Fitzpatrick Associates Economic Consultants. (2001) 'Spatial Spread of Tourism & Extending the Season.'

Glover, V. (2000) *Airport Development Opportunities.* Showcase Europe Publications. www.sce.doc.gov

Government Publications. (2000) *National Development Plan 2000-2006.* www.ndp.ie

Irish Independent. (November 29th, 2001) 'Tourism Row gets Down to Dublin versus the Rest.'

Irish Independent. (November 29th, 2001). 'Shannon needs more Flights to Survive.'

Irish Independent. (November 30th, 2001). 'West Facing 25% fall-off in Tourist Numbers.'

Irish Times. (December 3rd, 2001) 'Securing new Business for Shannon a Challenge.'

Irish Times. (January 26th, 2002) 'Doganis Report Released.'

Limerick Leader - Business Features. (1st December, 2001) 'IBEC Supports

Shannon Move'. www.limerick-leader.ie

RTE News. (13th November, 2000) 'IBEC Calls for Shannon Airport Strategy.' www.rtenews.ie

Ryanair Press Release. (December 2000) 'Ryanair Resubmits Proposals for new Routes at Dublin and Shannon.' www.ryanair.com

Seanad Debates. (11th October, 2001) Official Report. www.irlgov.ie

Seanad Debates. (8th November, 2001) Official Report. www.irlgov.ie

Seanad Debates. (29th November, 2001) Official Report. www.irlgov.ie

Stanley Associates. (2000) 'Final Report – COFAR City Airport Development.' www.stanleyassociates.co.uk

Sunday Tribune. (25th November, 2001). 'Better Value, but for Whom?'

Thompstone, K. (July 26th, 2001) 'Response to Commission for Aviation Proposals on Maximum Airport Charges.' Shannon Development Release.

Yahoo Finance. (18th March, 1999) 'Shannon Reinvents itself as Cargo Hub.' www.biz.yahoo.com/ifc/ie/news

Trinity–Oxford Inter-Varsity Economics Debate

Laura Watts – Debates Manager

The Student Economic Review also organised this year's inter-varsity debate between Oxford University and Trinity College. Laura Watts, the Debates Manager, now discusses this year's debate.

On the evening of Wednesday February 20th 2002, in the newly refurbished chamber of the GMB, the Inter-Varsity Economics Debate between Trinity and Oxford was hosted by the College Historical Society, with Prof. Antoin Murphy in the chair. The adjudication panel consisted of Ms. Claudia Schmitz from the German Embassy, Mr. John Fennerty from the American Embassy and the chair of the panel, Mr. John Rankin from the British Embassy.

The motion before the house was "Boston or Berlin: that the Euro-zone should embrace the American model".

Robert Cuffe opened the case for Oxford. He defined the motion in terms of Public Service provision, and stated that there existed significant advantages of private provision of Public Services as in the American model. He stipulated, however, that this did not include natural monopolies, such as rail transport, which should be publicly provided. He argued that Oxford resented the idea of a "nanny state". He believed that basic services, such as health-care, were qualitatively better in the USA, and offered the evidence that more research was carried out in America, which resulted in 90% of new drugs being brought out in the American market first. He cited the privatisation of Telecom Eireann as a move towards the American model, which resulted in lower prices and a better quality of service.

David Comerford, from Trinity, opened the opposition's case. He congratulated Robert Cuffe on his proposal, and stated that it was good *'if you belong in the top twenty per cent of earners'*. He argued that the role of economics was to serve society, and that the European model *'caters for society as a whole, and not just for those that can afford it'*. He put forward the case that due to the positive externalities created by such services as health-care and education, that it was necessary for the government to intervene, otherwise there would be under-provision of these services. He asserted that in countries where health-care was universally provided, a smaller percentage of GDP was spent. He also believed that equality was a good thing because it was simply *'unpleasant to see people suffer'*. He expanded the debate to include the issues of economic growth and productivity. He contended that

when viewed over the longer-term, the Euro-zone had a superior economic performance, and that the best way to ensure equality was in ensuring high employment levels through stable economic growth. He closed his speech by wittily playing on the wording of the motion: *'In the words of that famous Bostonian "Ich bin ein Berliner".'*

To continue Oxford's proposition, Andrew Charleton, took a hard stance on inequality. He conceded that inequality did exist in the USA, but that it did not matter. As one of the richest countries in the world, the poor in America were only poor in relative terms, and not absolutely poor. He went on to state that the inequality that existed was a necessary and good thing, for both rich and poor. This inequality was needed in the Individualistic approach taken in America, as it generates innovation through incentives to the individual; underlined by the importance placed on being first. He believed that "creative destruction" was at the heart of the American model, which was accompanied by deregulation of markets, mobile capital, and a flexible labour market. He mentioned the recent collapse of Enron, as an example of how the American model would facilitate the creation of a new business in its place. On an international level, he argued that nations' economic performances worsened in relation to its divergence from the American model of Tom Friedman's *Golden Straightjacket* of deregulation, balanced budget and privatisation.

Bríd McGrath, next up for Trinity, sneered at Andrew's *'Britney Spear's case'*, because he was hoping *'if you say it, then people will believe you'*. She argued that the unemployment statistics in the US were heavily distorted, as after twenty-three weeks of unemployment people were simply taken off the register. With regard to unemployment, the *'government not just had the right, but also a duty to intervene'*. The European model provided a safety net for those who were unemployed for long periods. She felt that although Europe spends less of its GDP on health-care, it had much better services across the board, and that you need look no further than the TV show *ER* to see that *'America was not a good place to be sick and poor'*. Bríd refuted Andrew's claim that it was only relative poverty that existed in the USA, as there were places in which absolute poverty did exist. Enron was brought up again, and Bríd contended that the lack of regulation coupled with the need to be number one, led to corruption and creative accounting practices which resulted in its collapse. She added that although the workers may find jobs in the new businesses which Oxford claim will emerge eventually, the repercussions are far reaching, and its effects on people's pensions may be quite serious.

Oxford's final speaker, Ewan Smith, asked the questions: *'Which model generates wealth better?'* and *'Which distributes that wealth in the best way?'* He argued that the American model won out on both fronts. He said that America managed to generate more wealth than its European counterparts. The lower unemployment rates in the USA, were a clear result of the model, and that long-term unemployment was not a problem, as it was easier to find work. He stated that this was not the case in Europe where those seeking employment were hampered by the *'insider/outsider'* problem which was in existence on this side of the Atlantic. He again reiterated the case for the private provision of public services, by mentioning the high standards achieved by American medicine. On education, he claimed that the uptake of tertiary education in America was far higher than that of Europe, 50% compared with 15%. He concluded that while inequality did exist in the USA, that it was only in relative terms, and that the American poor fared quite well.

Jim McElroy concluded the case for Trinity. He felt that the debate contained three major issues, that of the role of the state in service provision, economic performance, and the issue of inequality. He restated the case that Europe's smaller expenditure on health yet higher standards were a clear testament to the justification of state provision of such services. With regard to economic performance, Jim asked *'why was America in recession, if its model was so good?'* He felt that Europe had a much steadier GDP growth over the long term when compared with a more volatile situation in the USA. He pointed out that some of America's increase in GDP could be explained by mere demographic change. He also added that productivity per labour hour was much higher in Europe. On the issue of inequality, Jim argued that relative poverty was the only type of poverty which we need be concerned with, as *'the driving force behind capitalism was relativism'*. He concluded that when the top and bottom quintiles of income levels were examined, the Euro-zone fared significantly better in terms of equality.

The adjudicators declared Trinity as the winning team, and commended Jim McElroy, of Trinity, as the Best Speaker of the evening. The motion was put to the house and was massively defeated. The assembled crowd retired to the Hist Conversation Room for the awaiting reception.

I wish to thank Carol Newman, Colin Andrews and Dr. Paul Walsh for their help in preparing the Trinity team, Prof. O'Hagan for his assistance to me in putting the evening together, The Hist for hosting the proceedings, and most importantly Harry Hartford our very kind and continuing patron of such debates.

Student Economic Workshops

Orson Francescone - Workshop Convenor

The Review was also active in other areas this year. The Workshop Convenor organised four workshops, all of which were extremely successful. Orson Francescone now tells about each of this year's workshops.

The Student Economic workshops have become a regular feature of the academic year of an economics student at Trinity. Year after year, the interest in the workshops by students has been increasing and this is reflected in the growing number of people attending them. Workshops, conferences and seminars are usually attended by professors, lecturers and post-graduate students and are seldom purposely aimed at an undergraduate audience. The purpose of the SER workshops is to present students with an opportunity to attend a talk on a topic in economics that will be interesting, presented in a clear style, and possibly be useful in complementing some of the material that is covered in regular courses.

WORKSHOP N°1
HOW ECONOMICS DRIVES COMPETITION POLICY. 16TH JANUARY

A "special" speaker kicked off the series of workshops. Dr.John Fingleton, Chairman of the Competition Authority, was in fact the first editor of the Student Economic Review back in 1987.

Dr Fingleton began by examining why there is a need for competition policy explaining how market failures arising from monopoly power and collusive agreements can lead to substantial welfare losses. He then moved on to how competition policy works in practice outlining the issues of market definition, the calculation of harm, and the possible remedial action by providing examples of Irish industries which had violated antitrust laws. Dr Fingleton ended the workshop with an overview of the Authority's structure and its legal standing and a summary of policy issues to be addressed in the future.

WORKSHOP N°2
APPLIED ECONOMETRICS: A STEP BY STEP GUIDE. 25TH JANUARY

In the second workshop Ms Carol Newman, in an informal and non-technical manner outlined the main issues involved in the use of econometrics as a practical

tool. She began by explaining how to formulate an econometric model and the issues concerning the gathering and processing of data. The issue of model estimation and interpretation of results were then addressed. In this respect a most helpful bonus was that of a detailed explanation of the "dreaded" regression output table. This workshop proved to be particularly interesting for JS students working on their econometrics project and outlined the fact that econometrics is not all about indecipherable theoretical models but that it can be a useful tool when it comes to applying and testing economic theories.

WORKSHOP N°3

BOOM TO BUST: IS THE IRISH ECONOMY ON THE SLIDE? 30TH JANUARY

A huge number of students attended a most interesting presentation by Mr Danny McCoy and Mr Conall MacCoille from the Economic and Social Research Institute. Given the recent developments in the world economy, we were all eager to hear what the future had in store for the Irish economy. Mr McCoy and Mr MacCoille explained that while the economy was slowing down from its rapid growth phase, the slowdown is expected to give way to a recovery by the end of 2002. They also did not expect unemployment to rise considerably while inflation still remains a significant factor. The 2002 Budget was seen to be mildly stimulatory for the economy which was not deemed inappropriate given the below trend situation. However, attention was drawn to the significant deterioration of the General Government Balance. Finally, the introduction of the Euro was seen to have little direct impact on the Irish economy, but the prospect of a significant EU enlargement in the near future would provide both opportunities and threats for the Irish economy. While acknowledging the significant economic slowdown, we were somewhat reassured that Ireland is not about to go bust!

WORKSHOP N°4

PREPARING FOR THE SCHOL EXAMS:A PRACTICAL GUIDE 18TH FEBRUARY

The final workshop was given by SER Committee members; Ivan, Ross, David and April, who had all sat the Schol exams last year, to this year's BESS Schol class.
The workshop turned out to be most helpful with many questions coming from a somewhat apprehensive group of students. Ample reassurances were given and practical tips with regards to time management, study skills and sources of information for that "perfect" general paper answer were provided. We concluded

by inviting, as per tradition, the Schol class to the launch night of the Review, where hopefully they can relax after the "tour-de-force" they will have endured.

On my part, I would like to thank everyone who attended the workshops. I hope you found them of interest and gained an exclusive insight into the various themes that were covered.

I would like to thank the staff of the Department of Economics for their invaluable assistance in publicising the events and continuous support in making them a success. I also want to thank the SER committee for their contribution to the workshops. I hope that future committees will continue to support this tradition and endeavor to make it as successful as ever.

Road Pricing: An Economic Analysis

Sarah Meredith and Niall Jones - Senior Sophister

Niall Jones and Sarah Meredith examine the economics of road pricing. They begin by outlining how congestion pricing increases efficiency and can help maximise welfare. They then examine in depth several different attempts at road pricing throughout the world and conclude that by using economic analysis and congestion pricing, it is possible to make the best use of scarce road space and increase efficiency.

Introduction

'If all economists were laid end to end, they would not reach a conclusion.'
George Bernard Shaw

Tolling, as one of the best mechanisms for congestion management, will be investigated in this research paper. By looking at the specific methodologies and available pricing techniques for traffic management, it is hoped to highlight the merits inherent in tolling as an effective contemporary policy tool. Freight and passenger traffic forecasts will be considered separately, as will the important distinction between shadow and the more traditional forms of real tolling. Empirical evidence shall be utilised to reinforce these policy recommendations. The case study has an atypical payment schedule linked to congestion, based on traffic flows and average speeds. A number of novel tolling approaches, which include elements of new technology to alleviate congestion problems, will be looked at, namely smart cards and hot-lanes.

Road pricing is the best instrument to internalise the cost of congestion. Initial installation costs are high, though these may be recouped over the lifetime of the road in the form of efficiency gains. Economists strive to set incentives so that the resources are allocated as efficiently as possible. Baumol observed that radical changes in transport policies came along at the beginning of the 1980's and were largely supported on a theoretical basis by the concept of contestable markets (Baumol, Panzar and Willig, 1982). Newberry (1990), noted that *'road space is a valuable and scarce resource'*, we believe it ought to be rationed by a price mechanism, and it is this price mechanism which is the central thrust of our argument.

What is Congestion Pricing?

Transportation policy makers and economists view congestion pricing as an important part of the solution to growing highway congestion in urban areas. In many sectors of the economy - telephone services, public utilities, and air travel businesses use something akin to congestion pricing as a solution to congestion problems in urban areas, it allocates scarce capital assets in peak demand periods, but its use for road congestion is a very recent practice. It was originally introduced in Singapore in 1975, other countries did not follow suit until the 1990s. Currently, Norway and France are using congestion pricing and other countries around the globe are also considering its use. In the USA, a variable-priced toll road opened in late 1995 in California.

Many forces have caused transportation authorities to consider congestion pricing. These include:

- Continuing growth in urban travel demand.
- Realisation that construction of additional road capacity may not always be possible or desirable.
- The advent of new electronic tolling technologies that greatly reduce implementation costs.
- A desire for cost-effective strategies to reduce mobile-source air emissions and energy consumption.
- The need for new revenue sources for infrastructure investment.

The full cost of a trip on a congested road includes not just a traveller's own time and vehicle operating costs but also the costs that each traveller imposes on all other travellers by adding to the level of congestion. Market prices do not internalise externalities, which spill over. To maximise welfare, it is imperative to account for these neighbourhood effects.

A congestion price is a user charge based on a user's perceived cost when entering the traffic stream and the actual congestion cost created by the traveller's entry onto the system. It results in more efficient use of limited road capacity by encouraging those who value their trips at less than their full cost to shift to off-peak periods,

mass transit or car-pooling, and/or to less congested routes. Determining optimal congestion prices is difficult. Estimates can be based on the traffic-engineering literature that deals with the relationship between travel delays and traffic volume. Analysts have derived estimates of "optimal" congestion prices on the order of $0.15 to $0.25 per vehicle mile of travel on congested expressways in the US and about twice that amount on congested arterials. These are only approximate averages. Actual optimal prices must be estimated for each local context. Although congestion pricing holds great promise as a way of rationalising the use of scarce urban road space, many cities have been reluctant to implement it because of institutional barriers and the lack of political acceptance. Critical political and institutional issues include public opposition to any new taxes or fees, geographic and economic equity concerns, lack of regional transportation co-ordination, and the lack of alternatives to driving alone during peak periods.

Methods of Payment

Having read the report *'A Matter of Congestion: An Initial Report to the Environmental Task Force of the City of Toronto'* by Joseph Dadson from the University of Toronto, pragmatic solutions aimed at curbing personal car travel into Toronto are offered and we intend to generalise the findings of this report and detail other international examples. The report examines the various economic disincentive mechanisms that are currently in use in many other parts of the world.

It is recommended to:

- Introduce congestion pricing for Toronto.
- Integrate this congestion pricing mechanism with a combination of other initiatives.
- Use the revenues for investment into public transit.

Cars accounted for 72% of all trips undertaken by Toronto residents within a 24-hour period in 1991. In the last few years, a significant amount of effort has been put towards investigating various options for reducing personal car usage in Toronto.

Surveying different economic disincentives for car use can be problematic if no criteria are defined to properly ascertain the effectiveness of any one initiative. Thus,

we shall examine the criteria published in the report *'Road Pricing: The Economic and Technical Possibilities'*, otherwise known as the *'Smeed Report'* criteria, this provides a useful starting point for evaluating different car-usage disincentives. The 18 operational requirements of a "road pricing" scheme are as follows:

- Charges should be closely related to the amount of road use.
- It should be possible to vary prices for different roads at different times of the day, week, or year, and for different classes of vehicle.
- Prices should be stable and readily ascertainable by road users in advance of their journeys.
- Payment in advance should be possible.
- The system should be regarded as fair.
- The method should be simple for road users to understand.
- Equipment used should be highly reliable.
- Payment should be difficult to evade.
- Systems must be able to handle real-time volumes of vehicles.
- Payment in small amounts should be possible.
- Drivers in high-cost areas should be aware of their payment rates.
- Drivers should not be "unduly" distracted from their driving activities.
- The method should be able to accommodate users from other areas.
- Enforcement should lie within the capacities of non-police staff.
- The method could be used to charge for street parking.
- The method should indicate to planners the strength of demand for road space.

- The method should be amenable to gradual introduction.

- The payment process should not necessarily identify payers or vehicles, as privacy is an important issue.

Licensing Schemes

Licensing schemes are simple, cost-effective and versatile and can be implemented in a variety of different ways. For example, daily licenses could be sold in books, with refunds obtainable for tickets not used. Different prices may be charged in different zones depending on traffic intensity. Time-of-day variations are also possible, with weekend and/or "off-peak" licenses made available for a cheaper cost than "on-peak" licenses.

It is important, for the sake of balance, to note the disadvantages of such schemes. Due to the discrete delineation of licensing boundaries, injustices can develop due to the fact that areas just inside charged zones are treated quite differently from areas that lie just outside the boundary. Secondly, because a licensing scheme would amount to a flat rate charge for vehicle use, road users travelling long distances within the priced zone would pay no more than those travelling only short distances, thereby encouraging drivers to "make the most" of a licensing expenditure by driving longer distances within the charged zone.

We shall now briefly mention Singapore as a pioneer in licensing disincentives. It's Area Licensing Scheme (ALS), is by far the most established and extensively studied example of the use of supplementary licenses as an indirect charge for road use. It was originally implemented in June 1975, the original scheme required drivers entering the downtown core in the morning peak period (approximately 7:30 am - 10:15 am), to display a daily or monthly license. Buses, motorcycles, service and military vehicles and cars carrying four or more passengers were exempted from payment; taxis were required to pay half of the regular fee. Since 1975, the ALS has undergone several revisions in response to changing traffic patterns. For example, in 1994, Singapore traffic authorities instituted similar restrictions on afternoon peak traffic, due to surprisingly heavy afternoon volume despite restrictions in morning flow. From a technological standpoint, the ALS is very simple, yet effective. Licenses are obtained either via mail order or from booths away from zone entrances; enforcement is performed by police personnel, and involves visual inspection, the use of tape recorders to note the license-plate numbers of violating vehicles, and billing vehicle owners the appropriate fines.

The next brief example was derived in 1991 in when the city of Trondheim (pop. 140,000) in Norway launched an electronic cordon-pricing scheme. A fee of 11 Kroner is levied for automobiles crossing a "toll ring" surrounding the city centre. The system includes time-differentiated tolls (a slightly higher fee during the morning peak hours, with free passage after 5:00 p.m. and on weekends.) Unlike Singapore, the Trondheim initiative does not require the purchase of monthly licenses; approximately 80% of the automobiles using the system are tracked by electronic tag. Motorists are levied for each inbound crossing (a maximum of 1 passing per hour and 75 crossings per month for cars with a tag.) The Trondheim example also takes vehicle weight into account, with heavy cars (above 3500 kg), incurring twice the normal fee.

Case study: Congestion Charging in London

Central London suffers the worst congestion in the UK, costing people and businesses both time and money, adversely affecting quality of life. The proposed congestion-charging scheme, part of Ken Livingstone's *'Draft Transport Strategy'*, is designed to discourage unnecessary car journeys into central London. Studies show that congestion charging would reduce traffic in the central area by 10-15% and reduce queuing delays by about 20-30%. It would also help to reduce congestion beyond the charging area. The proposed scheme suggests that the charge for driving in central London should be a flat fee of Stg.£5 per day for all vehicles. There would be 100% discounts for emergency vehicles, London buses, licensed taxis, certain vehicles used by disabled people and vehicles, which use alternative fuel, as well as a 90% discount for residents who live within the charging zone. Motorcycles would be exempt from charges. The charges would apply from 7am to 7pm from Monday to Friday.

Drivers would purchase a daily, weekly, monthly or annual license linked to the registration of their vehicle. Payment could be made by post, telephone, retail outlets or the Internet. The scheme would be enforced via vehicle registration numbers being monitored by fixed and mobile cameras linked to automatic number plate recognition technology as well as street patrols. There would be a Stg.£80 penalty charge for non-compliance, reduced to Stg.£40 for early payment. The proposed charging scheme will have the added benefit of producing substantial net revenues of around Stg.£190 million per year, which by law must be spent on improving transport within Greater London for a minimum of ten years. Priorities for spending in the short term include making radical improvements to London bus operations,

including an expansion of the network, improved journey times and reliability. Time has been spent working with the Greater London Authority to consult key groups and businesses, as well as all Londoners, about the proposed congestion-charging scheme for central London. This has included an initial discussion paper in July 2000, to key stakeholders in the capital and the Draft Transport Strategy. On the technical front, TFL Street Management has developed an experienced project team to study the feasibility and potential impact of the proposed scheme to aid the Mayor's decision-making process on whether to progress or not. Should the Mayor decide to include the scheme within his final Transport Strategy, TFL Street Management would prepare scheme and traffic orders to bring the proposals into operation. These would set out in detail how the scheme would operate, for example, giving a precise definition of the charging area, street by street. There would be separate consultations on these orders. The target date for the start of the proposed scheme would be early 2003.

Political Issues in Congestion Pricing

Fred Salvucci of MIT highlights the contemporary political issues which arise in the implementation of congestion pricing mechanisms. The odds are against convincing the public that a tax is good for them. But a tax on congestion is unique in that it improves economic efficiency. Ways to improve its chances for success include:

- Provide choices.

- Use revenues to benefit those most hurt by the fees. Access is a unique good; we must ensure that we are not denying people access by pricing them off the road.

- Target congestion pricing in other areas like aviation (runway pricing). This is very compelling with virtually no equity issues. If we cannot make congestion pricing work at airports, we should abandon the whole thing. If we show some dramatic gains in that area we may be more successful on the surface transportation front.

There are three groups to consider when thinking about congestion pricing:

The "tolled" are the people who stay on the road and pay the toll. In principle, their choice to remain on the road suggests that they are benefiting more in time than they are losing in money.

The "tolled off" are the people who shift off the facility to avoid the toll. They are worse off than they were before the toll was established, and are likely to be unhappy about it.

The "untolled" are the people on parallel facilities, who are adversely affected by the tolled-off group. If they are passengers, they may actually benefit from the higher services implemented to meet this additional demand. But if they are drivers, they may lose if their roads become more congested. They are generally outside the calculus of modelers studying the costs and benefits of pricing.

When politicians oppose congestion pricing, they know something that we should be thinking about: it would create many losers. In Cost Benefit Analysis terms, congestion pricing is attractive if social benefits exceed the social costs, in this case if the benefits that accrue to the tolled groups exceed the costs to the tolled-off and untolled groups, the project should be adopted.

The idea that tolls must be revenue-neutral is a mistake. If we are serious about equity, we need to use the revenues to address the needs of the tolled off and the untolled. Among the tolled-off, we should not be looking strictly at the distribution of income. It would be better to recognize the degree to which congestion pricing may be limiting people's access in ways that are more significant than simple income differentials might indicate. Offering choices would make this more palatable. People have a high value of time at particular times, and would value the choice to be able to pay to take a faster route when they want it. In Boston's western end (where there is a choice), there is greater support for tolls than on Boston's eastern end (where these is not a choice). In trying to balance environmental concerns with equity, deeper subsidies for everybody are needed.

Another place to start experimenting with congestion pricing would be the use of airport runways. The case for congestion pricing at airports is extremely compelling. It presents no equity problems, since most users are passengers (general aviation is a small but vocal minority). There is a place for people to go to save runway time: larger aircraft. This could be the place to demonstrate dramatic efficiency gains without creating equity problems, and could change the policy landscape for congestion pricing elsewhere. But, if we cannot make congestion pricing work at airports, we should stop talking about implementing it on roads.

Case Study - Review of Payment Mechanism and Traffic Projections

This case study comprises the operation and maintenance of 53 km of the A1 (M) trunk road in the UK, which includes a new build of 21.75 km of dual 3-lane motorway, in respect of the A1 (M) Wetherby to Walshford and the A1 (M) Ferrybridge to Hook Moor schemes. The project itself, currently under tender, has been structured largely along the lines of the previous Highways Agency DBFO road projects, except for the introduction of a new payment mechanism linked to congestion, measured with reference to traffic flows and average speeds, thus our focus on this particular scheme. The tender documents envisage a concession period of thirty years.

This Active Management Payment Mechanism scheme is a particular type of shadow tolling. DBFO will design, build, finance and operate the road and undertake maintenance under the scheme. Payment will be made not on the traditional volume basis, but rather on a fixed rate system depending on certain average speeds and traffic flow thresholds on each carriageway section for each hour of each day.

Deductions to this payment will be made if these thresholds are not met and a corresponding bonus is awarded for superseding these targets. No hourly congestion management payment will be made for any particular carriageway section if for any part of the hour the carriageway section fails to meet any of the set condition criteria. Reduced payments will occur for a particular carriageway section if during an hour both the target speed is not achieved and the vehicle flow for that hour is less than the deemed capacity for that carriageway section. No payment will be made for a particular carriageway section if both the section average speed achieved for that carriageway section drops below 2/3 of the target speed (90 kph or approximately 56 mph), and the vehicle flow during the hour is less than 80% of the deemed capacity. A bonus will be added to the payment for a carriageway section if its vehicle flow for that hour exceeds 110% of its deemed capacity, and section average speed for that hour exceeds 2/3 of the target speed. The bonus is subject to a cap equal to 20% of the payment for that carriageway section. This cap is reached when the vehicle flow exceeds 120% of the deemed capacity for the carriageway section and section average speed exceeds the target speed. Between these two extremes, the amount of the bonus will vary linearly with both flow and speed.

It is envisaged that there will be 50 carriageway sections, covering the north and southbound A1 (M), each being about 2km in length. Tender submissions will bid a

Base Annual Gross Congestion Management Payment, a proportion of which will be subject to annual indexation. The overall payment for a given Contract Year is then divided into equal weekly amounts and from that an amount for each individual hour on each Carriageway Section is determined.

The weekly amount will be divided into hourly amounts on the basis of the vehicle kilometres on each Carriageway Section as a proportion of the total weekly vehicle kilometres on the entire Project Road, for the corresponding hour of the day, averaged over the previous four-week period. It should be noted that when vehicle kilometres or vehicle flow are referred to, vehicles will be measured in units with 1 unit for a car and 2.5 units for larger road vehicles. The factor of 2.5 reflects the different characteristics and road space requirements of long vehicles. While the payment for each hour and for each Carriageway Section will vary from week to week, at the start of each week the gross payments (i.e. before deductions and bonus payments) allocated to each Carriageway Section for each hour of the day can be pre-determined.

For instance, at a speed of 10km/h, and a traffic flow of 110% of deemed capacity – the full payment will be made, with no bonus and no deduction. At a speed of 90km/h, and a traffic flow of only 5% of deemed capacity on the stretch, full payment will also be made. While with a speed of 90km/h and a flow of 110% of deemed capacity, a bonus will be paid along with the full payment.

We believe that although this method of shadow tolling is untried and, therefore, carries perhaps an extra element of risk, the congestion projections are not prohibitively high so as to jeopardise the necessary cash flows, for the life of the concession.

As payments to the DBFO will be linked primarily to the management of congestion, we will look at the Consortium's traffic estimates for the new route. MVA were engaged on behalf of the Consortium to advise on traffic-related matters and produce traffic forecasts for use in developing the bid structure.

Two traffic models have been used to produce the traffic forecasts, a strategic TRIPS model and a detailed micro-simulation GETRAM model. The main function of the TRIPS model is to take account of the wider network and routing choices in order to determine how much traffic wishes to use the whole A1. It models a 12-hour average weekday period, 0700 to 1900 hours based on a variety of traffic count and origin-destination (O-D) surveys carried out over several years. It has

successfully been calibrated and validated to the year 2000. The GETRAM model covers the A1 DBFO project area. Its network includes full details of mainline road sections, slip roads and intersections for the A1.

The main function of the model is to produce detailed forecasts of speed and flow by hour of day and road section and for this information to then be fed into the Financial Model. The model was developed for the Highways Agency for use in developing the Active Management Payment Mechanism (AMPM), and the model is based on a combination of traffic count, O-D and journey time data. It has been successfully calibrated and validated to the year 1999. The approach adopted has been to take these two existing models and to use them as tools for producing future year traffic forecasts. Forecasts for future years have been produced, by applying growth factors to the base year traffic models. The TEMPRO database takes account of projections of future land use and economic growth for all regions of the country. It then produces projected increases in vehicle usage based on this data together with projections of population, employment and car ownership. NRTF produces one set of national projections for all vehicle types. These have been used for all non-car traffic, mainly goods vehicles and bus/coaches.

The occurrence of accidents and incidents is relevant to the project, as it will affect levels of "congestion" on the A1, leading to possible deductions in payment in accordance with the AMPM. These traffic accidents and incidents could in some instances result in the road being blocked and/or lanes being closed by the emergency services attending to the problem. MVA have made some estimates of the number of likely accidents based on a combination of data, information and assumptions. These include actual personal injury accident data for the A1, personal injury accident rates from the Design Manual for Roads and Bridges, discussions with various traffic police authorities in Yorkshire and its own professional judgement. However, the conclusions drawn do not seem to make the project overly risky. Accidents/incidents could cause around one to two days of "congestion" in any given year leading to deductions in payment, according to MVA. These have been modelled and sensitised in the financial model for the project.

Highway maintenance may also result in some deductions in payment, but these are not expected to be significant. Routine maintenance in certain situations will make it necessary to impose temporary speed limits, which will be either 50mph or 40mph. Both of these are below the 56mph (90kph) target speed of the AMPM and therefore deductions could occur under these scenarios. Major maintenance could involve lane closures for periods upon certain road sections. Together with temporary speed

limits necessary for the works, this could also lead to deductions. Emergency maintenance will be required on an ad hoc basis. The frequency of such maintenance will be relatively low and its impact on congestion and resulting deductions also low. Winter maintenance includes activities such as road gritting and as such is not expected to hinder traffic flows, but any unexpected and prolonged freak weather conditions could lower road use, but to a lesser extent than under a system of traditional tolls. These are being fed into the GETRAM model in order to assess the impact on traffic conditions under various scenarios, and for the results of these tests to be used in estimating the effect on deductions in payment.

The Tender Documents and discussions with the Highways Agency indicate that traffic/congestion management measures may be required. These measures should lower the probability of DBFO not reaching its targets and therefore, make the present values of its future cash flows more certain. One such method, ramp metering, involves controlling the volume of traffic entering a motorway system during critical peak hours. Traffic lights are installed on the slip roads leading to the motorway. When the mainline motorway traffic conditions are approaching capacity and "congestion" is predicted to occur, the algorithm changes the traffic lights to red in order to prevent further slip road traffic from entering with the aim of averting the predicted "congestion". In relation to the A1, this would equate to around a 200 vehicle per hour increase over the sections with 6,600 vehicles per hour deemed capacity.

Dynamic or variable speed control is another option. Information on speed and flow is collected and an algorithm determines the optimal speed for vehicles to travel based on the objectives of smoothing the flow and maintaining journey time reliability. Mandatory speed limits of 60mph, 50mph or 40mph are displayed on regularly spaced overhead gantries where speed cameras are also installed to deter vehicles from travelling faster. Additional signs tell drivers to keep in lane. By reducing the average speed of traffic and by discouraging lane changing, a smoother flow of traffic is promoted, as vehicles tend to drive with reduced headways. Such measures could possibly be of benefit to the A1 although the lower speed limits of 50mph and 40mph would be below the target speed of the AMPM and hence, deductions in payment would occur.

Finally, another tool, incident detection is used on many motorway systems. This largely involves monitoring the speed and flow of traffic by loop detectors. Monitoring systems then identify any unusual situations. Such systems speed up the detection of problems so that the appropriate actions can then be taken as quickly as

possible to alleviate the problem. The AMPM requires speed and flow to be measured at several points within each of the twenty-five 2km sections. An incident detection system will therefore be in place for the A1 in order to identify any problems as they occur. This should therefore promote a swift response and necessary actions.

Preliminary forecasts of "congestion" have been made based on traffic demand. These have been converted to equivalent passenger car unit kilometres according to the AMPM. The conclusions so far indicate deductions in the early years of the concession will be small. They will increase throughout the period of the concession as traffic demands increase but annual deductions will still be less than 5% even by 2032. It is extremely probable that some form of payment will therefore occur for every hour throughout the concession period. The risk on deductions increases as congestion spreads both linearly along the A1 and through time with peak spreading.

The A1 currently has traffic volumes well within its deemed capacity, and speeds are well above target speeds. Based upon the above analysis the expected reductions due to congestion have been modelled and valued for the central traffic case as follows.

Table. 2.

Date	Central Traffic Case	High Traffic Case
2006	0.00%	0.00%
2021	0.70%	1.90%
2032	3.11%	7.62%

This project exemplifies the merits of the techniques available to control congestion. It is expected to be financially viable as deductions made at the beginning are expected to be small but set to rise as traffic demand increases. By focusing on speeds and flows it makes economic sense. It is more sensible in economic terms to do this rather than solely relying on volume, which can induce severe traffic congestion.

The Future of Tolling

According to the International Bridge, Tunnel, and Turnpike Association (IBTTA), there are currently over 400 toll facilities operated by their members. Of these, about one third are in the US and most of the remainder in Western Europe, Japan, and

Mexico. Conventional tolling facilities consist of booths set up at the entrance to a roadway or bridge, and require the manual collection of road fees. Road users are required to pay a set fee for traversing the distance of the bridge or the roadway. There are several drawbacks to conventional tolling mechanisms. By requiring vehicles to stop or to slow down, manual toll collection can actually add to congestion, wasting time and raising vehicle-operating costs. Furthermore, the costs of collection (i.e., hiring staff to collect tolls) absorb revenues.

Electronic tolling is seen as the solution to the drawbacks incurred with conventional tolling procedures. The Greater Toronto Area is viewed as a world leader in the field of electronic tolling, as the newly opened Highway 407 Express Toll Route (ETR), is the world's first all-electronic open road toll highway. A multi-lane 67-kilometre stretch of highway, which traverses across the top of Toronto, has an average traffic volume on the highway of over 200,000 trips per weekday and is climbing monthly.

Any car joining the motorway is required to pass under an electronic gantry. Electronic sensors located on the gantry automatically record the beginning of the road user's trip. Upon leaving the motorway, another gantry located on the exit ramp will log the vehicle off the motorway.

Electronic detection is done in one of two ways. For frequent users, a transponder unit - a small electronic device that attaches to the interior windshield behind the rear view mirror - can be obtained to communicate with the highway gantries. Such units are mandatory for vehicles weighing over 5 tonnes. Non-frequent users, or those who do not register for transponders are tallied via a digital image recognition system that captures video images of vehicle license plates. These images are then transmitted to a central processing computer, which then bills the owner of the vehicle for the distance travelled on the motorway. A CDN$2.00 account fee is levied for each 30-day period, an individual without a transponder drives on the motorway on top of an additional toll charge of CDN$1.00 per trip for this option to cover additional cost.

Highway 407 toll-fees for passenger vehicles range from CDN$0.07 per kilometre for off-peak periods to CDN$0.10 per kilometre for peak periods. Like the Trondheim mechanism mentioned above, vehicle weight is factored into the levy system, with heavy vehicles incurring a CDN$0.14 - CDN$0.20 fee per kilometre, depending on the time of the week. One important feature to the 407 tolling mechanism is that the transponders are transferable between vehicles of the same weight class, thereby providing road users with anonymity.

Integrated user-fee technology – Smart Cards

Multi-modal Access and Payment Systems (MAPS), or "Smart Card" technology are a major advance in electronic tolling mechanisms. These systems concentrate primarily on moving more people through an existing transportation structure. Smart card systems integrate motorway and transit facilities as complementary components of an integrated regional transportation network, a concept extremely attractive from a sustainable transportation stance. Through fare integration capability, MAPS provide seamless crossover flexibility to both motorway and transit users and allow them to take advantage of the entire transportation grid.

In relation to roadway usage, the Smart Card system is almost identical to the electronic tolling mechanisms detailed previously. A card with an embedded computer chip - providing logic and "intelligence" processing capabilities and the ability to store information - is inserted into a transponder unit. The transponder records all highway information data onto the smart card for billing purposes, and just like more conventional electronic tolling mechanisms road users are charged for each kilometre driven on a priced roadway.

The Smart Card system maximises the flexibility of choice available to commuters by eliminating many of the economic and operational barriers that now influence transportation mode use decisions. Within an inter-modal system, the Smart Card is used as a universal payment medium for both highway and public transit-related fares and fees. The card unit can be removed from a vehicle transponder, and used to access the transit system via electronic readers situated at the entrance to railway stations or on equipped surface vehicles such as buses or light-rail systems such as the LUAS.

With regard to the Toronto context, the use of a Smart Card system essentially eliminates the following aspects of the existing local transit system: tokens (as Smart Cards can be used to log existing trips and billed directly to the user); physical transfer slips (when users first access the transit system, the computer can keep track of transfers through the system); and rail passes (the Smart Card will become a universal payment medium, used by both frequent and infrequent users of public transit). Another important feature of the system, already realised with the current Metropass mechanism in Toronto is the convenience: users simply have to swipe their cards through automated readers instead of having to deal with the impracticality of depositing tokens or money, thereby speeding up the rate at which

users can access the transit system.

The use of a Smart Card system is a preview to a full-length discussion of relating economic disincentives for car use to economic incentives for transit use. An inter-modal Smart Card system can charge car users for kilometres travelled on priced roads, with fees either raised or reduced depending on the time of day/day of the week travelled. This same system can be used to offer transit users discounts based on the number of trips logged into the transit system, essentially matching per-use discount rates now in place with the current Metropass system.

One downfall of the Smart Card system is its impact on individual privacy. With a system that can position an individual anywhere within a transportation grid, issues arise concerning the accumulation and the potential for distribution of information regarding the number of trips and destinations of these trips.

As mentioned in a Pollution Probe study of the environmental and social costs associated with private car use in Ontario, the term "automobile" is fast becoming an oxymoron. A growing dependence on the car is brought about through many inter-playing factors, many of which are essentially land-use issues. The mobility provided by a car allows for the decentralisation of activities from the downtown core; in turn, a decrease in core density makes public transit more expensive to finance. Though Toronto is often seen as a model for other cities in exemplifying how land use and transportation can be changed to reduce car dependence and urban sprawl, it is increasingly apparent that, as many factors in the lives of Toronto residents change, the city's favourable grid land use pattern and centrally oriented transit system has become less successful in combating the speed and convenience of the private automobile. As detailed herein, congestion-pricing mechanisms are now becoming technically viable initiatives to be implemented in Toronto. It is the desire of the City council, and that of City residents that will ultimately determine whether these approaches to diminishing private car use will become reality.

Electronic Tolling: Case studies

Single occupant cars equipped with transponders are now able to use the high-occupancy vehicle lane on Interstate 15, San Diego for a toll between US$0.50 and US$4.00 depending on traffic volumes. Electronic signs at the entrance to the High Occupancy Vehicles (HOV), lanes give solo drivers advance notice of the toll, which is collected electronically. Carpools and buses use the lanes free. Officials are using variable pricing to test the value commuter's place on the travel time saved,

and to find better ways to manage the I-15 corridor. The demonstration project is being funded by a US$8 million grant from the Federal Highway Administration.

A contract has been awarded for the supply of 600,000 electronic transponders for the 22km Melbourne City Link. When the City link opened in 1999, transponders were distributed free of charge to motorists. Tolls are deducted automatically from pre-paid accounts as vehicles pass beneath a toll gantry. Frequent travellers were issued with a transponder and digital cameras capture the number plates of vehicles without a transponder.

The trial of the Automated Highway in San Diego received considerable media attention last August. Despite this the US Department of Transport has decided to withdraw funding. The initial push came from the California Department of Transportation, which saw the Automated Highway as a solution to the problems of Los Angeles. However, it has now been decided that automated highways would not provide an answer to motorway problems in an urban area such as LA because of the large number of transitions between "manual" and "automated" highways the system would have to cope with.

It is suggested that the concept may make more sense on inter-urban routes with longer travel times and greater safety problems. The concept is, however, being investigated for application to a bus and carpool facility in Houston, Texas.

HOT Lanes in San Diego

In the I-15 corridor in San Diego, the HOV express lanes were being under-utilised. It was thought that the entire system would perform better if use of HOV lanes were maximised.

To accomplish this without eliminating incentives for ridesharing, the HOV lanes were converted to high-occupancy toll (HOT) lanes. These allow single-occupant vehicles to buy access to the express lanes for a price that is set dynamically to balance real-time demand against the requirement that free traffic flow be maintained.

A number of value pricing projects have been launched in the United States over the past 3 years. The private sector led the way in 1995 by constructing new tolled express lanes in the median of State Route 91 in Orange County, California. Tolls vary by time of day and level of congestion to maintain an uncongested alternative

along one of the most heavily travelled commuter routes in the United States. Value pricing projects have been launched in San Diego, California; Houston, Texas; and Lee County, Florida. The California and Texas projects involve tolling on High Occupancy Vehicle (HOV), lanes to make better use of available capacity.

In Houston, Texas, drivers of vehicles with two occupants can pay a fixed toll during rush hour to use an HOV lane on Interstate 10, that is otherwise restricted to vehicles with three or more occupants. The project in Lee County, Florida involves the use of peak and off-peak toll variations to provide an incentive to shift travel out of the most heavily travelled time. A number of additional cities across the United States are evaluating the feasibility of value pricing to improve traffic flows and to enhance mobility. Several of these are expected to move toward implementation in the near future. Internationally, pricing projects have been implemented recently on a new beltway in Toronto, Canada, in three cities in Norway, on inter-city toll roads in France and in the central area of Singapore. Numerous cities in the European Community (the Netherlands, United Kingdom, Sweden and Greece) as well as Hong Kong are currently conducting feasibility and implementation studies and field tests of pricing concepts.

There are some questions that cannot be modeled given our current state of knowledge; willingness to pay for HOT lanes is one of them. In this case, the project itself is a real-world experiment that will help to advance the state of the art. Hopefully, lessons drawn from this experience will be useful in helping to make decisions about future projects.

Keith Bartholomew talked about a process box. From the box's perspective, there were three issues to think about:

- The trend toward emphasising better system management over new capital improvements.
- The need to be more specific about solutions; otherwise, what is the purpose of planning?
- The potential for ITS to have large benefits if existing models serve as a platform for real-time models.

During the morning peak, there is severe traffic congestion southbound on I-15. The primary lanes run at level-of-service F, while the express HOV lanes run at level-of-

service C or better. It was becoming politically difficult to keep the HOV lanes open because they were seen as underutilized. Initially, elected officials did not understand the concept of pricing, and did not think there was anything to sell.

But ultimately, they came to see selling extra space on HOV as a means for improving their utilization, while preserving their benefits. The key to the success of the HOT lane proposal was that it preserved choice for travelers not willing to pay a toll. Goals of the I-15 project included maximizing use of the existing express lanes; relieving congestion on the primary lanes; and funding new transit and carpool services in the corridor. All revenues were to be used to further these goals.

In the initial phase, $70 monthly passes were sold to 900-1000 vehicles. During this phase, carpooling rose unexpectedly. Rising carpooling was expected in the final phase because its pay-per-use structure would facilitate occasional carpoolers. But it was unclear why it grew during the initial phase.

Under full implementation, users will buy into the express lane by paying per trip via electronic toll collection. The number of participants will be unlimited, but variable tolls will be set to ensure free-flow traffic while maximizing carpools and transit use. Signs will show real-time toll prices, so that drivers can make informed choices about which lane to use. Fee levels will be based on real-time traffic to maintain level-of-service C. The minimum toll will be set at 50 cents, and the average rush-hour toll is expected to be $3-$4 (during major traffic incidents, the toll will be capped at $8). Initially, prices will change at 30-minute segments.

The computer that sets prices uses a model, but the entire endeavor is a real-world model that can be used in the development of future modeling and/or management tools. Because fees will be determined real-time by a computer, we do not know yet what they will be. This experiment will show what people are really willing to pay.

Conclusion

Unlike most economists as George Bernard Shaw quipped, we have managed to reach a conclusion. The focus in road construction and maintenance should always be efficiency and incentives should reflect this. Managing congestion is an issue which is becoming increasingly important as the global economy is witnessing rapid growth in both vehicles and the population. Congestion is extremely costly, both in pecuniary terms and in quality of life terms. Introducing new mechanisms such as electronic tolling and the tendering of road design, maintenance, operation and

financing can serve to minimise problems associated with congestion, and by focusing on efficiency we can use economic analysis to understand.

We began by examining the disincentive mechanisms aimed at curbing traffic and congestion. The prospective Toronto scheme was detailed where congestion pricing linked to other initiatives would be introduced. Road pricing mechanisms should meet the criteria outlined in the 'Smeed' Report. Then licensing schemes as a form of payment for road use were discussed and the Singapore case study was outlined, followed by the electronic cordon-pricing scheme in Norway. A final case study in this chapter regarded London where we discussed the proposed congestion charging scheme.

It is crucial to highlight the political issues in the adoption of congestion pricing mechanisms. There will always be a group of losers and this group may be loud, but it is important not to be swayed by political lobby groups and remain focused on economic efficiency. Conducting Cost Benefit Analysis sustains an element of objectivity.

The case study highlighted a payment mechanism linked to traffic flows and speeds. We discussed the intricacies of the payment structure, but the basic idea is that as flow and speeds rise, so too does payment and bonuses. This incentive encourages efficiency. Exogenous factors such as population and traffic growth, accidents and maintenance have been included in the risk profile of the project. Higher congestion in the future has also been modeled in. This novel approach seems to make more economic sense than alternative options, which tend to be more narrowly focused on volumes as opposed to speeds and flows combined. The future of congestion management also lies with electronic tolling. By availing of advanced technologies such as smart cards, flows and speeds on busy motorways can be sustained.

Bibliography

Baumol, W. (1982) 'Presidential Address in AEA' in *American Economic Review.*

Boris, S. (1982) 'Electronic Road Pricing: An Idea Whose Time May Never Come'. *Transportation Research, 22A(1).*

Dadson, Joseph E. (1998) 'A Matter of Congestion: An Initial Report to the Environmental Task Force of the City of Toronto' University of Toronto. Canada.http://www.utoronto.ca/envstudy/INI498/dadson.htm

Department of Transportation Federal Highway Administration and Hubert H. Humphrey Institute of Public Affairs, (1996).'Regional Congestion Pricing Workshop: Proceedings'.

Glaister, S. (1981) *Fundamentals of Transport Economics*. Oxford: Blackwell.

Goodwin, P. B. (1997) 'Inaugural lecture for the professorship of transport policy'. University College London, England. http://www.ucl.ac.uk/transport-studies/tsu/pbginau.htm

Nash, C. (1982) *Economics of Public Transport*. London: Longman

Newberry, D. (1990) 'Road Damage Externalities and Road User Charges' in *Econometrica*. Vol. 56.

Salvucci, F., Sussman J., & Martland C (1996) 'Urban & Regional Transportation A Transportation Strategic Plan for the Province of Mendoza, Argentina.' http://web.mit.edu/cts/research/research95-96/re9596_urban.html - 18.3KB - web.mit.edu

Smeed, R., Inaugural lecture, 'Traffic Studies and Urban Congestion', University College London, England.

Smeed, Reuben et al, (1996). 'Road Pricing: The Economic and Technical Possibilities'. UK Ministry of Transport, (1964). Excerpted from Roth, Gabriel. Roads in a Market Economy. Vermont: Ashgate Publishing Limited.

Motorways: Highway Robbery!

Daniel Molloy – Senior Sophister

Daniel Molloy takes aim at the huge investment in roads in the National Development Plan (NDP). The author applies the economic tools of Cost-Benefit Analysis to this investment and concludes that the government have not heeded economic advice, and have focused too much on roads at the expense of the total supply chain, thereby missing the opportunity to reduce the negative effects of our peripheral location.

'As a peripheral island, transport infrastructure, services and systems logistics are crucial elements in Ireland achieving a high level of international competitiveness. The importance of transport and logistics arises also from our high trade dependence and increasingly, because of world-wide business trends in a number of areas'[1] and *'because Ireland is an island on the edge of Europe it is axiomatic that Irish producers incur greater transport costs than many of their competitors in virtually every European marketplace'*[2]. Against such constraints, suppliers have to seek ways to improve speed and flexibility while continuously driving down distribution costs. (This trend is becoming more and more evident in many publications, example, see The Economist, Feb. 2nd, 2002, 'Chain Reaction').

Firms themselves must rapidly react to these developments, however, there is also a need for the government to intervene. The State response has come in the form of The National Development Plan, (NDP).

The Government's NDP involves *'an investment of over €52 billion of Public, Private and EU funds (in 1999 prices), over the period 2000-2006'*[3]*.'* From this, £4.7bn or €5.97bn, will be spent on road improvements which represents almost a threefold increase on the expenditure of £1.6bn or €2bn in the period 1994-1999[4]. (Under the Economic and Social Infrastructure Operational Programme)[5].

---

[1] NESC, Nov., 1996, p36

[2] Forfás Transport and Logistics Group, 1996, p.3

[3] www.ndp.ie

[4] The National Roads Authority, 14 Dec 2001, p.1

[5] National Development Plan, 2002, p. 49

Specifically, this will involve the completion of 752km of motorway/dual carriageway between the periods 2002-2006. The improvements will occur along the five major inter-urban routes between Dublin and Cork, Galway, Limerick, Waterford and the M1 to the border with Northern Ireland. The improvements are aimed at dramatically cutting travel time and improving safety, and ultimately, to '*help ensure that difficulties of access will no longer inhibit the attraction of investment and employment opportunities to all parts of the country.*[6]' Is this investment based on sound economic analysis?

Nobody denies that we need public investment in many areas. However, what I shall argue is that much of this investment (focusing on roads in this paper), is not based on sound economic analysis, even though such research was available before the NDP was drawn up (the National Road Needs Study[7] to mention just one). Furthermore, the current infrastructure strategy is not sufficient as it stands, because roads infrastructure is only part of the problem.

Mr Colm McCarthy noted that in 1978 an economist colleague described the policy then in vogue as spending your way out of a boom. Any mistakes in Irish economic policy in the nineties should be new mistakes. Investments made in the public sector are being made with citizens' cash and the criteria to be applied to them should be no less demanding than those which citizens would apply themselves. If we insist on the highest possible design standards, we will wind up with fewer projects than we can afford to complete. '*Standard of design relates to capacity as well as engineering standards...we should aim at affordable design standards and not always at top of the range (motorways!).*'[8] These wise words by Mr McCarthy seem to be the words of a prophet. However, this "prophet" who came to us almost a decade ago to warn us about our future investment plans, was unaccepted in his own land and ignored. What Mr McCarthy was arguing for, was the use of economic tools such as Cost-Benefit Analysis (CBA), which, '*is designed to take account of market failures, i.e., where market prices do not fully correspond to social value-issues of transport congestion, value of time, safety regulations and the value of a life, and such like, continue to require a cost-benefit type approach. Also,*

[6] The National Roads Authority, 14 Dec 2001, p.2

[7] The National Roads Authority, July 1998.

[8] De Courcy, J.W, April 1990, p. 23

environmental concerns have increased the need for CBA[9] and these factors call for the creation of shadow prices. *'CBA asks the same question of investment which a firm asks of its investment. It substitutes, however, social benefits for the revenue of the firm and, instead of costs to the firm, it uses social or opportunity costs as a yardstick...what we aim for is a Pareto optimal improvement for society as a whole, (an improvement in economic welfare is a change which leaves at least one person better off without making anyone worse off...gainers can (hypothetically) compensate the losers*[10]*.)'* If we arrive at such a situation, then the project we are deciding upon should be completed while always taking account of all the alternatives.

Honohan notes that two broad issues have emerged in terms of road construction:

- Cost overruns, or rather initial cost under-estimation. It appears that the initial outline costings were over optimistic, and that a more realistic budgeting would have allocated more funds for the quality and quantity of roads envisaged.

- The first issue is partly offset by the second, namely, an '*apparent tendency to design to an unnecessarily high road quality*'[11].

As we shall learn later, the NDP has failed greatly with respect to these two issues. It has ignored a sound economic analysis of future road needs and progressed with the development of roads which are of *'an unnecessarily high road quality*[12]*'*, benefiting nobody only the design engineers. While at the same time, ignoring the bigger picture - the total logistics supply chain.

Although infrastructure needs have undoubtedly increased as a result of economic growth, '*this does not provide a blanket endorsement of all and any infrastructure projects.*'[13]

The potential for reducing the demand for infrastructure through reform of taxation

---

[9] Honohan, P., Nov. 1998, p.4

[10] Barrett, S.D, 1982, p.28

[11] Honohan, P., July 1997, p.67.

[12] Honohan, P., July 1997, p.67.

[13] Honohan, P., July 1997, p.67.

and pricing mechanisms should also be investigated[14].

The MIE points out that several roads that are being completed to dual carriageway or motorway standard would provide adequate service quality at a lower design standard. In fact, the MIE stresses that there is scope for greater economy in road design.[15]

In designing interventions, formal cost-benefit analysis, which measures the main distortions and credits the project for unpriced benefits, which it conveys, is useful, especially for large projects[16]. This is exactly what the National Road Needs Study did.

The National Road Needs Study was aimed at determining '*the appropriate type of roadway for each segment of the network in order to cater for projected traffic flows over the twenty year period, 2000-2019*[17]' and this analysis was designed to influence future policy on road design. Its key findings are the following:

- The fact that roads are the dominant mode of internal transport in Ireland- 80% of freight, 96% passenger traffic.

- The provision of an adequate transport infrastructure to support necessary economic growth is a fundamental objective of a sustainable transport policy. This requires integration with the needs of the environment and conservation...where practical upgrading of existing alignments where there is an option rather than new routes, effective public consultation in the planning stage.

- Reference to European and other international best practice...with a view to an informed decision in relation to road types and capacities[18].

(Note that these satisfy Forfas's conditions, as we shall see later.)

---

[14] Honohan, P., July 1997, p.67.

[15] Honohan, P., July 1997, p.104.

[16] Honohan, P., July 1997, p196.

[17] The National Roads Authority, July 1998, p.1

[18] The National Roads Authority, July 1998, p.8-9

These considerations (along with more in-depth considerations available to the reader of the study), point to the fact that this was a very carefully carried out study making effective use of CBA and international best practice. Therefore, its findings can be considered to be extremely reliable for future policy design.

The Level of Service (LOS), on the existing primary network in 1995 was found to be 91% satisfactory. This means that 95% of the primary network could accommodate travel at the average inter-urban speed of 80kph, taken to be equivalent to the U.S. Highway Capacity Manual (HCM) level of service "D". However, it was noted that by 2019 a large percentage of this network would, in the absence of investment, fail this standard[19]. At the end of the last transport initiative, Operational Programme for Transport 1994-1999 (OPT), after spending an estimated £2.587m, that further improvement was still drastically needed.
A capacity study was then carried out (see table 1.1 below), showing the expected capacity until the year 2020. A saturation level was also included; representing the likely level having regard to realistic upper limits on population, car ownership and use, average income growth and truck fleet levels. This theoretical level would be reached at some time beyond the design period of the study - 2019, with the date ultimately dependent on future economic growth rates and policies impacting on road vehicle use. If we look at the data below it is noticeable that there is only a slight deviation between the estimated saturation and projected traffic levels at 2020 and therefore, this would suggest that serious consideration should be given to the saturation projections when deciding on future road policies.

Table. 1.1: Future Traffic Forecasts[20]

	1995		2000		2010		2010		Saturation	
	PC	HV	PC	HV	PC	HV	PC	HV	PC	HV
National Primary	100	100	135	128	195	168	224	168	240	200
Tourists Routes	100	100	134	121	190	152	216	167	230	175
National Secondary	100	100	123	121	156	152	171	167	180	175

[19] The National Roads Authority, July 1998, p.9

[20] The National Roads Authority, July 1998, p. 10

PC = Passenger car traffic
HV= Heavy vehicle traffic
1995 is the base year

An exponential growth pattern is expected with 6% per annum growth in the early stages, gradually reducing through the design period, with very low levels of growth as the maximum limits are reached. A sensitivity analysis was then carried out to access the effects of growth rates lower/higher than those derived.

After giving due consideration to a number of influencing factors and after carrying out an in-depth analysis of estimated future road needs, the National Roads Authority (NRA), recommended two road types:

- Reduced two-lane; 7.0m carriageway and 2 x 0.5m hard strips (for secondary routes).

- Reduced dual carriageway; twin 7.5m carriageway, 1.0m hard strips (inner and outer) and 2.5m median (for primary network)[21].

This would be combined with bypasses in towns where congestion was evident. (For a more specific look at the road types for each of the individual sections of the network, see the National Road Needs Study pages 55-73.)

These road types would satisfy the level of service (LOS "D") objective of providing an inter-urban 80kph journey speed on all inter-town routes.

Traffic growth leads to congestion on the network, with the following effects:

- Economic costs associated with delays in the transport of people and goods.

- Safety impacts as National Route traffic conflicts with local traffic, cyclists, pedestrians and other road users, with increased accident costs.

- Environmental impacts including increased noise, fume emissions, energy consumption and disruption to community living.

[21] The National Roads Authority, July 1998, p.12

In reaching its decision on road type, the NRA, used these factors as inputs to their CBA as well as the National Policy objective carried forward from the OPT 1994-1999 Programme.

A crucial element on deciding how reliable The National Roads Needs Study is, would be the accuracy of the capacity projections or, more importantly, the saturation level. Barrett notes *'road needs forecasts depends crucially on forecasts of car numbers.*[22]*'* If we make use of Tanner's logistic curve[23], we can get an extrapolated answer on capacity.

The model assumes that the level of car ownership will eventually reach a level beyond which it will not increase, irrespective of changes in income, prices or other factors (an assumption attacked by the Leitch Report[24]). The annual rate of car ownership is assumed to be proportional to the difference between the current ownership and the saturation level. Thus, the higher the level of ownership, the lower the growth of ownership. As we can see, the model will be highly sensitive to the saturation level chosen. Therefore, for The National Roads Needs Study to be accurate, it too will have to have an accurate estimate of the saturation level. This level will also be affected (though the Logistic Model assumes otherwise) by many other factors such as, income, population, retirement, second car ownership etc. The study accepts this fact (see page 10 of the study). So, for the capacity projections to be accurate, the saturation level chosen, taking all influencing factors into account, must be estimated most carefully. If it has, and I expect it has, then the logistics curve will tend to agree with the study's projections and the projected saturation level will equal or come close to the actual level.

So, based on capacity projections to 2020, the above road types were recommended combined with bypasses. However, the Government, in their NDP, have ignored this study *'(even though admitting that the National Road Needs Study is a comprehensive assessment of the works required to bring the national roads network as a whole up to the necessary standards and to maintain these standards as traffic volume increases*[25]*)'*. They went instead (on many routes), for the more

[22] Barrett, S. D., 1982, p167.

[23] See Barrett, S.D., 1982, p167.

[24] The Leitch Report, 1977, p.168

[25] The National Development Plan, 2000, p.50.

costly and disruptive (in terms of construction) road type, namely, motorways. To take the N6 route as a case in point. The National Roads Needs Study recommended a dual carriageway on this route, which would mean widening the existing route and combining this with bypasses at major towns, satisfying capacity requirements on this network. The government have planned to build a motorway instead. This will mean much more disruption in initial construction (compulsory purchasing etc), the abandonment of the existing N6 (which was only recently resurfaced) and will involve a much higher level of investment delivering nothing to the country only excess capacity. Who is deciding on this expenditure, the Government or engineers? After CBA was carried out for the M1 (London-Birmingham) in the UK, it was noted, *'for some time at least the benefits obtained through the construction of the M1 could have been matched by a more modest two-lane dual carriageway*[26]*'*. Should the Irish Government not have learned from such mistakes?

Capacity should also be curtailed by the European Union's (EU) combined transport initiative, that is, greater integration between rail and road, currently being examined. It is noted that *'long distance rail freight combined with short distance road transport to customers or final distribution is potentially cheaper than long distance road haulage...EU and national transport policies will focus to an increasing extent on developing effective alternatives to road transport with a particular emphasis on rail...road transport may become relatively more expensive as policy makers attempt to discourage use*[27]*'*. Thus, leading to a decrease or at least a saturation level being reached similar to that projected by The National Roads Needs Study.

Mr. P. Dowling noted *'within the framework of good macro-economic policy, investment takes place at the micro level, and our mistakes in the past relate more to wrong choices and bad management than to over-investment*[28]*'*. This is precisely what is happening within the NDP framework, as far as supply chain management is concerned (of which transport is only a small component).

If Ireland's manufacturing and services sectors are to achieve their full potential over the next 15 years, a clear focus is required on all issues which impact on competitive advantage. As Ireland is an island on the edge of Europe, it is axiomatic

[26] Barrett, S.D., 1983, p39

[27] Forfás Transport and Logistics Group, 1996, p. vi

[28] De Courcy, J.W., 1990, p. 25

that Irish producers incur greater transport costs than many of their competitors in virtually every European marketplace. Therefore, the creation of a world-class transport and logistics capability for Irish exporters requires substantial additional effort[29].

In Forfás's assessment, policy in Ireland has tended to focus on transport infrastructure and has not adequately addressed the other components of the overall supply chain, namely:

- Infrastructure (including: roads; ports; rail and airports).
- Transports services (including: road haulage; sea shipping; air services and rail services).
- Systems logistics or overall management of the management of the logistics chain.[30]

Logistics is '*the strategic process of managing efficiently and economically, the flow and storage of materials and the information necessary to meet customer requirements*[31]' The reactions that occur within the supply chain are often referred to as "the bullwhip effect", named after the way the amplitude of whip increases down its length, just as variations in orders tend to get amplified along the supply chain.[32] The Irish economy is in danger of getting "whipped" by its competitors if it does not make its total supply chain more flexible. (See footnote for a micro example[33])

The group goes on to note that *'as presently operated, the Irish planning framework does not address adequately the requirements of the total supply chain, tending to focus on infrastructure initiatives which qualify for EU assistance-excessive focus*

[29] Forfás Transport and Logistics Group, 1996, p.3

[30] Forfás Transport and Logistics Group, 1996, p.3

[31] NESC, 1996, p.32

[32] The Economist, Feb. 2nd 2002.

[33] In the mid nineties, Volvo found itself with excessive stocks of green cars. To move them along, the sales and marketing department began offering attractive special deals, so green cars started to sell. But nobody told the manufacturing department about the promotions. It noted the increase in sales as customer preference for green cars and ramped up production. (The Economist, Feb. 2nd 2002)

on infrastructure-ignores other important elements in the supply chain-consolidation and distribution facilities, transport services and systems logistics[34]'.

The diagram below gives us some idea of the supply chain. The key is the integrated management of this chain, not just one of its components in isolation. Transport '*is not usually an end product in itself. It permits other activities to be undertaken*[35]'. Therefore, the integration of transport into this model is what is important.

Inputs → Production → Inventory → Customer

Logistics involves controlling this supply chain, from manufacturer to end customer. Systems logistics or chain management skills are essential for Irish exporters to reduce the negative impact of location and distance on transport and other logistics costs.[36]

A more long-term perspective is also needed. Forfás recommends a minimum 15-year period be used in infrastructure planning, to be operated on a rolling basis with reviews every five years. This would facilitate the improved assessment of key strategic issues such as competitive benefits of increased investment in existing facilities as *opposed to* investment in new alternatives[37]. The NDP is only a six-year plan.

So what does this mean for Irish policy makers?

With too much emphasis on road transport we will be making our economy less competitive relative to our EU counterparts. Also, we will be in danger of becoming a more distant periphery economy as our domestic policy will not be in sync with EU policy, and thus we risk being ignored when important policies are being decided and funds being distributed.

Forfás recommends '*the establishment of a joint Irish/UK executive and policy transport initiative to ensure smooth integration of port facilitates with road and rail*

[34] Forfás Transport and Logistics Group, 1996, p.34

[35] Barrett, S.D., 1982, p. 28

[36] Forfás Transport and Logistics Group, 1996, p.5

[37] Forfás Transport and Logistics Group, 1996, p. 34

links on both sides of the Irish sea, to ensure full integration with the trans-European rail and road network as envisaged in the EU white paper on growth competitiveness and employment.'[38] And this should be combined with improvements to the total supply chain by:

- Achievement in world leadership in systems logistics.
- Implementation of best practice throughout the transport services industry.
- High quality infrastructure; roads, rail, ports and airports[39] (and this means paying more attention to studies like the National Road Needs Study).

NESC agrees with these recommendations[40].

It is important to note that we must strive to become a word class leader in logistics. No matter how well we handle our infrastructure deficit we will always be at a disadvantage in terms of distance. Therefore, while not ignoring the fact that '*as a peripherally located economy, transport costs and the quality of transport infrastructure are critical to overall competitiveness (in the food sector alone, an exporter will be at a transport cost disadvantage of around 2%),*'[41] we must remember that '*while location cannot be changed, the skill with which we manage the consequences of the location can be enhanced through systems logistics...by becoming a centre of excellence in systems logistics we could compensate for the negative impact of location and gain competitive advantage.*'[42]

It is interesting to note what Dr Sean Barrett said in 1990: '*infrastructure is now an outdated word in economics. Modern thinking about the infrastructure concept would have saved Ireland much economic anguish in the eighties. Policy makers must keep in touch with this new thinking if the early nineties are not to repeat the mistakes of a decade ago*'[43]. The realisation that infrastructure was an outdated

[38] Forfás Transport and Logistics Group, 1996, p.vii-x

[39] Forfás Transport and Logistics Group, 1996, p.6

[40] NESC, Nov. 1996, p. 34

[41] Forfás, 1995, p.22

[42] Forfás Transport and Logistics Group, 1996, p.iv

[43] De Courcy, J.W., April 1990, p.14

concept has now been known for over a decade. Why then has the Irish government, as of yet, not woken up to this reality and seen the bigger picture the total supply chain?

Conclusion

The Irish government needs to see the bigger picture. With so much emphasis on transport costs they are missing out on at least two thirds of the total logistics costs. One might be forgiven for assuming that the government is merely concerned with taking the tip off the iceberg (i.e., roads, and even here, not following the guidelines of sound economic analysis), as this is what is visible to the electorate. However, the real danger is lurking beneath, and the Irish economy needs increased investment in the total logistics supply chain or else face possible collision with the hidden iceberg that is, loss of competitiveness.

Bibliography

Barrett, S. D. (1982) *Transport Policy in Ireland.* Dublin: Irish Management Institute.

De Courcy, J.W., (1990) *Aspects of the Irish infrastructure: present condition and future needs.* Conference Proceedings, summary review.

Forfas. (1995) *Ireland's Costs and Competitive environment.*

Honohan, P. (1997) *EU Structural Funds in Ireland-A Mid-Term Evaluation of the CSF 1994-1999*, no.31 (July 1997) ESRI.

Honohan,P. (1998) *Key Issues for Cost-Benefit Methodology for Irish Industrial Policy.* no. 172 (Nov 1998) ESRI

Ireland National Development Plan, 2000-2006, Dublin.

Report of the Committee on Trunk Road Assessment, (1977), The Leitch Report, HMSO.

Strategy into the 21sst Century, no. 99 (Nov 1996) NESC.

Chairman's Introduction, The National Roads Authority, (2001), www.nra.ie.

The National Roads Needs Study, (1998), The National roads Authority.

World Class to Serve the World, (1996), Report of the Forfás Transport and Logistics Group.

Aircoach: An Experiment in Deregulation

Nina Kauntze and Stephanie Forde – Senior Sophister

The deregulation of the city centre to Dublin Airport bus route is examined in this essay. Nina Kauntze and Stephanie Forde examine how this first example of bus deregulation came about, and its success so far. They conclude that the project has been a success, improving the productivity of all public transport serving the airport, and increasing customer choice.

Introduction

Dublin Airport is one of the only hub European airports not served by a rail to city centre link, but is served by a taxi and bus service. Taxis are expensive but direct, while the buses prior to November 1999 offered a cheaper but more inconvenient alternative. Aircoach is a frequent (every fifteen minutes), luxury coach service serving fourteen Southside points via O'Connell St to the airport. Aircoach, which began operating in November 1999, is a recent example of how a private enterprise has penetrated the semi-state bus market in Ireland. Mary Leane, the Director of Aircoach said, '*CIE Union employees simply believed that deregulation would not take place*'[1]. This study looks at how Aircoach managed to break the mould.

Economic Theory: Deregulation and Contestability.

Deregulation has become important for competition in transport markets. The failure of state-run industries *'to achieve the social goals they were set up to attain'*[2], has proved that they are a dated solution to the problems that might occur in an open market: monopoly or excessive competition. Nationalised industries have continually lost money in terms of extensive X-inefficiencies and have proved their inability to deliver fast, frequent and efficient services to the public.

Deregulation is needed to increase competition as it encourages new firms to enter an industry that was once purely state occupied. However, deregulation in a transit industry needs careful attention. It boasts many economies, including network and density economies. It has been found that *'transit firms operate under conditions of*

[1] From an interview conducted by authors on 30/01/02.

[2] McAleese, D. (1997)

excess capacity of rolling stock'[3], and incumbent firms can use this as an entry deterring strategy. In this way and others, they will want the entrant to fear the risk of huge sunk costs or greatly lower the entrants expected profits. The incumbent's resources are thus often misallocated.

Contestability is required to remove these distortions. Baumol's contestable market is *'one in which entry is absolutely free and exit absolutely costless'*[4]; he also states that there should be *'no cost discrimination against entrants.'* This is combined with other vital conditions such *as 'insignificant sunk costs relative to fixed costs'*[5]. If Baumol's conditions were to prevail, theory says that following deregulation there might even be just one firm operating in a particular network market who is engaged in average cost pricing, earning zero monopoly profits. Entrants that now have the freedom to enter the market would undercut any higher pricing. Hence, in contestable market theory, the threat of entry is enough to make the firm act competitively and not earn monopoly profits, despite any production properties it may hold that could enable it to do so.

In the case of the Irish Bus Industry, full deregulation has not occurred. However, further integration with Europe means a fiscal movement away from nationalised industries such as this. If a contestable market does involve "absolutely free entry", the Irish Bus Industry is not contestable as will be shown.

The industry evolved from early 1932, when the Fianna Fail government, led by de Valera, worked from a policy of economic self-sufficiency. The success of the newly state-sponsored body, the Electricity Supply Board (ESB), meant that other state-sponsored bodies were set up in many fields including air, train and bus transport. These were seen to be successful at a time of depression and when the *'private sector did not appear to be very enterprising'*[6].

The Road Transport Act 1932 prohibited the operation of private scheduled passenger services except under licence from the Minister for Industry and Commerce. The Minister stated that the independent bus owners could exploit areas

[3] Banister, Berechman and de Rus Mendoza, (1993)

[4] Baumol W.J, (AER, 1982)

[5] See footnote 3.

[6] Haughton, J. (1995)

not already covered by the main companies. The policy was to restrict bus operation other than by railways, namely the Dublin United Tramways Company (DUTC). The DUTC bought out independent bus licences and the industry was soon nationalised. The results of this Act *'reduced the number of passengers carried by independent bus companies from 34.5 million to 1 million per year, as estimated by the Tribunal on Public Transport in 1939'*[7]. Past studies have shown that diseconomies of scale have existed in bus operation. CIE were not keeping prices to a minimum and on similar-distanced routes were being shown up by cheaper independent bus services. Also, some potentially profitable routes were not being fully exploited as will be illustrated in our study of the Aircoach.

The Arrival of the Aircoach

An interview with the Director of Aircoach, Mary Leane revealed the difficult process of creating a private bus route in a semi-state monopoly market. Mary Leane, prior to her endeavour to set up Aircoach, worked for Coras Iompair Eireann (CIE) for five years, where she met John O'Sullivan, the Chief Executive of Aircoach. Through the experience and knowledge of the bus industry Mary Leanne saw a gap in the market that could be filled, the city centre to Dublin Airport Bus route. The following points show the market gap:

- In 1999 only expensive taxis and an indirect cheap bus route operated by Dublin Bus served the airport.

- The traffic congestion needed to be reduced (increase of 172% in the number of new private car registrations between 1995 and 2000, approximately half of which were registered in Dublin[8]).

- Increasing passenger numbers at Dublin airport - Aer Rianta has reported that there has been an increase of 5.5 million passengers since 1990 to 14.3 million passengers in 2001[9].

- The economic boom in Ireland has increased the number of people who can afford to travel.

[7] S. Barrett & E. Gaughran, (1981)

[8] Source; Sunday Tribune 13/01/02.

[9] Interview with Aer Rianta marketing representative.

- The expansion of Ryanair has also made flights more affordable both for people leaving Ireland and for tourists coming to Ireland.

To acquire a license the company needed to have a Transport Manager with a, Certificate of Personal Competence (CPC). Mary Leane attained this and then applied for the license. This procedure incurs high legal costs that can only be refunded by the state if a license has been granted; hence there is a strong financial disincentive to compete with the state monopoly. Upon application Mary Leane was told, *'the current service seems adequate and there were no grounds on which to grant licenses to anybody'*[10]. However, Mary Leane appealed on the grounds that there was no link from the Southside of the city to Dublin Airport served by Dublin Bus. This was brought to attention in 1981 by Dr. Sean Barrett in his suggestions for policy in this industry *'Where potential operators offered a new fare or service, this could be licensed as a measure to cater for passengers not catered for at present'*[11].

The final outcome was a change in government policy for a period of time. The license was given on the grounds that the fare charged was £4 and the service offered had to be of a premium standard. The company was granted its licence to operate on a Dublin Airport to city centre route in September 1999 and they began operating on the 22nd October 1999 with eight coaches and a £2m bank loan. The reason for this urgency was *'otherwise we would have been crushed by the semi state[12]'* said Mary Leane.

The Effects of the Evolution of the Aircoach.

Initially Aircoach was in direct competition with the taxis and Dublin Bus. The full effects of having a competitive market can be seen at the airport today. Two more private bus services entered the market within twelve months of operation. These served the airport but to different areas of the city, the Aerdart private bus service that links the Dart station at Howth Junction with the Airport and the Route 2411 a private bus service between Tallaght and Dublin Airport. Almost immediately the Dublin Bus also improved its service. The number of bus routes to Dublin Airport increased dramatically. In May 1999 the 747 and the 748 served the route. Now the

[10] From an interview conducted by authors on 30/01/02.

[11] S. Barrett & E. Gaughran, (1981)

[12] See footnote 8.

route is served by the 747, 748, 16A, 746, 230, 41, 41A, 41B, 41C, 33N, 41N, 46X, and 58X covering all areas of Dublin. This shows that this potentially profitable route was not being fully exploited by Dublin Bus prior to the establishment of Aircoach. Dublin Bus has therefore put itself in competition with Aircoach on certain routes and improved it service dramatically with a frequency of buses every ten minutes. This is a classic case of incumbent reacting to entrant, as Mary Leanne said *'a little bit of competition is the best thing in the world'*[13].

The arrival of the Aircoach was not without opposition. There were reports of blockades by taxis and eggs being thrown by bus drivers. A current problem that has been encountered by the Aircoach bus drivers is that taxi drivers are pulling up at Aircoach stops and taking passengers to the airport for the same fare. This is in fact illegal but difficult to prevent[14].

Aircoach, after the loss of £600,000 in the first two years of operation, is now turning a profit. The stopping of the Malahide route in November 2001, as it was not as profitable, has been essential in cutting losses. Mary Leane believes the key points of success of the Aircoach to be *'frequency, quality, the right route, reliability, with a competitive fare'*. The Aircoach now carries on average between 1800- 2500 passengers a day. The fare of five Euro includes luggage and children go free, this is directly comparable to the high taxi fare that does not include luggage and charges for children. Hence the service differentiates from those provided by taxis and Dublin Bus. Also unlike Dublin Bus the route of the Aircoach serves hotels and many residential areas. The main market for the Aircoach is business travellers, hotel guests, and residents close to the busiest stop in Donnybrook. Hence the customers are the sort of people that the "luxury" service appeals to and also those who do not wish to pay the high airport car park charges. Aircoach has thus captured a market.

Survey of Airport to City Centre Transport Route:

We undertook a study of the effects of current deregulation of the bus industry at Dublin Airport on Friday 25th January 2002 in order to determine if any one route seemed to be suffering. We conducted a study at two separate times: 10.30 a.m. and 11a.m. The study comprised of passenger counts on each departing bus service from

[13] See footnote 8.

[14] Source: Results from a questionnaire carried out with bus drivers, (25/01/02)

the airport. The number of people in the taxi rank queue was also recorded. The results have been averaged and are listed below:

- Taxi rank - 29 people.
- Dublin Bus - 36 people.
- Aerdart - 6 people.
- Route 2411 - 3 people.
- Aircoach - 21.

From our observations and short interviews with the bus drivers from each company we are able to conclude that there are enough passengers on the peak days (Monday and Friday) to sustain the popular routes. This applies to the taxis, Dublin Bus and Aircoach. The services that appear to be suffering are Aerdart and Route 2411.

Through deregulation of the bus industry at Dublin Airport consumer choice is greatly increased, thus increasing their utility and making people better off, as more efficient services are provided at a competitive price. *'The commuter will truly believe in public transport only when the market provides choice, quality and reliability through competition'* said David Manley President of the Dublin Chamber of Commerce[15].

Other Examples of Bus Deregulation.

U.K.

Britain completely deregulated its bus industry in urban areas in 1985. Before deregulation, the bus industry was similar to Ireland's: local monopoly state operations with standard fares and internal cross-subsidisation between routes. The reasons for deregulation were to end local monopoly control and introduce competition, especially on highly profitable routes. Cost efficiency was also paramount and as a result costs were reduced by up to 20%[16]. Privately run buses operate to London airports as well as rail links, an example being to Stansted

[15] Manley, D. The Irish Times 24/03/00

[16] Banister, Berechman and de Rus Mendoza, (1993)

Airport. A single fare on the Stansted Express train is £15 Sterling to London Liverpool Street. An alternative option is to take the bus from Oxford Street, costing £8 Sterling one-way.

New York, U.S.A.
The U.S. bus industry has adopted a policy of competitive tendering which has brought costs down by up to 20% in some cases[17]. This bus policy has been particularly appropriate for New York, which has always had rail link problems due to its core being situated on an island, Manhattan. A city centre hotel hopper bus that is cost and output efficient serves its hub airport, J.F. Kennedy airport.

France.
Competitive tendering also operates here with a contract period of up to seven years. This applies to routes in urban, inter-city and inter-urban areas. A result was an increase in the revenue-cost ratio hence subsidy levels have decreased. A private bus service operates from Paris Beauvais airport to an Irish pub, The James Joyce, in the City Centre. This is primarily to cater for the Ryanair customers and serves a number of hotels in the proximity.

The Future

The future of Aircoach can be summed up by Mary Leane's reaction to the introduction of the Metro, *'we will have to be innovative and differentiate the product'*[18]. Aircoach has applied for more licences on different routes and will soon begin operating a Dublin to Cork route. The license for this has been acquired with expected resistance from CIE. Aircoach's plans for the future are to increase ticket sales on the Internet. This will remove the responsibility from the drivers, decreasing boarding time and cutting costs, a policy adopted by their cost cutting ally Ryanair. Ryanair sell Aircoach tickets on board their inbound flights to Dublin. Ryanair have helped Aircoach avoid the negative effects of September 11th due to increasing the number of European routes and low fares. The circulation of the Euro, it is hoped, will also increase the number of European passengers due to price transparency.

[17] Banister, Berechman and de Rus Mendoza, (1993)

[18] From an interview conducted by authors on 30/01/02.

Conclusion

We consider that the entry deregulation of a prime Dublin City bus route has been quite successful so far. The entry of Aircoach has not taken away from the revenues, but has rather increased the productivity of Dublin Bus and has met the rising demand for city centre travel from the airport. As a result consumer choice has greatly improved. Overall we feel that the Dublin City centre to Airport Bus Route has moved towards a more contestable market and is an example of how competition has improved the service for the consumer. As Des O'Malley (TD) said, *'after the success in Dublin of Aircoach we should seek to replicate it on a lot more routes. Deregulation should spread the benefits of competition through the country'*[19].

Bibliography

Banister, P. and Berechman, J. (Eds), (1993) *Transport in a Unified Europe.* NTL: Elsevier Science Pubs.

Barrett, S.D., (1982) *Transport Policy in Ireland.* Dublin: Irish Management Institute.

Barrett S.D and Gaughran, E., (1981) *The Market in Irish Transport.* Dublin: The Confederation of Irish Industry.

Baumol, W.J., (1982) *Contestable Markets: An uprising in the Theory of Industry Structure.* London; New York: Harcourt Brace Jovanovich.

Haughton, J. in O'Hagan, J.W. (Ed), (1995) *The Economy of Ireland.* Dublin: Gill and Macmillan Ltd.

Irish Times Archives. www.ireland.com/newspaper/archive

Killen, J. and MacLaren, A. (Eds), (1999) *Dublin: Contemporary Trends and Issues for the Twenty- First Century.* Dublin: Geographical Society of Ireland, Special Publication 11.

[19] O'Malley, D. (11/08/00) 'Sharing Our Success' National Conference 2000.

McAleese, D. (1997) *Economics for Business*. Europe: Prentice Hall.

A Platform for Change, November 2001, Dublin Transportation Office.

Progressive Democrats web page, (11/08/00) '*Sharing Our Success*' National Conference 2000.

The Sunday Tribune, *Commercial Supplement: All Change.* (13/01/02)

The Railways: A Case for Privatisation

Seamus O'Brien – Senior Sophister

The rail industry in Ireland is examined in this essay. Seamus O'Brien looks at the evolution of the industry in Ireland, the importance and suitability of rail travel in Ireland and at the present situation. He concludes that nationalisation and transport policy has failed the railways and he recommends deregulation and privatisation.

Introduction

The provision of a railway service in Ireland has been a loss making exercise every year since 1946, an expense that has to be bared by the state. Thus, the justification for providing the service in this way must be questioned. Why should the state provide it and what are the alternative ways of running the network? The aim of this paper is to examine how the industry has evolved to the present day; what is the cause of the financial mess in which the company is in; and how can this problem be solved? Firstly, I will briefly examine the evolution of the industry in Ireland since World War I, particularly the restrictive and draconian legislation that was passed. I will then go on to discuss the importance of rail travel to Ireland, its suitability, and the restrictions which geography imposes. The present situation of the company shall be discussed; it's network, number of passengers, and the internal problems of the company. The discussion will include an analysis of the UK experience of privatisation and the lessons that can be learned. Finally, I will examine what Coras Iompair Eireann (CIE) describes as the biggest ever rail investment programme in the history of the state that is due to take place over the next six to ten years[1].

Brief History of the Irish Railways

The railway companies in Ireland prior to the First World War were highly prosperous firms with a diverse range of business activities including banking and the running of hotels. However, after the war, '*the monopolistic powers of the railways was eroded by the growth of road transport.*'[2] Just as the canal network of Ireland began to experience competition from the mid 19th century onward, now it was the turn of railways. Initially, legislation was passed with the aim of reducing

[1] http://www.irishrail.ie/projects/ontrack.asp

[2] Barrett, (1982: 81).

the operating cost of the rail companies; most notably the merging of the 26 railway companies into one, The Great Southern Railway Company, by the Railway Act of 1924. An additional attempt was made at lowering their costs by the passing of The Railways Act of 1927, which allowed the railway company to operate road services. However, this proved to be of little use to the company.

From 1925 - 1931, the number of road vehicles in Ireland increased from 29,000 to 49,000. A similar period, 1926 to 1931 saw the number of passengers travelling on The Great Southern Railways decline from 15.5m to 11.9m. The increasing number of goods vehicles from 4,950 in 1925 to 8,278 in 1931, the impact of the recession and the trade war with the UK were additional factors that faced rail transport. Further draconian legislation was passed in the 1930's. Now the aim was at restricting road transport. The Transport Act 1932, prohibited the operation of scheduled passenger services except under license from the minister for industry and commerce. The Road Transport Act of 1933, restricted the operation of road freight for reward, outside small exempted areas near the main towns, to persons operating prior to the passing of the act. This legislation coupled with further restrictions on road transport during the Second World War brought a period of modest prosperity to the railways.

In 1944, the Dublin United Transport Company and The Great Southern Railway Company were merged to form a new company, CIE. It was hoped that the profits of the Dublin Operation could be used to subsidise other parts of the network, and no additional subsidising from the public funds would be necessary. The Transport Act of 1950 nationalised CIE and amalgamated it with the Grand Canal Company.

As part of the policy of reducing the exchequer borrowing requirements, the public capital programme was reduced from a volume index of 128 in 1982 to 100 in 1985 and 70 in 1989. From about 1984 - 1995 it was government stated policy that no further substantial investment would be made in rail transport. Buses, telecoms, airlines and other sectors also suffered from cutbacks in investment. However, the railways were unique in that they did not face any competition like other sectors.

The Importance of Rail Transport

One argument in favour of a continual subsidy to the railways is that they provide a means of transport for those who do not have access to a car. It is viewed as a means of income distribution. However, the reality is that those of the lower income brackets do not travel very much. For example, while total consumption by the

highest income quintile, is 4.2 times that of the lowest income quintile the expenditure on rail travel is 9.6 times greater.[3] In income distribution terms, the general transport subsidy is inefficient compared to a general subsidy to consumption because of the low use of public transport by low-income groups. Rail travel is concentrated among high-income groups and subsidising it does little to create a more equal society. It is '*a very dubious candidate for public expenditure because it is, to a quite exceptional extent consumed by the affluent and its subsidisation is therefore likely to make the distribution of income less equal.*'[4] Surely an alternative method of subsidising travel for the poorer members of society exists than the expensive train network.

Also, the effects of rail travel on road congestion and road accidents tend to be over exaggerated. In Ireland, the market share of the railways is so small that its disappearance would have little effect on congestion. It would take a huge amount of public expenditure to bring about any substantial transfer of traffic from road to rail. The elimination of the train from Ireland would have little effect on the number of accidents since the rail network carries such a small percentage of total passengers. In 1998, total rail travel in Ireland amounted to just over 32m passengers. This represents only 11% of total public transport trips.

To some, railways are seen as an environmentally friendly mode of transport. They are seen as conserving energy and as a safer means of transporting dangerous goods. However the energy costs of the railways are far greater than considered and their cost in relation to hazardous goods is disproportionate to their benefits. The noise and pollution that result from road traffic are better tackled by direct measures than by the roundabout method of subsidising the railways.

The Suitability of Ireland

The particular nature of the demography and geography of Ireland means that the economics of rail transport is very different to other countries. Our low and dispersed population means that the cost of reaching a given amount of potential passengers is higher because more ground must be covered. Table 1 below compares the population density of Ireland with a select number of other EU countries.

[3] Barrett, (1988)

[4] Pryke & Doudgson. (1975) P.251

Table. 1. (Source: Oireachtas Committee Report 1999)

Comparative Densities for Ireland and EU, 1996/1997		
Countries/ Regions	Pop. Densities, Persons Per Sq. Km	Urban Pop. % of Total
Ireland	53	55
UK	243	89
EU Average	115	78
Austria	96	64
Germany	357	87
Finland	15	64
Denmark	122	85
Irish Regions		
Dublin	1,148	
Midwest	57	
S. West	45	
S. East	42	
Border	33	
Midlands	31	
West	25	

Unlike other EU countries, our island status means that interconnections with other networks are restricted. All this makes a fixed line transport system, like the railways, more costly for Ireland than other EU countries. The initial infrastructure costs of railways are high, and not lightly undertaken, and the assets once created may exist for decades if not centuries. Moreover, there are few alternative uses for the assets once created. This relative inflexibility of transport supply, to which the railways are particularly prone, means that shifts in demand either for transport as a whole over a specific route or between modes of transport may produce great imbalances between supply and demand. The implications are that a bus-based option is likely to be a better alternative in cost terms than rail. It is likely in these circumstances, that reliance on a bus/road network is likely to be less costly and more effective than a rail connection.

The most suitable market for inter-city rail would be one with a big city at each end

of the route with a distance of between 330km and 600km between them. Frankfurt to Munich or Paris to Lyons would be examples of inter-city markets where the rail mode is at an advantage. Ireland however does not have any two cities, which meet these requirements. The closest is Dublin to Cork, a distance of 260kms. However Cork is quite a small city, which limits service frequency, and the distance is short enough to leave the car mode competitive for many trips. The pairing of Dublin and Belfast is a shorter distance at about 175kms but the city is considerably larger than Cork.

The geographical constraints of rail freight are even greater than the passenger service. The most optimal route for freight is for very long trips of 1,000kms or more, carrying high volume traffic. Rail freight has proven to be a profitable enterprise in the US and the potential exists across Europe because of the long-distance, high volume business. Ireland however is too small to generate a pattern of traffic for which rail freight has natural economic advantages.

Iarnrod Eireann Today

The rail network of Ireland is a predominantly radial network extending outwards from Dublin. It consists of 2,290kms of track, of which 2,030kms are used by scheduled passenger trains. However, despite the poor state of the infrastructure, the number of rail passengers has increased by a significant 20% for the period 1991-1998. The lack of investment has been reflected in slower operating speeds, reduced reliability of journey times and an overall poorer quality of service.

The company remains one of the largest drains on taxpayers' funds in Ireland with the subsidy for the year 2000 amounted to 146m. The present Minister for Public Enterprise proudly boasts that the '*annual subvention to CIE has now increased by 70% while the capital spending on transport has increased by almost 700% since the government took office*'.[5] Yet, the contribution of the company to the movement of people and freight remains insignificant in the context of the total transport market (as can be seen from Table. 1, above) It is overstaffed, under-utilised and provides a poor quality of service. Also, it is unlikely that the board of CIE will make any serious attempt to operate at the minimum cost level so long as it is in receipt of a subsidy and not expected to pay its way.

The four main problems with the running of Iarnrod Eireann are as follows:

[5] Irish Times, 16/11/01

- Poor Infrastructure. The lack of investment has been reflected in slower operating speeds, reduced reliability of journey times and an overall poorer quality of service. The majority of rails are more than 50 years old, sleepers more than 20 years, both are a long way beyond their "life expectancy". Poor infrastructure in turn leads to safety concerns.

- Management. The radial changes that need to take place within the company are not going to be achieved with the incumbent management team. The team is predominantly engineering orientated with an ethos of administration rather than of management. They lack any sense of commercial management skills and few have any experience in state of the art customer service practices, finance and project evaluation.

- Unions. The review group *'Iarnrod Eireann: A Way Forward'* pointed out several union problems that exist within the company. It pointed out a variety of restrictive practices that exist. One, being the absurd policy of only recruiting driving personnel externally that are not qualified, and at the same time being short of drivers. (Drivers Wanted. Qualified Applicants Need Not Apply!)

- Staff. The problem of overstaffing within Iarnrod Eireann is undoubtedly related to the last problem. The 1995 Oireachtas Committee Report on CIE highlighted a number of staffing concerns; the staff cost is rising per head each year; there is a lack of commerce graduates in the company, engineering graduates being preferred with a ratio of 59:16; and a problem of overstaffing of clerical workers, ticket collectors and guards.

The Case For Deregulation

Telecom deregulation is estimated to have saved the Irish economy over E570m/£450m a year. Airline deregulation has added an extra 80,000 jobs in tourism and there have been huge gains from telecom deregulation in the telemarketing, knowledge-based industries and e-commerce. Could similar gains be had through a deregulation of the rail industry?

Deregulation is based on contestability theory formulated by Professor W. J. Baumol, former president of the *American Economics Association*. The theory states that governments should not ban new entrants to any sector. New entrants keep the incumbents efficient. They introduce new producers with new ideas and new capital to a sector. Large efficiency gains result from repealing bans on new entrants and

reducing economic rents by a strong competition policy.

Should Iarnrod Eireann be privatised? Since the UK privatisation in 1997, passenger numbers have increased by 20%; distance travelled by nearly 30% and freight movement is up by 33%. Most industry experts expect passenger numbers to rise by over 50% over the next 4 years. Virgin Railways is expecting them to double and is spending £2bn sterling on new trains.[6] Both the punctuality and reliability indices for British railways were up after privatisation and passenger revenue rose in line with the extra traffic. Subsidies were down and productivity up.

Railtrack, the company in charge of the infrastructure collapsed yet the train operating companies are growing while their services are deteriorating. One of the fatal flaws of the privatisation was that the operating companies bare none of the cost for an increased traffic volume while Railtrack has seen none of the benefits.[7] It is an over-stretched network with 10% of the track at or beyond the end of its physical life; a further 30% needs replacing within the next 5 years.

One interesting proposal for the rail industry, put forward by Virgin Rail is that a railway hub should be developed. This is an idea borrowed from the airline industry whereby the amount of long distance point-to-point train routes would be reduced and instead run shorter feeder services into hubs. That means that passengers have to put up with changing trains more often; but in return, they get more frequent trains. The development of a spoke network would considerably reduce costs instead of running point-to-point services.

The Plans for Rail Transport

The objectives of the National Development Plan (NDP) with regard to rail travel are: to upgrade the infrastructure, rolling stock and facilities so as to improve the safety of the network; increase the physical capacity of the railway to cater for growing passenger demand; and improve the quantity, speed and reliability of services. Some E635m/£500m is being allocated for the completion of the railway safety programme 1999-2003 and a renewal and upgrading programme. E190m/£150m will be will be spent on the upgrading programme, focusing on the provision of new rolling stock; upgrading stations; renewing railway plant and

[6] The Economist. (16/12/00)

[7] The Economist. (05/01/02)

equipment. This pursuit of extremely expensive fixed track investment is sidelining less costly transport projects that could be realised much sooner.

Dublin is a city with a relatively low population density. Light Rail Transport (LRT), metros, and other rail-based forms of transport require a much higher population density and are thus unsuitable. The land use policies as pursued by the city, have not provided catchment areas that are sufficiently large enough to develop such projects. A rail based transport system simply does not suit Dublin in its present form. The construction of a rapid rail system as is being planned will have to involve a policy of high-density catchments surrounding each suburban stop. This however is likely to be contrary to the popular desire of low-density housing with no high rises. Many areas that would be served by lines approved by the government are sprawling low-density suburbs with falling population levels. Brian Joyce, the former chairman of CIE estimates that the Luas project will cost four to five times the original estimate and use up to 50% of the capital's resources for public transport in return for carrying less than 10% of the peak hour passengers in Co. Dublin. Moreover, some of this 10% will have simply changed from using a bus to Luas thus reducing the impact of Luas on increasing the share of commuters who use public transport.

The option of serving Dublin airport with a rail link branching off the Sligo line, as envisaged by CIE and Aer Rianta was ruled out though it could have been done in a much shorter time than a metro line. Although the Sligo line option scored better in terms of cost-benefit ratio and internal rate of return, the Dublin Transport Authority (DTO) was reluctant to pursue it because it would undermine the cause for a metro line, running underground through the city-centre from Shanganagh to the airport. If its wider metro plan were to have credibility, it would have to include an airport link.

Conclusion

The justification for most semi-state companies is that they were set up to provide a service at a time when no one else would. This however has not been the case of Iarnrod Eireann. The nationalisation of the railways in Ireland, through draconian legislation was aimed at reducing the damages with which road-based forms of transport had inflicted. The social benefits of the railways are assumed to be greater than the private benefits despite the lack of supporting evidence. As it has been shown above, the demographic and geographic characteristics for a rail-based transport system are not as strong as elsewhere. This together with a management

team that lacks any sense of a commercial focus or experience with running a competitive company; the under investment as a result of constraints on government expenditure prior to about 1995; and the strong unions have been the main reasons for the past and present poor performance of Iarnrod Eireann.

If a rail based form of transport is desired, then it is imperative that future investment is based on value for money. An alternative housing policy and density will have to be drawn up with denser cities along the suburban routes and larger cities at each end of the inter-city routes. The management and union problems of the company are the same as most monopolies that are run by the state an in order to eliminate them, deregulation must take place, and deregulation requires privatisation in order to achieve a level playing field for all. It is clear that nationalisation has been a failure, what is now required is privatisation, deregulation, and the separation of transport policy formulations from transport operations.

Bibliography

Barrett, Sean D. (1991) *Transport Policy in Ireland in the 1990's*. The Business and Economics Research Series. Gill and Macmillan.

Barrett, Sean D. (1982) *Transport Policy in Ireland*. Dublin: Irish Management Institute.

Barrett, Sean D. (1988) 'Are Subsidies Efficient? - A Sector Analysis" in *The Irish Banking Review.*

The Economist. (16/12/00) 'A New Way to Run the Railways. What comes after hell?'

The Economist. (5/1/02) 'Railways. That's enough passengers.'

The Irish Times, 16/11/01 'Roads Trains and Buses are Priority.'

Pryke, R.W.S. & Dodgson, J. S. (1975) *The Rail Problem*. London: Robertson

Thompson, A. W. J. & Hunter, L.C. (1973) *The Nationalised Transport Industries.* Heinemann Educational Books.

Reports

Iarnrod Eireann: 'The Way Forward.' Department of Public Enterprise. (July 2001)

Joint Oireachtais Committee *Report on Public Enterprise and Transport.* (November 1999)

Joint Oireachtas Committee *Report on the Future of CIE.* (1995)
NESC Report 48.