Economic Growth as a Policy Objective

Alan White

In the formulation of economic policy, economists focus *inter alia* on proximate objectives that encompass the aims of efficiency, inter-generational and intra-generational equity. It can plausibly be argued that, in practice, economic growth is a necessary condition for the attainment of such aims. This paper discusses the nature of economic growth, and the consequences to which it gives rise.

The discussion is divided into three sections. The first of these outlines the nature of growth and the growth process. The second discusses the measurement of growth, analyzing the relative efficacy of GDP as a proximate measure. Finally, section three examines its desirability, delimiting the complementary effects and trade-offs which must be borne in mind.

The nature of growth

Most lay commentators would subscribe to the objective of economic growth, a fact borne adequate witness to by the impassioned commitments to the goal of growth which appear regularly in election manifestos. Yet, economic growth, as with most objectives, involves a trade-off. To believe that future higher consumption can be attained with unchanged current consumption is to deny the workings of the real economic system. "Nothing will come from nothing," as Lear was wont to argue. This trade-off is captured in society's social time preference rate - the rate at which agents collectively discount future consumption.

Implicit in the concept of growth is an increase in the welfare and resources available to an economy which facilitate the achievement of other objectives. For example, an enhancement of the stance and "goodwill" of an economy in the international climate can be construed as growth. However, for many purposes, such a qualitative interpretation is unsuitable, and hence a more tractable definition must be adopted. In the current context, growth will simply be taken to mean an increase in the output of goods and services in the economy.

The two most important ingredients in the growth process are investment and technological advance. Yet these inputs will not necessarily provide an optimal rate of economic growth. Individuals make intertemporal choices based on their private time preference rate. The level of savings which these choices generate may meet the optimal investment requirement of the economy, but it may equally generate a sub-optimal level. This occurs if market imperfections impinge in capital markets. The consequence is that the social returns to growth may exceed the social discount rate, imputing a loss of aggregate welfare.

Yet even if the requisite level of investment is realized, it may not be channelled in the most effective way. The importance of technical progress to society and social welfare is often underestimated. It is arguable that the benefits to society of enhanced technology surpass those to investors and innovators. It is for this reason that governments intervene in the investment market, offering incentives and grants, and setting the rules of the game by issuing patents.

Measurement

If our concern is with the measurement of social welfare, the only perfectly legitimate procedure is to consider the consequences of each and every economic reorganization entailed by the growth process, and to determine which of these are beneficial and which are detrimental. However this is impractical, since we cannot foresee the consequences, tangible or otherwise, of the economic and social reorganizations resulting from a succession of interdependent technological innovations. Our objective then must be to approximate welfare adjustments.

One quantitative measure which furnishes such an approximation is the change in GDP, or more usefully, GDP per capita. The assertion that output per capita and social welfare are associated rests on the assumption that the welfare of individuals depends on the goods and services that they consume. At a theoretical level, it seems appropriate to exclude replacement investment and include net transfer income from abroad. However, the adoption of GNP and NNP as alternative measures arguably clouds the issue, since they tend to move in unison with GDP.

It is worth re-emphasizing that care must be taken when using this measure, since it is far from perfect. It fails to take account of externalities such as pollution which are viewed as a by-product of "growth-mania". Such costs defy measurement. Indeed, paradoxically, the growth rate may include as output, costs which have arisen from productive processes, such as medical costs. Yet while GDP has its limitations, no preferable quantifiable alternative exists, and so we are compelled to use it, albeit with appropriate caution.

Desirability of growth

The desirability of robust economic growth is much mooted. One of the more conventional justifications is that, at a micro level, individuals strive to acquire an increased possession of material goods. However, much more needs to be said.

As was mentioned above, implicit in the concept of economic growth is an improvement in the general welfare of the population. One manifestation of this is the general feeling of confidence and optimism that is palpable during "boom" periods. Social change can be enacted at such times, stemming from the pool of additional resources available to society as a result of expansion. A growing economy is a dynamic one, with change spawning further adjustment. In contrast, a stagnant economy is one with anaemic social processes. Economic growth can thus be perceived as providing the driving force behind society, a force which dissipates when economic growth ceases.

A small but influential body of opinion argues that the above justifications pale in significance when compared to such issues as the depletion of natural resources and the debilitation of the environment which arise as a consequence of growth. It must be admitted that "careful" economic growth is preferred. Yet natural resources are not ornaments. They are there to be used, not ignored. And when they are exhausted, alternatives will be found. A certain amount of pollution is an unavoidable consequence of economic growth, but this cost must be set against the multiple benefits which accrue. These are issues which should be tackled directly. Limiting economic growth is both short-sighted and inefficient. Indeed, since existing enterprises account for much of pollution, attention should be focussed on them rather than on the industries which will pollute in the future as the economy grows.

It is clear then that economic growth is incompatible with certain other equally plausible objectives. However, the concomitant effects which occur in the

arena of government policy deserve particular attention.

Growth does complement certain other policy objectives. Increased labour mobility and higher turnover are essential prerequisites for dynamic economic growth, and this attracts new agents to the labour market. In this way, when the economy expands, employment increases more than proportionately. Growth and equality are also complementary. Since growth implies relatively higher income in the future, intragenerational redistribution is possible (in the future) with changes in relative incomes only. Enhanced equality can thus be achieved over time without an absolute reduction in anyone's standard of living.

Having said this, it is possible to argue that there is a significant trade-off between growth and equality. Savings fuel growth which leads to higher future incomes. On one interpretation, this causes the marginal propensity to save to rise, causing further growth. It thus follows that enhanced equity may lead to a drop in savings and investment, stunting growth. The conclusion then is that, in assessing the relative merits of growth, due consideration must be given to the concomitant effects which arise. There is no simple answer to the question "Is economic growth desirable?"

Conclusion

This paper has discussed the nature, measurement and desirability of economic growth, an objective which occupies much of the attention of policy makers. It is perhaps the most proximate of policy objectives. Its underlying premise, an increase in society's general welfare over time, is veiled by concentration on specific measures. It cannot be accorded absolute priority, nor can it be pursued in isolation. Ultimately, its pursuit as a policy objective represents a value judgement - albeit one to which the majority subscribe.

A Note on Equality as a Policy Objective

Pat McColgan

Of the three main policy objectives, full employment, equality and growth, it is equality that, while being the hardest to define and measure, is the one that the ordinary person on the street would most probably choose. The following is a transcript of a typical conversation with such a person. In accordance with standard economic convention, the interlocuter, being variable, is denoted by X.

Transcript

Ask Mr. X to define equality, and he will probably offer the lame "where everyone is equal", and beyond that be able to offer no further insight. So you offer him a choice between two alternative definitions:

(i) equality of opportunity: i.e. in the initial state, everyone is given an equal chance to improve his or her lot;
(ii) equality of welfare: i.e. in the end-state, the government ensures that everyone is equally well-off.

Contingent on his political persuasion, whether he is conscious of it or not, Mr. X will choose one or the other. Left/socialists tend towards number two while centre right/ liberals choose number one - with a cry of: "that's what I meant!"

"So now that you know what it is, Mr. X, could you tell me how you would know if what you are either aiming to encourage or cause to come about has in fact happened, or if not, how far you have to go to see its realization?" An embarrassed silence follows, then a repetition of the chosen definition, with perhaps a mention of income, but no clear idea of how equality is to be measured.

An intellectually arrogant but overwhelming desire comes over you to grant Mr. X the gift of enlightenment, so you explain that equality is not achieved by everyone having the same income. Peoples' needs vary, and some will need a higher income than others to achieve a given level of utility." Indeed, Mr. X, you may have ten children, whereas Mr. Y (another random person) may have none. Or you may have to work twice as many hours as he does in order to earn an equal income." Finally, he may have the capacity to get more enjoyment out of £100 than you do, so even on equal incomes, your welfare isn't necessarily equal.

"Ok, ok" he says, "if it's not income, what is it I should use to know where I stand in the equality stakes?" There he has you, you have to admit, since no alternative to income exists as a proxy measurement of welfare. It is something with which we have to make do. Yet problems remain: how do we define income? Should we include income-in-kind - perks of the job? "Yes," is the answer, but how to measure income-in-kind is another question, which we shall ignore, for Mr. X is starting to look at his watch and get fidgety. He has been standing in the street, talking to you, for quite some time now.

Hurrying along, you explain how income is a faulty measure of equality unless allowances for certain difficulties are made. For example, most of the income data that

exists about those outside your immediate circle is of the per-household variety, and not as you would want it, per individual. It can't just be divided by the average number resident in each household, as research has shown that the lower a person's income, the more likely he or she is to share accommodation, so a house that seems quite wealthy could have twenty relatively poor people living in it. And you use the word 'relatively' because while the people in that house may be poor by Irish standards, they may be wealthy by the standards of, say, Ethiopia, in the same way as you may be quite comfortable by Irish standards, but poor by German ones.

Ask Mr. X why does he see equality as the most desirable of the policy objectives, and he will, in all probability, say "because it's desirable". A simple if truthful answer but not deep enough for you. Ignoring his pleas for respite, (e.g. "I must be going," or "the shops are closing soon") you ask: "Can it not be argued, Mr. X, that equality is not only in the interests of the poor, but also of the rich? For if inequality persists, it can lead to alienation and then to social unrest, which is unpleasant for us all, and can in its most extreme forms lead to the destruction of the whole system, as any Tsar will surely confirm."

Even if the "unequal" were passive in their plight, surely compassion has a place! How many times have you passed a child begging on a street, and wished they weren't there, ignored them for you felt they offended your dignity and that of your city and country? But you can't just wish them away, and £1 in their box won't make them go away either. Only a society committed to equality will do that, or one which forces the poor off the streets and into ghettos, an alternative which neither you or Mr. X relish.

You then outline the diminishing marginal utility argument which, in contradiction of one of your previous arguments (but he fails to notice), argues that people by and large have an equal capacity for enjoyment and that each £1 we get gives us less enjoyment than the last. This is the argument most used in favour of redistribution of wealth. It holds that if person A earns £100,000 p.a., and person B £1,000, shifting £1,000 from A to B via taxation and transfer payments, causes A less loss of enjoyment than it gives to B.

You decide not to give Mr. X the benefit of Rawl's justice argument, which is a tad esoteric for the context. Just then Mrs. X and X Jnr. (his son) arrive, having set out as a search party for the long overdue Mr. X. They wish to know what has kept him for so long, so you explain that you were discussing which of the three policy objectives were preferable and why. Caught up by this, Mrs. X plumps for full employment, and X Jnr. for growth.

Mrs. X argues with Mr. X that the unemployed represent one of the most disadvantaged sections in Irish society, if not the most disadvantaged. Hence removing unemployment will lead to a more equitable society. Junior counters with the argument (he's obviously intelligent enough) that he sees unemployment as being partly caused by attempts to achieve equality, such as high unemployment benefits and minimum wage legislation. He says that equality can only be achieved through growth, for only then, in a growing economy, will redistribution not be resisted by those who would otherwise lose out.

By now it's time you were going home, so you leave the X family arguing on the street about equality as a policy objective, with the parting shot, "policy objectives are very difficult to define, and measure, in any precise way," to which Mr. X retorts "know it all". Yet in reality you don't, for you don't know how to achieve equality, or measure it. But then, neither does anyone else.

The Harberger Triangle Re-Visited

Elaine Ryan and Carol O'Sullivan

This essay details the welfare costs that result from the presence of monopolies in society. As a basis for this discussion, the outcomes of competition and non-competition are first contrasted. In section two, the social costs of monopoly as first estimated in the pioneering work of Harberger (1954) are examined. It will be argued that Harberger's triangle is an inaccurate tool for measuring the full social costs of non-competition.

Competiton versus non-competition

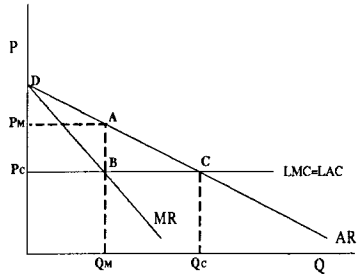

Figure I

In the above diagram, the situation in which a monopolist and a perfect competitor face identical and constant costs in the long run is depicted. In order to maximize profits the perfect competitor, with no power to influence the market price, sets AR = MR and thus produces Q_c at a price P_c. No supernormal profits accrue, and consumer surplus of DP_cC obtains. This is the optimal outcome for consumers. In contrast, the monopolist sets MR = MC resulting in Q_m being produced at a price P_m. Monopoly power enables price to be kept above marginal cost, yielding supernormal profits of P_mP_cBA. Under these circumstances, the consumers lose out as their surplus is reduced to DP_mA. The remainder of the original consumer surplus becomes a deadweight loss to society. This area, ABC, is known as the Harberger triangle.

The Harberger Triangle

In 1954 Harberger attempted to measure the deadweight loss resulting from monopoly. He argued that ABC:

$$
\begin{aligned}
&= -0.5\Delta P\Delta Q \\
&= -0.5\Delta P.dQ/dP.\Delta P \\
&= -0.5[(\Delta P)^2/P].[dQ/dP.\ P/Q].Q \\
&= -0.5[(\Delta P)^2/P].\varepsilon.PQ/P \\
&= -0.5(\Delta P/P)^2.\varepsilon.PQ
\end{aligned}
$$

where ε is the price elasticity of demand. The above equation states that the welfare loss is dependent on the change in price resulting from the move to monopoly (the price elasticity of demand), and total revenue. Harberger assumed that the price elasticity of demand was equal to one. Using this formula, he summed areas ABC for each industry to arrive at an aggregate estimate of welfare loss for the US economy. He concluded that the total deadweight loss for the US in the 1920s represented no more than 0.1% of GNP. This implied that there was not a large social cost associated with non-competition. Society need not worry about the presence of monopolies in the economy, and policy makers need not direct their efforts towards restricting or controlling their behaviour.

However, it can plausibly be argued that Harberger's estimation procedure was flawed. Stigler (1960) was one of the early critics. Firstly, he contested Harberger's equation of the price elasticity of demand to one. He argued that this was unrealistic due to the fact that non-competitive firms tend to operate on more elastic parts of the demand curve. If we accept this we should use a larger value in the above formula, yielding a larger deadweight loss. Secondly, Stigler pointed out that, because some profits are treated as costs, accounting rates of return understate true monopoly profits.

Despite these criticisms the majority of the early studies concurred that the losses to society arising from the existence of monopoly were relatively insignificant as Harberger had proposed. However, these early studies were limited in their approach since they only focused on the welfare costs arising from output restrictions. They didn't consider the fact that to maintain their position, monopolies may wastefully use resources. This idea was the subject of Posner's (1975) analysis.

Beyond the Harberger Triangle

When monopoly profits exist, profit-maximising behaviour on the part of firms entails the inefficient use of resources in an effort to sustain these profits. The associated resource misallocation is a significant cost of non-competition. Posner, by assuming that the resources needed for this sustaining behaviour are in perfectly elastic supply, claimed that their consumption would equal the whole of monopoly profits. He asserted that these resources are wasted on such activities as:

(i) advertising as an entry barrier: in order to compete, entrants would be forced to incur the same level of advertising costs per unit of output. For some this would be financially infeasible.

(ii) over-patenting: the incumbent firm may spend large amounts of money on research and development. Consequently new prototypes and products emerge. The firm patents these in order to prevent their development by others, hoping to claim market share. However only a small proportion of these are actually produced by the firm. Therefore much of his expenditure is wasteful because it does not give rise to benefits for society in the form of new and improved products.

(iii) directly unproductive activities: a monopolist wants to ensure that he stays in his advantageous position. In order to pursue this objective he may engage in political lobbying, bribing etc. These activities, as well as being of no social benefit, constitute a distraction to public officials from their work for society. They are also of dubious moral integrity.

Referring back to Figure I, the social cost of non-competition is now represented by both the Harberger triangle and monopoly profits; ie. ABC + PmABPc. Using the same data as Harberger for U. S industry, Posner (1975) estimated the total welfare loss of monopoly to be 3.4% of G.N.P.

Once again, however, objections can be raised. Monopoly profits are a poor measure of wasteful expenditure. On the one hand, they may overestimate the loss. First, forms of non price competition such as advertising may offer benefits to society, such as the provision of improved information about products and their uses. Secondly, firms may decide among themselves not to compete for the profits and therefore don't need to waste resources in pursuit of them. On the other hand, the profits may underestimate the loss. First, as noted by Stigler (1960), some of monopoly profits may appear as costs but we need full monopoly profits if we are attempting to use them to measure the wasted resources.

Second, costs resulting from Government efforts to control monopolies are not included in Posner's calculation.

The work of Posner was lent empirical support by Cowling (1972. He examined the social costs of non-competition in both the US and the UK, obtaining similar results to Posner's. A further result of his study was that social losses in the U.S are larger than those in the U.K. This could be a reflection of the higher levels of advertising in America. Overall, then, it can be concluded that the objections raised by Posner remain tenable.

One final study deserves attention. Comanor and Leibenstein's (1969)work on the efficiency of monopoly has led to a further examination of the extent of social losses. They question the assumption of identical costs under perfect competition and monopoly. Their proposition is that a monopolist is cushioned from the competitive market forces and so may allow his costs to rise above those of a perfect competitor.

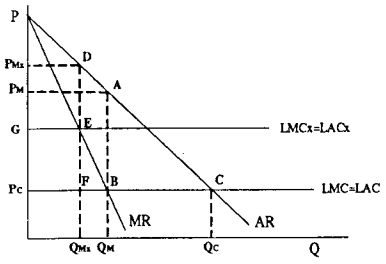

Figure II

As can be seen from Figure II, the perfect competitor operates at P_c and Q_c and consequently there is no deadweight loss or supernormal profits. The monopolist with identical costs produces Q_m at P_m, making supernormal profits of P_mABP_c and causing a deadweight loss of ABC. However the inefficient monopolist with higher costs (LMCx = LACx) restricts output further to Q_mx and charges a price of P_mx. He earns supernormal profits of P_mxDEG and we can also see that the deadweight loss is increased to DFC. A further social loss, to be added to this is the straight x- inefficient loss $GEFP_c$ This is a result of the higher monopoly costs.

Certain problems with this analysis can, however, impinge. The social loss under monopoly can in fact be smaller than that under perfect competition if the monopolist's costs are considerably below those of a perfect competitor due to economies of scale.

Conclusion

In this essay, attention was focussed on the idea of social welfare loss under conditions of monopoly. Harberger's approach remains deficient in certain respects, and alternative formulations, buttressed by empirical data, seem to deserve more consideration.

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Farm Supports: An Agenda for Reassessment

Michelle Brennan

O farmers excessively fortunate: if only they recognized their blessings! (Virgil).

The farming community seems permanently dissatisfied with its lot. Commentators often portentously forecast financial disaster within the agricultural sector, and appeals for increased intervention are normally attendant. Yet it must be asked whether increased intervention can be sanctioned on tenable economic grounds. This paper seeks to address this issue.

The discussion proceeds in two parts. The first examines the extent to which the agricultural sector is subsidized, and overviews the shortcomings of the support system. Section two then delimits in detail three of the more prominent justifications for farm supports that have been forwarded, and concludes in each case that preferable alternatives to such supports exist.

The farming industry and sectoral supports

The agricultural sectors of the industrialised economies are the recipients of substantial indirect and direct support. In 1980, state and EC expenditure accounted for 58.9% of income arising from agriculture in Ireland (Matthews,1982). This support is also significant for the economy as a whole. In 1985, direct aid to Irish agriculture from the FEOGA funds was equivalent to 5.8% of GNP (NESC,1988). Taking a more global perspective, OECD statistics for the period 1979 to 1981 reveal that agricultural policies provided 93.2% of the Gross Value Added in agriculture in the EC, 104.3% in Japan and 42.1% in the US (OECD,1987). It is clear, then, that the level of agricultural intervention is substantial.

A number of invisible costs arising from this support obtain. According to the WALRAS model, the distortionary impact of subsidies represents a cost to the OECD countries of US$72 billion every year (Winters,1990). This figure takes no account of the costs borne by countries outside the OECD, whose agricultural balance of trade is affected. The exact effects of the resulting misallocation of resources are difficult to measure, but it is arguable that they represent a substantial burden on the economies involved.

Despite such degrees of support, the farming sector still has to cope with persistent problems. Income levels appear to remain well below those of other sectors, and some studies indicate widening disparities within the sector. In addition, fundamental economic factors are unfavourable. As the economy evolves, agriculture's position in the development process becomes relatively less significant. It's contribution to GDP, exports and employment declines. This is because technological progress leads to a growth in supply that outstrips demand. Foodstuffs tend to have low income elasticities, and hence as the economy develops, expenditure becomes progressively more concentrated on other goods. This treadmill process forces down agricultural prices over time, causing the farm sector to remain at an income disadvantage to the rest of the

economy (Hill and Ingersent,1982). The minimum viability threshold of farms is constantly rising, and profitability ever more difficult to attain.

Yet in many cases, subsidies for the farming industry appear to exacerbate rather than mitigate the problems which impinge. Dependence on support, over-production and inefficient use of resources are encouraged, the inevitable consequences of an effete system. Despite this fact, organisations such as the EC continue to provide support for the farming industry. In an effort to resolve this paradox, the next section examines in more specific detail the justifications for such a policy that have been forwarded.

A rationale for farm supports

Agriculture has been ascribed a vital role within the economy. Policies are engineered to protect agriculture from "going to the wall" because it is seen as an industry that is indispensable. What Winters terms "Non-economic Objectives" derived from social values are of paramount importance (Winters,1990). In other words, support is a social good. One example of this is the use of agriculture's integral links with the environment to claim that support for the former takes care of the latter.

While few would object to the goals of looking after our planet, providing sufficient food or helping the disadvantaged in society, it does not automatically follow that supporting agriculture will help us to achieve them. The costs and benefits of alternative policies must be examined before a conclusion can be reached. The following sub-sections delineate three specific justifications for farm supports, and ask if an alternative policy would be more effective in achieving the desired objectives.

The need to ensure food security

The aim of food security is simply to ensure that *enough* food is supplied and that this supply is *secure*. In practice, this is often equated with self-sufficiency. Producing what you need yourself is seen as the best way to avoid a food shortage. Supporting agriculture aims to facilitate this. The degree of protection involved is considered justified if the nation's food supply becomes less vulnerable.

However, a less vulnerable food supply requires greater *stability*. Cyclical patterns in the amount supplied and the consequent price fluctuations have to be mitigated, as these de-stabilise the domestic food market, altering the quantity available at a 'normal' price. It may be contended that price supports militate against stability. If supply shocks occur within a domestic system insulated from world trade, the global market cannot be used as a cushion. A case in point is the 1974 UK sugar beet shortage (Hill and Ingersent, 1982). As Ritson (1980) notes: "With trade, domestic markets will be much more stable than if individual country markets are isolated from each other."

The first element of food security is *economic* security. This embodies the idea that a nation be always able to afford sufficient food. Defining sufficient is difficult, but average intakes in the OECD economies are more than adequate. A healthy diet could be supported on less food than at present. Yet supports which *raise* the prices of food must be questioned. In the long-run, protecting agriculture makes the food supply less affordable, and economic security more difficult to attain.

The more emotive element of food security is strategic security. This means that the nation should always be able to get enough food, even in an emergency. As already noted, the world agricultural market is best able to absorb fluctuations in supply as gluts in some areas can be offset against shortfalls in others. An economy is less likely to face sharp supply restrictions if

agricultural trade takes place freely. However global shortages do occur. Should world prices escalate, the industrialised economies are still best placed to acquire that food available. It is highly improbable that the world's richest countries would be priced out of the food market.

An emergency could take the form of a trade embargo. But it is unlikely that food would be unavailable from *every* external source. For example, the USSR managed to import grain during the 1980 US Grain Embargo (Winters,1986). Self-sufficiency would be a help, but not absolutely necessary. The crisis most feared is another WWII-type scenario. Yet it is arguable that a modern war on that scale would follow the same "conventional" pattern.

In this light, increased self-sufficiency appears to be neither an effective nor affordable insurance policy to secure food security. This conclusion is buttressed when it is remembered that complete self-sufficiency is extremely costly to achieve. Self-sufficiency may be only skin deep due to heavy reliance on imported farming inputs (machinery, energy sources, fertilisers etc.). EC food surpluses suggest productive independence, but, in an emergency, production would suffer as input supplies were restricted.

Other more palatable alternatives exist. Strategic stockpiling of food would aid stability and protect against extreme situations. Trade agreements could be entered into in order to ensure a steady and affordable supply of food imports. The costs of such policies would be less extensive than those of general support to the domestic farming sector. In sum, food security has been used as an excuse for farm support but the two are not necessarily complementary. The need to provide a secure food supply does not automatically mean that agriculture should be protected.

The need to support farm incomes

The issue of whether farmers are disadvantaged is moot. The farming community argues that this is the case, yet the PAYE sector still bears many grudges towards it for ostensibly not sharing a fair proportion of the tax burden.

A number of problems arise in obtaining an accurate measure of the disparity between farmers' incomes and those of the non-agricultural sector. The efficacy of average farm income figures is compromised by the existence of wide differentials in actual agricultural incomes. A further caveat to be borne in mind is that any examination of farm incomes must necessarily take account of farmers' wealth (Hill,1989). Nevertheless average figures furnish a rough guide. The indications are that average farm income is generally significantly lower than average non-farm income. In addition, it is argued by some that, while farmers may be rich on paper, they are less well able to convert their assets into a flow of income than are workers in other sectors. Running down their asset base involves reducing their farming activities, thus cutting off future income streams. The ease with which the intrinsic value of their assets can be realised is also questionable, if their uses outside agriculture are limited.

The question at issue concerns the relative efficiency of farm supports as a means of mitigating this income disparity. It can be contended that measures to ease the conversion of assets into income would be less regressive and more efficient. Policies aiding the working of the agricultural capital market and providing credit facilities would help farmers realise their net worth - addressing the actual market failure rather than the symptom.

The farm income problem is a result of resource misallocation, rural poverty and structural deficiencies. General support to farming causes further distortions and does

not deal with the roots of the problem. The reason for this is twofold. Firstly, the farmer/non-farmer dichotomy is misleading. Rich farmers do exist. Poor farmers are poor for reasons quite similar to those of the urban poor. It is the culture of poverty that must be addressed. Secondly, "rural" should not be equated with "agricultural". Preserving or ensuring a healthy rural community is not the same thing as propping up agriculture. Infrastructural aid and specific schemes are of far more benefit to the fabric of the rural community, and to those actually in need.

The fact that agriculture is in decline is not the fault of the farmers but they cannot be shielded from the necessary adjustments forever. In the long run, the farm sector cannot provide a viable way of life for as many as policies have attempted to force it to. The need to support farm incomes is best interpreted as a need to redress fundamental problems relating to farm incomes. Farm supports constitute an ineffective means way of doing this, and indeed can worsen the situation.

The need to preserve the rural environment

While the idealised rural environment may be dotted with picturesque farms, increased agricultural activity can and does have detrimental effects on the landscape. Visual amenity can be impaired by the growth of monoculture and the eradication of natural (or traditional) features, such as hedgerows, woodlands and marshes, in order to make room for larger, more easily worked holdings. Farm support favours agribusiness, whose concerns are not identical to those of the Green Lobby. As was noted in a recent OECD (1989) report, methods which encourage the "overuse of soils and chemicals, the pollution of both water resources and foods with these chemicals and the degradation of the environment" have been latently encouraged.

Yet since agriculture's future is integrally linked with that of the environment, interests can and should be made to coincide. According to Viatte: "The overriding question with regard to the environment is how to internalize in decision-making the externalities associated with agriculture"(1990:299). Despite Coase's Theorem, the market cannot always find its own way to cope with externalities and intervention is necessitated. Environmental policies should aim to equate market costs with the true social costs, something which farm supports fail to do. In addition, incentives to over-produce should be removed. The decoupling of farm support and farm output would go some way to achieving this.

Agriculture does not deserve special treatment on the grounds of its role in preserving the rural environment. The special treatment it does require should be designed to prevent and limit its abuse of the rural environment. This must not be equated with farm support.

Conclusion

This paper has discussed the nature and efficacy of farm supports. Some of the more prominent difficulties facing the farming sector were discussed in section one, as was the extent of agricultural support provided to mitigate these problems. Section two discussed specific justifications for intervention, including the necessity to protect food security, farm incomes and the rural environment. It was contended in each case that other more efficient alternatives exist, and that intervention cannot therefore be legitimately countenanced on the basis of these arguments.

The conclusion must be that there is a need to re-examine the systems of farm supports that have been put in place. Policy-makers may simply be bowing to the

pressure of a small but influential lobby group in maintaining these systems. The case for agricultural support is not axiomatic, and should not be regarded as so.

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The International Narcotics Trade: The Case of Three Less Developed Countries

Tadhg Cashman

In recent years the war which the US Drug Enforcement Agency has waged on the international drugs trade has received considerable international attention. Much of this, however has been focused on the social and political side of the problem, especially in the US. A much neglected area is the profound effects the narcotics trade has on the producing economies. The purpose of this essay is to examine the economic effects of the drugs trade on the three principal producing economies; namely, Colombia, Bolivia and Peru.

In section one, the three economies and the structure of their cocaine industries are briefly examined. Section two then proceeds to outline the main macroeconomic effects on the three economies of the drugs trade. It is concluded that a durable solution to the drugs problem must be located in the demand side of the industry, but that such a solution cannot but have a debilitating effect on drug economies.

The economic backdrop

The Columbian, Peruvian and Bolivian economies all exhibit the characteristics of Less Developed Countries. All rely on one or two major sources of export income and all are heavily agriculture or primary industry based. Foreign debt and balance of payments problems impinge severely, and unemployment is a fact of life. The Peruvian economy has been a victim of world economic trends, natural disasters and economic mismanagement. Bolivia relies mainly on agriculture and tin, and has experienced several inflation spirals. Colombia is the country which is most prosperous, but despite this, it's foreign debt has become unmanageable.

Having said this, the economies of these nations have one dimension that those of other LDCs do not - narcodollars. This additional income does not appear in official statistics, but it can be argued with some conviction that the repatriated earnings of South American drug barons represent a significant portion of GNP.

Bolivia and Peru are the main growers of the coca, while Columbia processes it into cocaine. Columbia therefore receives most of the value added, while Bolivia and Peru are paid by the Colombians for the raw material. However, Columbia is a much larger economy than the other two, and therefore the proportional effect of the narcotics earnings is approximately the same.

Structure of the cocaine industry

The economics of coca are impressive. Business Week (1986) estimates that a hectare crop of coca (the plant from which cocaine is derived) is worth about $5,000 to the farmer compared to only $500 for an equivalent harvest of coffee. A hectare of coca yields about 9kgs of cocaine which sells wholesale for about $800,000 (several times the price of gold). Because of the large value-added at each stage of production and distribution, the industry has witnessed much horizontal integration. The scale of the cartels which resulted prompted Mr. Alan Garcia, President of Peru, to comment that the drugs industry was "Latin America's only successful

multinational" (*Economist*,1988,25). The cartels compete not through price or strategic mechanisms, but rather through violence.

The revenues generated are estimated to be huge - between $76-$181 billion[1]. Exactly how much of this is repatriated to Columbia, Bolivia and Peru is not known, but one estimate puts the figure at approximately $11 billion. It is widely but incorrectly held that these repatriated earnings stay in the hands of a relatively small number of traffickers and middlemen. In fact, as the next section reveals, the impact is far more dissipated than this.

Consequences and implications

The drugs industry impacts on the economies of these countries in a number of ways. The effects are both positive and negative. Five of the most significant are discussed below.

Inflation

One of the initial effects of such an influx of money is a growth in the money supply. This spawns an increase in the demand for goods and services, especially luxury goods and construction services, causing prices to tend upwards. Many lower and middle income families have been driven out of the property market as a result. Once inflation spirals begin, they prove very difficult to collapse. In August 1990 the Peruvian government quadrupled staple food prices and drove up petrol prices by 3000% causing demand to collapse. Such were the shock measures needed to control the narcotics-induced inflation.

Balance of Payments and Foreign Debt

Huge foreign debt is a major burden for the three economies in question, and narcodollars are an unofficially welcome source of foreign exchange. Wisotsky (1986) estimated that in 1984, coca brought in approximately $2 billion in foreign exchange for Bolivia, at least three times the value of it's leading official export, tin. The repatriated drug money is absorbed directly into the financial system by the banks, who provide high interest-yielding, confidential accounts. Indeed, the US Drug Enforcement Agency has accused the South American banking industry of being an integrated money laundering organization. These dollars are then used to service the huge foreign debts of the economies. For government leaders who see vast amounts of trafficking dollars infused into their faltering economies, it appears that the drug trade has its benefits.

Uncompetitiveness

Drug dollars have implications for the exchange rates of the economies. As well as causing an excess of dollars in the economy, drug dollars have caused what Mr. Francisco Thoumi, a Colombian economist, has termed "Dutch Disease" (Economist,1988:25). This phenomenon occurred in Holland in the 1970s when a sudden surge of income from natural gas exports distorted the Dutch economy. Just as the energy boom pushed up the value of the guilder and made many other Dutch exports uncompetitive, the coca boom has pushed up the currencies of the three economies, which has undermined the competitiveness of their other exports.

Employment

One of the clearest effects of drug money is that it creates jobs. Mr. Rennssalaer Lee, a foreign policy consultant in Washington, estimates that between 750,000 and 1.1 million people are employed directly in the drugs trade, which is 5% of total official employment in the three economies. As well as the large numbers of farmers

1 The nature of the industry is such that no official figures appear and therefore revenue measurement can only be approximated.

involved in the actual growing of the, coca traffickers support large numbers of drivers, runners, "security" men, builders, chemists and so on. Since unemployment is rife, wage levels are extremely low and because the jobs are not official workers are easily exploited. Many of the jobs also involve violence and crime, which has a high social cost. The narcotics industry also indirectly supports countless secondary jobs in banking, accountancy, real estate, and law. However, the nature of employment in these sectors is generally illegal. Many lawyers and bankers are threatened if they do not provide their services. Thus, when set in context, it is arguable that the employment provided by the cocaine industry is not socially desirable.

Agriculture

Farming is the most labour intensive aspect of the business and in 1987 it was estimated that approximately 300,000 Bolivian farmers were engaged in coca production, 17% of total Bolivian employment (Inciardi,1986:179). The economics of coca production have made it extremely difficult for farmers not to produce. Although the US funded long term projects to develop alternative crops, their unsuitability to the South American environment and the comparative price of coca ensured that these efforts foundered. Coca also provides three harvests a year compared to only one for most of the other commercial produce.

For many peasants, the cultivation of coca offers a way out of poverty. Attempts by the governments of the three economies to eradicate coca production have met strong resistance from both traffickers and peasants alike. Yet if no action is taken, the agricultural sectors of these economies will become ever more dependent on coco, concomitantly increasing exposure to the whims of cocaine prices. The answer to the problems cocaine causes is not, however, in supply eradication. The relative price inelasticity of cocaine means that restrictions on supply cause prices to soar, further enhancing the incentives for traffickers[2]. The governments of the three economies have been slow to recognize this. Attention should instead be focussed on the demand side of the narcotics market, wherein the kernel of a durable solution lies.

Conclusion

It is clear from the above discussion that the narcotics trade has important latent effects on the economies of Colombia, Peru and Bolivia. The effects would appear to be positive with regard to balance of payments, foreign exchange and employment but negative with regard to competitiveness and inflation. Socially and politically, however the cocaine industry has been disastrous for these nations. Violence, corruption, bribery and blackmail have led to instability, most notably in Columbia, where there has been many political assassinations. The hidden social costs to these economies negate any benefits which the revenues may provide.

However, historically the demand for any one drug has been cyclical, and if world demand for cocaine drops (as it has shown signs of doing in 1990) this will have significant effects for these three economies. Although there are social costs, Colombia, Bolivia and Peru need narcodollars to survive. As a senior Colombian Central Bank official commented: "We need that money to keep the economy going. That's a sad but unequivocal reality."

2 It is precisely illegality that makes cocaine trafficking one of the worlds most lucrative business. It is a high risk, high return business.

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Is Development Economics a Dying Subject?

Maura Conneely

The demise of development economics, following it's repeated trouncing, is likely to be conducive to the health of both the economics and the economies of developing countries (Lal,1983:109).

Introduction

This essay sets out to examine the moot issue of whether the last forty years of development economics have achieved anything. It asks if individual or societal welfare in any of the sixty-two recognized Less Developed Countries (LDCs) has been improved as a direct result of the implementation of development policies.

Section one defines development economics, delimits its objectives, and traces the evolution of development theory. Then in section two, specific attention will be directed at the neo-classical theoretical revolution, and the challenge to development economics embodied in its prescription of non-interventionism. It will be concluded that, despite this challenge, development economics will remain a vibrant and useful sub-discipline.

Development economics

It is possible to take a very broad view of the concept of development economics. According to Sen:

> "...interest in development has traditionally provided one of the deepest motivations for the pursuit of economics in general....The enhancement of living conditions must be an essential - if not the essential - object of the entire economic exercise, and that enhancement is an integral part of the concept of development" (1988-9:10).

Development economics involves

> "the study of the economic structure and behaviour of poor developing countries. It encompasses reduction in poverty, improvements in education and [the] health of the population, as well as increases in productive capacity and G.N.P. per capita" (Lewis,1988-9: ix).

Toye (1984) sees it as multidimensional subject which allows for the effects of politics, history, institutions, technology and economics to explain the current situation in LDCs.

The study of the LDC economy only began after World War II, when the need to analyze the economic structure of the newly independent former colonies became apparent. The initial brief of the sub-discipline was to "improve the lot" of the populations of these countries. In the last forty years, sweeping changes have occurred in our world, and these have been reflected in scope of development theory. It has now been modified so as to accommodate the economics of technology transfers, rapid population growth and debt crisis.

Initially, development was synonymous with growth, and during the 1950s and 1960s, the main thinking focussed on

development as a series of successive stages through which all countries must pass. This linear stages (evolutionary) theory of development emphasized the need to accumulate capital in order to promote investment, particularly in the industrial sector. Capital could be sourced either domestically or through international channels.

Soon, however, it became apparent that development could not legitimately be equated with growth. The need to focus on other priorities such as equity was promulgated. During the 1960s and throughout the 1970s, the evolutionary approach was replaced by two differing schools of thought - the structuralists and the neo-Marxist/dependency theorists[1].

Common to these schools was an advocacy of government intervention to correct for market failures and to plan development. However, beyond this, the analyses diverge. Structuralist writers locate the source of the difficulties faced by developing economies in a general inflexibility of markets. Agents fail to respond to price signals, and intervention is needed to remedy this deficiency. Structuralists also propound government planning and *dirigisme* of the economy, and are generally dismissive of the possibility of gains accruing from international trade.

As mentioned, the dependency school also advocate government intervention, but this intervention is aimed at reshaping the political, economic and social structure of society. Dependency theorists see underdevelopment as an externally induced phenomenon - it is not a stage through which economies must pass, but rather a condition instigated by developed economies. This paradigm can be contrasted with the evolutionary growth and structuralist models which view underdevelopment as the consequence of internal factors.

This, then, is the nature of development economics, and the predominant schools of thought which have propagated. The following section will analyze the neo-classical challenge to these established ideas.

The Neo-Classical Revolution: a challenge to development economics

During the mid 1970s, LDCs were beginning to set the world agenda with their demand for a New International Economic Order. They sought to be consulted on areas such as trade, international technology transfers and socio-political issues. However, these new beginnings foundered at the start of the 1980s, with the changing Zeitgeist and the resurgence of conservatism in the Western World. The governments of the US, Canada, West Germany and the UK committed themselves to Neo-Classical policies, engineering recessions in a fight to curb inflation. This had auxiliary effects in LDCs. The high interest rate policies of western creditor nations, for example, increased their already massive debt burden which had accumulated during the 1970s.

The embryo New International Economic Order was soon discarded. More stringent credit restrictions were put in place. In order to be eligible for new loans (or to roll over debt), LDCs had to enter into structural adjustment agreements, entailing the privatization of state owned enterprises, the opening up of economies to international trade and less intervention by governments. In essence, the promulgated neo-classical policy prescriptions came to the fore.

On a theoretical level, these changes were mirrored in the "Neo-Classical Resurgence", evidenced in the works of

1 Representative of the structuralist school are the works of Chenery, Lewis and Prebisch. Neo-Marxist/ Dependency theorists include Frank, Cardosa and Dos Santos.

Lal, Little, and Bauer. They looked on the performance of the "Asian Tigers" (Hong Kong, Singapore, Taiwan and South Korea) as evidence that the outward looking free market approach would achieve development and alleviate poverty and inequality. These neo-classicals believed in market flexibility, and that people do respond correctly to prices. This is apparent in the following quotation from Lal:

> "In seeking to improve upon the outcomes of an imperfect market economy, the dirigisme to which numerous development economists have lent intellectual support has led to so called 'policy induced distortions' which are more serious than any of the supposed market imperfections it was designed to cure" (1983:77).

He goes on to argue that:

> "...the best service the North can give to the third world is to ensure that the post-war liberal international economic order is maintained by refusing to surrender to the blandishments of either the Southern dirigistes or the Northern advocates of the new protectionism" (1983:69).

A Defence of Development Economics.

Accepting that the Neo-Classical view is a long term and justifiable solution to the economic problems of LDCs doesn't signal the end of development economics. Toye (1987) has stated many reasons "why development economics shouldn't be absorbed into the mainstream of economics" (1987:16). The Neo-Classical resurgence is merely advocating the use of traditional economic principles as solutions to the problems of LDCs. There is no doubt that improved efficiency in production and distribution, through a properly functioning market system, will benefit everybody and is therefore necessary to the success of any development project. However, it may not be sufficient.

In this context, there are two main reasons why development economics should continue to flourish. The first is that it concentrates on four central issues - economics, technology, institutions and politics. The Neo-Classical approach can therefore be seen only as a subset of development economics, as it only looks at the economic problems. Consideration of the other issues is beyond its scope. For example, in recent years, considerable emphasis has been placed on the importance of international technology transfers. This issue is crucial to the production structure of the LDC and therefore to employment and income distribution. Yet it is ignored within the Neo-Classical paradigm.

The second reason why development economics will survive lies in the mechanistic way in which neo-classical economics must be applied. There are special considerations which must be taken into account in discussion of LDCs as their markets do not necessarily function in the same way as those of more developed economies. Development economics is best equipped to take account of these special consideration.

Conclusion

This essay has defined and traced the evolution of development theory. The main challenge to this branch of economics the Neo-Classical free-market resurgence was also discussed. It was argued that development economics will outlast this challenge, due to spécial characteristics of developing economies.

Bauer writes:

> "I believe that in economics, as in

other disciplines, it is a sign of maturity and not of obscurantism when the practioners recognize the limitations of their subject" (1976:303).

However recognizing the limitations of development economics is not equivalent to sounding its death knell.

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Development Against Women in Sub-Saharan Africa

Lisa Finneran

The extent to which women are free to make decisions affecting their lives may be the key to the future, not only of the poor countries, but of the richer ones too. As mothers; producers or suppliers of food, fuel and water; traders and manufacturers; political and community leaders, women are at the centre of the process of change (State of the World Population 1989).

Introduction

This essay is concerned with the effect of development policies on discrimination against women in less developed countries. It addresses specifically the case of rural women in Sub-Saharan Africa, and the impact on them of agricultural development policies. It finds that, not only has development failed to reduce discrimination against women, it has actually increased it. Such development is indicted not only on the grounds of equality, but also on the grounds of efficiency. It is argued that the reduction in the power of women has debilitated the overall development of society.

Traditions in African culture

There are two traditions specific to African culture which must be noted at the outset. Firstly, women, seen in a life-giving and nurturing role, are expected to provide the family's food requirements. Men's duties extend no further than the maintenance of the family dwelling, and the clearing of new land for planting by women. Secondly, unlike Western society, where income earned by either male of female is generally used communally for the benefit of the family, in Africa there is a separation of the property of husbands and wives. Bryson(1981) attributes this to polygamy, and to the woman's obligation to help her natal family in times of trouble. Yet within these two cultural constraints, women take pride in their role. In West Cameroon, women are mourned for four days while men are mourned for only three[1].

A woman traditionally could build up wealth by bartering any food in excess of the family's needs. A man bartered any crafts he had produced. However, colonialism upset these traditional roles. Men came to earn their income working in large companies, and consequently, women took on some of the tasks which had previously been in the male domain. The division of income complemented this effect, with the result that women now work much harder and yet are relatively much poorer than was the case historically.

The fact that it is a woman's role to provide food means that women are the main agricultural workers in Sub-Saharan Africa. A study in Togo (INSTRAW, 1987) found that women were involved in agriculture to the extent that they do 40% of field labour, 70% of weeding and harvesting and as much as 90% to 95% of food processing and marketing. Togo is representative of the other Sub-Saharan countries where on average 87% of the

1 Bryson quotes a native: "A woman is an important thing...a man is a worthless thing indeed...a woman gives birth and feeds, men only buy palm oil and make houses."

female labour force are involved in agriculture. Furthermore, many rural households in Africa are headed by women as their husbands have migrated to the city in search of paid employment. In Zambia, one third of households are headed by women, in Kenya, 40% and in Ghana 50% (INSTRAW,1987).

The impact of rural development schemes

The development policies that have been implemented in Sub-Saharan Africa to date have taken many forms. Yet almost without exception, their success, if any, has come at the expense of women. They have done little to redress the imbalances detailed above, and they represent a cause, rather than a consequence, of inequity.

Practically all development projects ignore women. Training, advice and technological advance are geared towards male activities. This means that, while men may have access to modern, labour-saving machinery such as tractors, women still work with the most primitive of instruments. One study, which looked at a Gambian rice development project, concluded that women's rain watered rice, which covered twenty-six times more land than the men's irrigated rice, received only 4% of government spending on rice projects (Dey,1981). The FAO states: "In all regions, the introduction of modern agricultural technology is primarily aimed at male tasks and used almost exclusively by men" (1984).

As regards produce, some agricultural developments - the introduction of high yield variety crops, for example - have meant increased labour burdens for women. This is to their benefit if they are waged. However, most African women only produce for their own family, and hence the production of crops requiring a higher level of labour-intensity may exact a price that African women simply cannot pay.

Land distribution is also highly inequitable. Traditionally, women's access to land was not a problem. Mothers could pass land on to daughters or unused land could be claimed. However, with the rise in the popularity of development-oriented land registration schemes, significant male bias has been introduced into the distribution of land ownership. The UN notes: "Women's rights are often eroded by legislation ...women's property rights are withdrawn as property becomes more valuable" (UN,1985). Today women are forbidden to own land in Kenya and Ethiopia, and new laws mean that divorced women in Zambia and Tanzania face the same restriction. Given the numbers of female heads-of-households, such laws are clearly doubly discriminatory.

In sum, then, development policies have clearly failed to mitigate the plight of women, and indeed have exacerbated it. "It is virtually impossible to identify any country in which national strategies have generally benefitted women's role in agriculture"(FAO,1984).

Why has development ignored women?

The question immediately arises as to why this is the case. Three important reasons can be posited.

Firstly, because women are usually working on their own family's land for the same family's consumption, neither production or consumption involves the monetary economy. This means that these figures are not included in the national statistics. It is easy to pass over this subsistence agriculture, then, when there are other sectors making demands on scarce resources. This is reinforced by the fact that women are not organized politically and so it is easy to ignore their needs.

Secondly, there are no women involved in the formation or implementation of development policies. A review of

government projects in developing countries in 1983 found that only one female adviser was involved.

Thirdly, there may be resistance by men in the community to projects which improve woman's income. This hinges on the fact that a woman is only entitled to divorce her husband if she can pay back her "bridewealth" herself.

In short, the main reason for development passing over women is patriarchy. This is prevalent at both intra- and international levels.

The consequences

What have been the consequences of this? Because development has not produced any labour-saving devices targeted at women, their work burden has increased. Sometimes, this means that total resources are under-utilised. In Zambia, for instance, the amount harvested does not generally depend on the fertility of the land but rather on how much work women can get done in the daylight hours. This extra work burden has impacted on family consumption. In Burkino Faso, it was found that families lost weight during the rainy season, not because there was not enough food available, but rather because women had less time to cook it due to the demands of work. In Ghana, yams had to be replaced by less nutritious but easier-to-tend cassava for just this reason.

Ignoring the primary producers can also mean loss of valuable experience. In the Gambian rice projects mentioned above, investment in expensive capital intensive irrigation schemes proved a failure, while it is arguable that a few inexpensive improvements in women's rain-fed and swamp rice would have proved far more constructive.

When land registration schemes deprive women of access to land, they cannot grow food for their families. Because it is not their role to provide food, when men obtain land, they are more likely to grow cash crops. Yet the severe terms-of-trade effect that Africa has suffered in the last decade has resulted in a situation in which many countries are not earning enough from these exports to cover the goods they must import to live on. This increases debt and dependency.

Because men reap the benefits from cash crops, while women do most of the work, production more often than not does not reach full capacity. In both Zambia and Tanzania, when maize profits were soaring, women refused to produce the crop as the income would simply accrue to their husbands. In Zimbabwe, by contrast, where the seeds were supplied directly to women, there was a bumper harvest.

Finally, it is important to note that because women are not sufficiently politically organized, they fall easy prey to public sector exploitation. The temptation is for governments to subsidize certain sectors of the economy at the expense of agriculture. Hence debilitating taxes are levied, which act as a disincentive to work.

Conclusion

These then are some of the effects of the "development" policies which have been pursued in Sub-Saharan Africa. It is clear that such policies have militated against equality of the sexes. By ignoring women in the provision of training, technology, land and credit, they have also been detrimental to the agricultural sector itself. In this light, it is little wonder that food production in Africa has been steadily falling throughout the last decade, with the catastrophic consequences that were brought so vividly to the attention of the world in the mid- and late-eighties.

More direct aid is not the answer.

2 A bridewealth is the opposite of a dowry - it what a man pays to a woman's family in order to be allowed to marry her.

Attention must instead be directed towards collection of statistics on the importance of women to Sub-Saharan economies, integration of women into the policy framework, and greater equality in the eyes of the law. Until the direction of endeavour shifts towards such objectives, the sexual inequality in these countries will persist, with its concomitant negative economic consequences. Birdsall (1983) writes that: "The "woman issue", once thought of as no more than a welfare issue, affects the prospects for efficiency, growth and development in the economy as a whole." "Trying to develop without acknowledging or involving the people who do two-thirds of the work is inviting failure"(UN,1989).

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The Impact and Implications of European Economic Integration

Ann Keegan

In 1985, the European Commission published a White Paper called "Completing the Internal Market". In its final form it contained 279 separate proposals, scheduled for completion by 1992, detailing the elimination of all non-tariff barriers to intra-community trade. The aim of these proposals is to create a single unified internal market for goods, services and factors of production.

This integration process will have many and varied effects. In this paper, attention is focussed on the impact that the enhanced competition it will have on the community. Section one considers the reduction in the dispersion of prices of similar goods across member states that is likely to occur. Section two looks at the way in which competition will induce changes in firm size and resource allocation. Finally, in section three, a discussion of the dynamic effects of competition on innovation and technical progress will be undertaken.

Price effects

To the lay-person, one of the most visible effects of integration will be the convergence of prices for similar goods within the community. This convergence will result from the intensified competition consequent on integration.

In 1985, Eurostat (the Statistical Office of the European Communities) produced a survey detailing the price dispersion existing in the community. It found that the standard deviation of prices for final consumption goods was 22%. This composite calculation masked even greater absolute differences. By way of illustration, the average dispersion of prices for refrigerators/washing machines was 10%. However, the absolute difference between countries at either end of the spectrum was 39% (Ireland-France). Furthermore, only 25% of these differences could be explained in terms of differentials in indirect tax (e.g. Value Added Tax). The remaining dispersion resulted from high-price producers and retailers being protected from competition by non-tariff barriers in their fragmented domestic markets.

These protected sectors witnessed an increase of 5% in price dispersion between 1975 and 1985. In contradistinction, in sectors more open to competition, price differences narrowed significantly (-24%) over the same period. Therefore, integration will cause prices to move towards the lower levels prevailing in the Community, as consumers with access to the wider market seek these out. The experience in Ireland where each Christmas a mass exodus across the border to the North takes place bears testament to this. Estimates of the quantitative benefits which may accrue to the Community as a result of the narrowing of price dispersions range from 1.7% to 8.3% of 1985 Community GDP. This reflects a saving for consumers and a move towards a more efficient Community market as a whole.

Firm size and resource allocation effects

On completion of the internal market in 1991, the arena in which European firms do business will be substantially altered. The competition induced by greater market

openness will greatly increase both the opportunities and the risks that obtain. A number of points are worth detailing.

Firstly, there will be downward pressure on price-cost margins as the most efficient (and hence lowest cost) producers in the community dictate the price and cost levels that prevail. Those same efficient producers will benefit enormously from the expansion of the market. No longer will they be constrained to produce only for their domestic market, but will have instead free and open access to the whole of the community. This will intensify competition between European producers, forcing less efficient ones to attack their costs. As seen in section one, this should lead to an overall lowering and convergence of prices in the internal market. However, other adjustments are also likely.

Changes in the behaviour and decision-making processes of firms will occur as efforts to take advantage of economies of scale are made - the key to improving firms' allocative efficiency. All industries exhibit potential for economies of scale to some extent. This potential can be empirically verified using engineering surveys, census data, econometric estimates, and price-cost data. For any firm there is an optimal size and level of production referred to as Minimum Efficient Technical Scale (M.E.T.S.). At this point, operation takes place at the lowest possible unit cost of production. The enhanced competition likely to result from integration will encourage firms to realize their scale economies and improve their allocative efficiency in order to survive.

It must also be noted that the completion of the internal market will result in initial, once-off cost reductions for producers. These reductions will occur when cost-increasing barriers, such as compliance costs and intranational standards are removed. Because of increased competition, these reductions should translate into price falls, stimulating demand. Thus, it is possible to argue that integration and competition will give firms both the impetus and the opportunity to expand and become more efficient.

Finally, a process of natural selection should, in time, force "lame duck" firms within the community out of business. Those industries which succeed in expanding and becoming more efficient will thrive, while others that in the past have only remained viable behind a veil of tariffs and barriers, will languish.

These then are some of the likely effects that integration will have on firm structure. The third and final section now discusses the dynamic effects of competition on innovation and technical progress.

A longitudinal perspective

The superior allocation of resources associated with price convergence and the realization of scale economies represent the static benefits of integration and increased competition. However, as Clarke (1986) notes:

> "While it is clearly important to allocate resources efficiently at any point in time, in the long-run the economic well-being of a community will depend on improvements in the quantity and quality of outputs produced by industry"(1986:143).

In analyzing the benefits of integration with respect to competition, it is vital to take cognizance of the link between competition and innovation. Innovation is a major determinant of economic progress. Anything which has a serious effect on innovation must therefore be viewed as being significant to the viability and overall well-being of the economy. The question arises, therefore, as to whether or not high levels of competition are conducive to

innovation. The studies in this area are not entirely conclusive.

There are two broad schools of thought relating to this issue. The first contends that firms possessing a large degree of monopoly power will be more likely to innovate than firms who do not. It is claimed that the profit advantages which accrue to monopolies allow them alone to undertake large research and development projects that are simply beyond the means of smaller firms.

This reasoning does not emerge unscathed from the empirical scrutiny of the second school. Geroski (1987), in a study of British markets, found that low levels of competition were inconducive to innovative activity and also that innovations were more numerous in less concentrated industries (i.e. more competitive ones). Geroski also pointed out that the level of innovation in an industry was likely to be inversely related to the number of entry barriers prevailing in that industry. Ergas (1984) concurred with this latter, arguing that those firms most likely to innovate are new entrants, since they are unconstrained by old investment decisions. Zimmerman (1987) studied innovation in Germany, and found that, as a result of increased competition in the export market, trade liberalization in 1992 should have a positive effect on innovation, with firms striving to keep up with the competition. Finally, in a study by Kamien and Schwartz (1982), it was concluded that high levels of concentration militate against innovation, while competition has a diametric effect.

As already stated, the conclusions of these studies are not definitive, and further investigation in this area is needed before concrete assertions about the precise impact of competition on innovation can be made.

Conclusion

This essay has discussed the likely economic effects that European economic integration will have. Probable price movements, changes in firm structure and dynamic considerations were each discussed in turn.

In the last resort, the ability of firms to utilize the potential benefits of a higher level of competition will be contingent on the attendant economic policies adopted by member governments. That said, the completion of the internal European market will offer the opportunity for significant welfare gains, and should enable Europe to compete in a unified and coherent way with the world's other powerful economic blocs.

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A Defence of Multilateral Trade Liberalization

Tony Annett

Though economic theory from Adam Smith to the present day has consistently emphasized the gains from free trade, a considerable amount of protectionism prevails in the real world. It is arguable that such protectionism has a debilitating effect on efficiency and aggregate welfare. This essay presents a defence of free trade, taking particular account of the relevance of this defence to the European Community.

To begin, section one delimits the theoretical arguments that can be forwarded in favour of free trade. It is argued that multilateral liberalization, through the mechanism of the General Agreement on Tariffs and Trade (GATT), has succeeded quite well, and that its achievements should be safeguarded. In this framework, the European Community is then considered, with a critical analysis of its approach to trade policy. The final section discusses prospects for reform. It will be concluded that greater reliance on the GATT norm of non-discrimination is preferable to the development of hostile regional trading blocs.

Free trade and protection: the arguments

In his classic seminal paper, Samuelson (1962) showed that, in a very general model, under certain assumptions, not only is free trade mutually beneficial but also Pareto optimal. It should be noted that further gains from trade also exist - dynamic improvements derived from the exploitation of economies of scale in larger markets, and through X-efficiency. Such gains correspond to real-world phenomena, and are both tangible and quite significant.

Early arguments for protection tended to be based on the failure of the assumptions of the static Samuelson model to hold. However these arguments were countered by the fact that a tariff is rarely a first-best corrective policy. In dealing with factor price rigidity, for example, a subsidy is less distorting than a tariff. One of the most enduring arguments for protection is the infant-industry proposition, an argument which is tenuous since it is, by definition, a temporary one. To defend this case, it is necessary to rely on such considerations as imperfect capital markets, first-mover disadvantages, and dynamic external economies (once knowledge is created it becomes a public good). Yet protection offers no incentive to gain more knowledge-once again it is not the optimal corrective measure.

Modern theories of protection tend to emphasize increasing returns to scale. Allowing for monopoly power means that an "optimal tariff" is theoretically valid. Countries concerned with national interest should, on this view, restrict trade in order to exploit monopoly rent. The major weakness of this approach is that it ignores the possibility that rivals may retaliate. However it did presage the game-theoretic approach which subsequently emerged.

The development of new oligopolistic models in the last two decades allowed the implications for international trade of increasing returns and strategic environments to be analyzed. Despite the fact that such increasing returns should

allow dynamic gains from trade to be realized, Brander (1986) contends that oligopoly survives international trade, and that therefore a strategic, interventionist policy may be desirable in certain instances.

Two arguments can here be identified. Firstly, governments can ensure a larger share of rent for domestic firms in particular markets by imposing an export subsidy or an import restriction. The classic example, expounded by Krugman (1987), is that of the duopolistic situation between Airbus and Boeing, where a government subsidy allows the domestic economy to extract the rent involved. Secondly, the external economies proposition has been resurrected to argue that protection is necessary in certain sectors. The key is to target a few strategic industries, the idea being that restricting a market to certain (domestic) firms helps those firms in other markets.

This approach to trade policy has been criticized on a number grounds (Krugman, 1987; Haberler,1990). Firstly, in practical terms, there are too many informational requirements necessary for a thorough evaluation of monopoly power and external economies. Problems which impinge include the identification of quality differences, the pinpointing of external economies, and the gathering of sufficient knowledge about the market structure to be sure the gains will not be dissipated by the entry of rent-seeking firms. Secondly, adopting a general equilibrium approach, aiding one sector at the expense of others is not, in general, optimal. In a complex strategic environment, it is asked, how can the government be sure that an industry of equal potential is not being hindered?

Hence, even accepting the theoretical validity of arguments for protection, practical difficulties necessitate a rethink.

One of the main problems with strategic intervention, as before with the optimal tariff, is that it can provoke retaliation. Hence the problem can be simplified to a classic Prisoner's Dilemma game situation - intervention in one sector means one country gains relative to another, yet if both countries intervene, they both lose (Richardson,1986). Obviously then, the best outcome is reached through a cooperative policy, with no active intervention. So rather than being unilaterally the best policy, free trade is now promoted only as a second-best strategy in an imperfect world. For stability some sort of rule is needed and free trade is a simple rule (Krugman,1987).

Yet for a stable solution, incentives must be built in: otherwise there will be an incentive to cheat. Axelrod (1983) considered simulated results of this ongoing Prisoner's Dilemma game. He concluded that the most stable result is a tit-for-tat policy: cooperate until cheated, and then retaliate, but only once. This strategy builds in the appropriate incentives to cooperate. However, in the real world such bilateralism will not be stable. With such a guideline, policy becomes a series of special cases, with the associated difficulty of trying to distinguish provocation from retaliation.

Because of it's sectoral approach, this literature emphasizes the political economy of protection. The political process is as likely to be dominated by self-interest as by economic markets (Frey,1985). The pro-protection lobby, including import-competing industries and trade unions, wields greater influence than the anti-protection lobby, including export-suppliers and consumers. The former is generally constituted for a specific reason, and there is often an appropriate method of sanctioning free riders. On the other hand, consumers have little bargaining power, since the decline in welfare induced by protection is difficult to identify. Krugman (1987) uses this as one of the practical arguments against strategic intervention.

In classical trade theory, the fact that other countries refuse to open their markets is not a rationale for domestic protection-

such unilateralism can be seen in late nineteenth century Britain. However, as a benchmark for the present-day it is utopian. The political economy literature explains this paradox as the result of the dominance of government by strong protectionist lobbying. Further insights are gained by examining the strategic literature, and its game-theoretic approach, especially since countries are today unwilling to liberalize in certain sectors due to perceived "unfair behaviour" by trading partners. Therefore a bilateral bias is inherent in the present system.

This sectoral approach ignores the fact that strategic policy, even in the event of no retaliation, is unlikely to increase welfare from a general equilibrium perspective (The *Economist*, 1990). Research also shows that the gains from trade are even larger under imperfect competition.

In the absence of unilateralism, the only way of achieving successful liberalization is through international coordination. Following Frey (1984), liberalization can be looked at through the framework of a public good, with dramatic underprovision caused by a free rider problem. Two solutions would be internalization of benefits through selective incentives and coercion: neither of these are really feasible. Therefore for any Pareto-superior move, voluntarily agreed rules must be implemented.

GATT is an embodiment of this idea, establishing the ground rules for liberalization through the three norms of first-difference reciprocity, non-discrimination through the most favoured nation (MFN) principle, and transparency (the latter implies that tariffs are preferred to non-tariff barriers (NTBs))[1]. The GATT was extremely successful in attaining post-war trade liberalization. Between 1950 and 1975 world trade increased by 500% and world output by 220%. In the 1970s, however, a whole barrage of NTBs emerged, including the infamous voluntary-export-restraint (VER). Also in the 1980s, concerns about "unfair trading" lead to the proliferation of anti-dumping duties (ADs) and countervailing duties (CVDs) - reflecting a greater role for strategic and bilateral policies. This has left the GATT as something of an anachronism.

To explain why this change occurred it is necessary to consider the motivating force behind cooperation through GATT. Coordination can be imposed, agreed upon, or implicitly chosen (Richardson, 1988). Historically, the US emerged as the undisputed leader in trade liberalization, embracing GATT norms with an approach based on "cooperative policy tolerance". Other countries accepted this and did not act strategically. However, due to a decline in hegemony and increased dependence on international markets, the US has become a smaller player. Corresponding to this has been a massive protectionist upsurge, caused, according to Bhagwati (1988), by the "diminished giant syndrome", and the perception in the US that America has been victimized by other countries. This has been compounded, as political economy predicts, by deteriorating economic conditions- notably the loss of Latin American markets as a result of the debt crisis, and the squeezing of the traded sector in the early 1980s by the strong dollar.

The international trading system, then, is faced with a major crisis in direction, moving towards an oligopoly of coequals. Can multilateralism survive, given its desirability? The next section examines this in the EC context.

1 It is worth noting that many authors, including Wolf (1988), note an inconsistency here, since the notion of reciprocity adopts the fallacy of treating liberalization as a concession to be granted to foreigners rather than as a benefit to the domestic economy.

The trade policy of the European Community

The EC's external trade has consistently risen at a rate above that of GNP growth for some years now, due mainly to the success of the early GATT rounds. The common external tariff is now quite low at an average value of 3.5%. Yet this disguises the reality of a serious problem that exists with non-tariff barriers.

The maintenance of national trade restrictions militates against attempts to define a coherent policy on NTBs. Hence the VER is used quite extensively, with the EC accounting for 138 of 261 known VERs (they doubled between December 1987 and May 1988). Goods under these provisions include steel, clothing, textiles, cars, machine tools, and electronic goods. One of the most blatantly protectionist schemes is the Multi-Fibre Agreement (MFA), covering textiles through an array of VER style bilateral quotas. Restrictions are reinforced by import licensing at national and Community level, the latter being granted by proving injury from foreign competition. ADs and CVDs are the result. In 1984, the New Commercial Policy Instrument strengthened these weapons.

A further issue that cannot be ignored in discussing protection is that of export-promoting subsidies. These are distortionary, in that they cause countries to attempt to outbid each other on world markets. The most infamous example is the price-support and export refund system of the CAP, where surpluses are sold at deflated prices on world markets. Subsidies are also granted to steel and shipbuilding.

Relationships between the US and the EC have been strained by such policies. In return, the EC has taken issue with the US over technological exports from US companies in Europe, and its neglect of liberalization in the services sector. Tension is increased by uneasiness on the part of the US about the possible emergence of a "Fortress Europe". Even the most insignificant subsidies are being countervailed. The Omnibus Trade and Competitiveness Act allows countries to be accused of a broad range of unfair practices, and unless they back down within twelve to eighteen months, they will face retaliation. From 1980-87, two-thirds of all VERs imposed by the US and the EC were the result of anti-dumping actions. (The *Economist*, 1990).

One of the many anomalies of GATT is that it allows such actions in special circumstances. On average, ADs are four times higher than corresponding MFN tariffs: governments have no incentive to switch to non-discriminatory tariffs, which would destroy its bilateral bargaining power. Of all actions monitored by GATT between 1979 and 1988, 77% consisted of ADs and 18% CVDs. The US was responsible for 427 AD cases 371 CVD cases, while the EC was responsible for 406 ADs and 13 CVDs. In many aspects therefore, trade policy in these two regimes is quite similar. Both feel threatened on one side by advances in high-technology countries, especially Japan, and on the other side by the comparative advantage of many developing countries in low-technology, labour-intensive industries such as clothing and textiles.

The approach of the EC to liberalization is through a customs union, which is allowed under GATT rules provided it covers "substantially all trade". This is justified by the recognition that any liberalization is better that none. The EC, it must be remembered, is a union of twelve individual states so any progress is bound to be slow and piecemeal.

In a similar manner to the enlargement of the Community itself, preferential agreements have been concluded with various parts of the world. These are is based on a recognition that agreements are

easier to reach, and free riders easier to sanction, if cooperation is exclusive to a small number of like-minded countries. At the apex of this hierarchy are the ACP countries, with a legal agreement under the Lome convention. This blatant disrespect for the principle of nondiscrimination has been criticized. Stevens (1985) refers to the situation as a "pyramid of privilege". Wolf (1988) is more damning, referring to it as "concentric circles of discrimination".

The implications of this system for 1992 must be considered. Sapir (1990) concludes that trade creation is likely with a unified market. Previous enlargements have always led to more, not less, liberalization, and the existence of low inflation and stable economic conditions in general should serve to buttress this. Trade diversion is more likely the higher the the level of external protection which suggests the necessity of tackling the problems already discussed. One major implication of 1992 is that it will no longer be possible combine national external quantity restrictions with free internal circulation of goods.

A problem created by the EC's external trade policy is the possibility of conflict that could easily upset the hierarchy of preferences. The transfer of policy to a Community level is desirable insofar as consistency is concerned, but if a lukewarm stance on liberalization dominates, the question arises as to whether such a transfer is desirable. Smaller nations will lose bargaining power, but gain nothing in return.

Prospects for change

It must be appreciated that the trade policy of the Community cannot be discussed in isolation. There are wider issues involved in the Uruguay Round.

A crucial emphasis must be placed on institutional change, given that the main barrier to freer trade is the presence of discretionary NTBs. (Bhagwati,1988). GATT rules should ideally become more stringent, as regards safeguard clauses and suchlike. However, since this is a step in the direction of tackling the free rider problem by coercion, which is not really feasible, a good starting point would be increased neutrality in the dispute-settlement process (Baldwin,1987). Panels tend to be influenced by disputants, especially if they are major trading powers. For the sake of credibility, GATT must be seen as independent of all parties involved.

The overuse of ADs and CVDs must also be tackled, possibly through the penalization of frivolous complaints, again administered through a consultation-compensation mechanism. Bhagwati (1988) argues that, to counter the lobbying asymmetry in political economy, the full costs of protection, including the cost to consumers, should be built into any system of adjudication. Furthermore, if relief is granted, part of it should be charged to the industry involved. It has already been noted that it is not in the interests of an economy, from a general equilibrium perspective, to invoke protection - Bhagwati's idea is to make this more apparent.

One important issue to be dealt with regarding the transition to free trade concerns adjustment assistance for the industries most displaced by foreign competition. Such assistance, argue the cynics, is nationally controlled and interest-group dominated. This surely is no valid criticism: EC-wide adjustment can - and should - become a reality. The idea of taking from the gainers to compensate the losers is well established, and is vital due to short-run problems of labour immobility. There are, however, practical difficulties: it is extremely difficult to distinguish adjustment aid from a permanent subsidy. Furthermore, a credibility problem impinges: if a sector sees the Government is quite content to allow temporary assistance to become permanent, the likelihood of actual adjustment is dim-

inished (Richardson, 1988).

The GATT norm of transparency means that tariffs are the preferred trade restrictions. Especially when bounded, they allow for greater certainty and less cost than NTBs. One influential proposal, forwarded by Bhagwati (1988), is that VERs should be replaced by tariffs, and the revenue generated used to finance adjustment assistance-this would effectively solve two problems simultaneously. Such suggestions are relevant in the context of the current GATT negotiations.

Conclusion

This essay has forwarded the case for multilateral trade liberalization. The first section considered briefly the gains from free trade, and explained the rationale behind protectionist tendencies. The theory underpinning GATT was then discussed in this light. In section two, the case of the EC was introduced, particularly pertinent given the coincidence of the Uruguay Round and the completion of the single market. Finally, in section three, some proposals for reform were considered.

The viewpoint adopted here is rather pessimistic. If benefits are to be maximized, trading nations must resolve their difference within a multilateral framework. Yet, discrepancies in bargaining power, the political economy of the issue, and fluxing minilateralism all combine to militate against such overall consensus. In the last resort, all trading nations would do well to open their history texts, and look at the success of previous GATT agreements, prior to approaching the conference table. Bilateralism is not the answer.

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GATT or CAP: Must the EC Decide?

Kevin Hannigan.

This paper analyses the issues pertaining to the recent breakdown of the Uruguay round of GATT negotiations. It will be argued that, while the weight of poplar opinion finds the EC culpable on a number of grounds, it is possible to discern a rationale underpinning its stance.

The analysis is divided into four sections. The first of these sets the stage by outlining the circumstances surrounding the Uruguay round. Section two then delimits the economic justification for free trade, and the problems which obtain in practice. Section three takes the services sector as a case in point, and contends that the prospective efficiency gains from a services agreement remain moot. Finally, section four discusses the credibility of the US position.

The Uruguay Round

The negotiations of the Uruguay round began in earnest in 1986. It was then proposed to widen the scope of GATT agreements to include 15 new sectors. Of these, the agriculture and services industries were undoubtedly the most important. Initial negotiations, while complex, were fruitful, and there was no indication that a successful outcome could not be reached.

By mid-1990, however, it was clear that the level of cuts in the CAP being sought by the US far exceeded what would be on offer by the EC. The American negotiators demanded cuts of 75% in farm income supports and as much as 90% in export subsidies, and they viewed the EC's offer of cuts of 30% with patent disdain. This divergence of views spawned divisions within the Community itself, notably between Commissioner Ray McSharry, and, the Commissioner for External Affairs, Mr. Frans Andriesson. With a compromise seeming further than ever away, the talks stalled, and commentators portentously forecast a return to 1930s style protectionism.

The popular perception of this breakdown was damning in its indictment of the EC. Once again, it was argued, the behaviour of the Community highlighted the fact that it was willing to flagrantly promote the interests of the powerful farming lobby to the detriment of every other industry. Such a stance was seen by many to be both short-sighted and unjustifiable. However on closer inspection, it is possible to vindicate, at least in part, the EC position. The economic arguments invoked by the US negotiators are open to criticism. The true value of GATT agreements is questionable. Finally, the credibility of the stance taken by the U.S. is debatable. These issues are taken up in the following three sections.

The economics of free trade

The economic arguments in favour of free trade are best couched in the terms of consumer and producer surplus (Salvatore, 1983). Consider Figure I. p^* represents the price on world markets of the commodity in question, while p^*+t is the price in the protected home market. Consumer surplus 1+2+3+4 is lost subsequent to the imposition of the tariff, while gains are producer surplus 1 and tariff revenue 3. It is clear that the loss in

efficiency is 2+4.

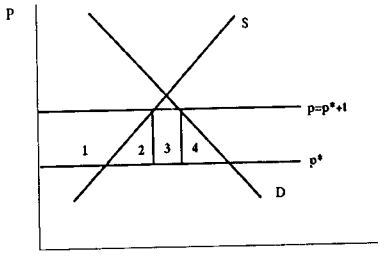

Figure I

In this context, tariffs are clearly undesirable. Overall welfare is maximized if, instead of extending protection to certain sectors of industry, the benefits of free trade are allowed to accrue, and redistributed as necessary to those sectors that are adversely affected.

However, too often, this argument has been used without adequate account being taken of special circumstances. In the presence of distortions in one market, when the optimum response of removing them is not possible, a second-best approach should be used (see Appendix). Partial removal of protectionism debilitates rather than improves welfare. Neary (1989) provides an original diagrammatic exposition of this conclusion. He applies the Concertina rule to show that the optimal second-best tariff rate is a weighted average of all the fixed tariffs on other goods. It is arguable, therefore, that the GATT talks should optimally proceed by lowering, but not eliminating, the distortions present. A gradualist approach is requisite.

In addition, in recent years, cognizance of the fact that international trade does not take place in a world of perfect competition has been taken (Brander and Spencer, 1985; de Meza, 1986; Dixit and Grossman, 1986; Krugman, 1984). Imperfectly competitive or monopolistic market structures obtain. In can thus plausibly be argued that the economic justifications of free trade perform poorly in the context of real world phenomena. The case for free-trade is thus considerably weakened.

The services sector

In the light of the above, it is worth considering the services industry. Some would contend that the elimination of all distortions in this is desirable (Feketekuty, 1989). Yet this view can plausibly be contested.

Consequent on the importance of ensuring quality of service, governments have concluded many agreements which have, and will continue to have, distortionary effects. Rules concluded under the aegis of the Bank for International Settlements, insurance agreements, guidelines from the European Civil Aviation Conference, and technical rules established by International Telecommunications Unions, all represent examples of such distortionary agreements. In addition, since services require close interaction between producers and consumers, much of the international services trade takes place between the subsidiaries of multi-national corporations. In this context, the assertion that large benefits would accrue consequent on the conclusion of a GATT agreement on services appears to be without solid foundation.

If a worthwhile assessment of the prospects for a services agreement is to be made, consideration must also be given to the relative success of the GATT in the goods sector over the past 40 years. Much of the growth in world trade that has taken place is not due to the GATT, but rather to the concomitant improvement in transport and communication facilities. Indeed, in recent years, a tendency to contravene the principles upon which the GATT was founded has emerged. This is revealed most vividly in the efforts of the Americans to curtail Japanese encroachment into their

domestic market. Voluntary export restraints (VERs) have been introduced which are highly distortionary but legal within the GATT (Neary, 1988). Other types of distortion have also proliferated. Most members of GATT now feel quite at ease providing incentives to private investors, tax concessions, grants, research and development support and export subsidies.

As Messerlin (1990) notes, the EC already has negative trade balances with the rest of the world in many of the major service industries such as telecommunications, films and broadcasting, shipping and air transport. Only banking has shown a strong balance in the EC's favour in recent years. The implementation of a services agreement is not likely to have the sweeping impact often cited as its justification, as such, the relative efficacy of a services agreement is in doubt.

The political balance - American credibility

The arguments expounded above make it easier to question the belief that the EC was simply bowing to political pressure in its intransigence. Yet it is worth exploring another aspect of the debate. If the stance of the U.S. were not credible, it is unlikely that the EC would accede to its demands. On one interpretation, it is precisely this factor that led to the stalled talks.

In the days preceding the collapse of the talks, Ms Hills and the other U.S. delegates were threatening a debilitating trade war if negotiations broke down. Yet the issue of whether the U.S. ever want to implement such a policy is moot. Shutt (1985) endeavours to furnish an answer:

> "...the degree to which national economies have become locked into a position of mutual interdependence as a result of 30 years of rapid expansion by the multinationals...is such that a reversion to separate economic development seems virtually inconceivable for industrialized countries" (1985:62).

Thus, given the initial position, at a very basic level, it seems unlikely that the U.S. would unilaterally pursue isolationist policies. This is borne out by an analysis of American deportment during the talks.

Schelling (1960) lays out the necessary precautions which a negotiator must take when making a threat. It is essential *inter alia* that clear concise language that is difficult to reverse be used. It is also necessary to have a reputation for actually carrying out threats or using them to good effect. Yet Dixit writes: "The theoretical prediction that compellance is harder to achieve [than prevention] is borne out in practice. The United States has not been very successful in inducing others to open their markets" (1987). In addition, the "clear language" prerequisite was not observed by the American negotiators. For example, despite the fact that no concessions had been intimated, on December the 14, 1990, the U.S. agriculture secretary, Clayton Yeutter pronounced: "It seems to me that the [EC] attitude has changed from what it was ten days ago" (*The Independent*, 1990).

The most compelling challenge of American credibility, however, is provided by a consideration of motive. The Uruguay round was convened primarily because of pressure by the U.S. to ensure as free a market as possible for the service industries in which it has a comparative advantage. It is arguable that such a liberalized market would debilitate the economies of developing economies (Fischer, 1990). Thus the U.S. had to offer a concession to these countries in return.

Two alternatives presented themselves. One was to grant concomitant reciprocal access to the low-technology services industries of the developing countries to

the U.S. market. This, however, would be politically difficult, since it would necessitate substantial revision of U.S. immigration laws. A much more attractive alternative was to open up the EC market agricultural market. This would not only confer significant advantages on the less developed countries, but it would also allow American farmers and their counterparts in the Cairns Group countries access to the EC market, while simultaneously preventing EC dumping on the world market.

Given this interpretation of motive, it is clear that the U.S. had more to lose than to gain by allowing the EC to retain the CAP and allowing GATT to fail. Of primary importance to the US negotiators was the securing of a services accord, with the opening up of the EC markets an objective of ancillary importance. The credibility of the American threat was thus diminished, and the rationale underpinning the EC's view concomitantly strengthened.

Conclusion

In this paper, it has been argued that the stance adopted by the EC during the GATT trade talks remains tenable. It can be justified on economic grounds, on the evidence of the relative merit of previous GATT agreements, and in the context of the poor credibility of the U.S. position.

Given this, it is ironic that, with the resumption of negotiations, members of the GATT are most likely about to embark on a costly and acrimonious program of readjustment and reform. Such is the distortionary and pervasive effect of the CAP, that to agree to abandon 90% of price supports over 5 years could have catastrophic effects on the economies of the EC countries, quite apart from the social impact. The EC did not succumb to a powerful sectional interest in its decision to confront the US, even at the risk, be it real or imaginary, of the failure of the Uruguay round. Rather, it took a rational decision, based on sound economic, social and political grounds. If this stance is now abandoned for the sake of reaching agreement in the Uruguay round, a costly mistake will have been made.

Appendix

Assume an open economy trading in a competitive environment. The use of the trade expenditure function E(P,U,V) is derived from Dixit and Norman (1980) who term it the excess expenditure function. The analysis and notation follows Neary (1989).

The use of tariffs in this analysis does not mean the results derived cannot be applied to other forms of protection. Indeed, in the GATT talk, it was agreed that all forms of protection will be converted to their tariff equivalent to facilitate negotiation.

Define $E(P,U,V) = e(P,U) - g(P,V)$
where: $e(P,U) = \min_x[P.X:U(X) > U]$
...expenditure function
and $g(P,V) = \max_z[P.Z: (Z,V) \text{ is feasible}]$
...value of national output function

Thus: $E_p = e_p - g_p$
...Shepard's Lemma; Hotelling's Lemma

From this: $E_p = E(P,U) - Z(P,V)$
...demand less production

Thus $Ep = M(P,U,V)$
where: M(P,U,V) is a Hicksian net import demand function

$E_{pp} = e_{pp} - g_{pp}$

This implies that the effect on demand for exports when price changes will equal the effect on expenditure less the effect on production due to that price change. E_{pp} is

a negative semi-definite Hessian indicating, as expected, that Hicksian net import demand functions are downward sloping.

Using this function, it can be shown that welfare effects following the introduction of a tariff will be given by the expression

$$(1 - t'X_1)dy = dT + t'E_{pp}dt + (W' - t'g_{pv})dv$$

For the purpose of this analysiis, it will suffice to say that the change in welfare (dy) will be of the same sign as the term $t'E_{pp}dt$.

Since Epp is negative semi-definite, we can conclude that a uniform decrease in tariffs will improve welfare. However, as claimed in the text, when a tariff on one good is given, the optimum tariff on good 2 is positive in the case of substitutes. We can demonstrate this as follows.

Assume a fixed tariff on good 2 only.

$t_2 = \bar{t}_2$; dt_1 is non-zero.

$$t'E_{pp}dt = \begin{bmatrix} t_1 & \bar{t}_2 \end{bmatrix} \begin{bmatrix} E_{11} & E_{12} \\ E_{21} & E_{22} \end{bmatrix} \begin{bmatrix} dt_1 \\ 0 \end{bmatrix}$$

Therefore dy is approximated by

$$t'E_{pp}dt = (t_1E_{11} + \bar{t}_2E_{21})dt_1$$

Let bee the optimal tariff on good 1. E_{21} must be positive in a 2 good economy since the two goods must be substitutes. Trivially, dy/dt1 is either less than, equal to, or greater than 0. If it equals 0, then:

$$t_1^0 = -\bar{t}_2E_{21}/E_{11}.$$

We know $\bar{t}_2$ is non-zero, and $E_{21} > 0$. Hence $t_1^0 > 0$.

In a multi-good economy, and E_{ij} equals 0 only in the extreme case of two completely seperable goods. Therefore the optimal tariff on a good is zero only in the case where no substitutes have tariffs. Broadly similar results will be obtained in either VER's or tariffs and quotas apply rather than just tariffs as assumed here. Thus we arrive at the argument in the text that the possible gains from a GATT agreement on services are likely to have been exaggerated due to the improbability of all protection being removed.

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Risk, Expected Return, and Expected Utility

Kevin Murray

Uncertainty is something which everyone must deal with every day of their lives. The imperfections of our world impose on us, the necessity to make decisions without certainty of outcome. The question arises then, as to how investors make logical and rational decisions? This essay attempts to examine the nature of the uncertainty faced by an investor, and the possible approaches that he/she might take to deal with it.

Section one sets the context by defining risk and uncertainty. Section two then considers the investor's response to these phenomena. The concept of expected utility is here introduced. Finally, section three looks beyond expected utility in noting some alternatives theories. It is concluded that, although it exhibits a number of inconsistencies, the expected utility maximization principle remains relatively robust.

Risk and uncertainty

Rutterford (1983) mentions several types of risk associated with investment, ranging from uncertainty of default to interest rate risk. The terms "risk" and "uncertainty" appear to be used interchangeably, but for the purposes of this discourse, a distinction is drawn between them. As Bacharach (1976) and others have pointed out, risk is measurable, while uncertainty is not.

Risk, in essence, is quantifiable uncertainty. Inherent in the concept of risk is the assumption that an individual can formulate - either subjectively or objectively - a probability distribution for various outcomes. Without such a distribution (a situation of uncertainty), it is not possible to accurately and consistently reflect the risk elements in the return on investments. Christy & Clendenin (1978) proposed the idea that what is popularly called risk, is actually uncertainty. It is arguable, however, that, in investment analysis, it must be feasible to assess in some way the probabilities of various outcomes. Hence, what is commonly called uncertainty is actually risk.

Even if the market is rational and risk is fully reflected in returns, it may not be possible to predict all possible outcomes, let alone their relative probabilities. How then can investors make informed investment decisions. Shackle (1955) suggested that investors concentrate on "focus values". These focus values (one favourable and one unfavourable) represent a summary of the possible outcomes. He suggests that people examine only focus values when making a decision. While this may seem a little simplistic, it can form a reasonable solution to the investment problem. Agents only consider the most likely outcomes in their analysis, secure in the knowledge that the omission of minor outcomes will not unduly affect their optimal decision. Despite the fact that Keynes (1936) believed uncertainty to be immeasurable (c.f. Aiginger,1987), it can be contended that investors do (at least subjectively) estimate risk.

Dealing with risk

Having arrived at some interpretation of future outcomes, how should the rational

investor behave? The profit-maximizing investor will pursue the strategy that maximizes expected returns. However, this theory, while intuitively satisfactory, does not hold in practice. Wu and Zakon (1972) state that the hypothesis of expected returns must be rejected on the evidence of the widespread existence of diversified portfolios. A more widely noted indictment is the "St. Petersberg Paradox" (see Luce and Faiffa, 1957). This was initially developed by Bernoulli.

Consider a game involving the flicking of a coin, such that the prize for partaking equalled £2^x, where x is the number of heads thrown before a tail. How much would one be willing to pay to play the game? Under the principle of insufficient reason (c.f. Savage, 1972), one would assess the probability of a head on each flip as 0.5, and arrive at an infinite expected return. Yet, realistically, people would not be prepared to pay extremely high prices to play such a game.

Shackle's (1958) idea of focus values does provide one possible solution to this problem. More conventional answers rely on utility theory (Levy and Sarnet, 1972). It is argued that investors are concerned with utility as opposed to monetary values. Cramer and Bernoulli forwarded square-root and logarithmic utility functions as plausible alternatives, yet as Luce and Faiffa (1957) point out, while these furnish solutions to the St. Petersberg problem, they are confounded by other paradoxes.

The concept of utility is still, however, useful. Von Neumann & Morgenstern set about proving the expected utility maximization criterion by use of a series of axioms. Unfortunately, their theory is virtually impossible to verify empirically. Attempts at the cardinal measurement of utility have been made, but with little success. Yet as Varian (1987) and others note, utility may be measured ordinally, and agents can reveal preferences without having to state how many cardinal utils they get from each outcome. Observation of such revealed preferences indicates that agents do tend to act rationally. From this, it is possible to infer that investors formulate consistent strategies that we can expect them to follow.

Expected utility theory, while useful, is also very general. This generality means that it is very difficult to explicitly disprove. Rather than attempt to do so, the following section will outline some possible extensions and alternatives.

Beyond expected utility

One simple extension is that provided by Corner & Mayes (1983). They note that investors are averse to downside risk. Under such "safety first" principles, it is argued that the skewness coefficient, as well as the variance, should be noted in assessing the risk element of an investment. Expected utility can provide for this reaction only by giving higher weights to the disutility of losses than to the utility of gains .

Aiginger (1987) points to two alternatives to expected utility theory. The first of these is known as "prospect theory", which originated in the works of Kahneman and Tversky. It was developed in response to the fact that some empirically revealed preferences differ from those predicted by the expected utility hypothesis. The first anomaly is the "certainty effect", or the underweighing of outcomes by investors in certain conditions. The second is the "isolation effect", involving a disregard for certain components common to all prospects. The final inconsistency is the "reflection effect", which arises when people exhibit risk-averseness to gains but not to losses. Prospect theory sees decisions as being based on both gains and losses rather than just losses. It replaces probabilities with "decision weights". However, while it represents an improvement on expected utility theory, in

no way does it offer a complete panacea.

The second alternative that Aiginger (1987) mentions is called "regret theory". This was also developed in response to empirical inconsistencies. It suggests that one must account for the sensations of regret or rejoicing which follow from making a decision under conditions of uncertainty. Once again, however, such a thesis is extremely difficult to empirically verify. In the last resort, as Aiginger (1987) points out: "...the expected utility maximization criterion is the only hypothesis that is clearly both convincing and operational."

Conclusion

In this essay, the importance of risk evaluation to the investor was discussed. Investors must be able to make a statement about the uncertainties which they face in order to be able to enter the market. A number of theories, including expected return maximization, and expected utility theory, can be invoked to explain their behaviour, once they have assigned probabilities to outcomes. In conclusion it can be argued that a rational investor's behaviour will conform to the expected utility maximization criterion, because it accounts for preferences and individuality within a logical framework, something which alternative theories fail to do.

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A Short Lesson in Financial Futures

Ciaran John O'Neill

Few would disagree that one of the most notable innovations on financial markets over the past two decades has been the development of Financial Futures (FFs). Indeed, since the time when the first FFs were traded in the early 1970s on the Chicago Mercantile Exchange, the rapid growth in both trading volume and the number of organized FF exchanges around the globe (now including LIFFE in London, MATIF in France, SOFFEX in Switzerland, HKFE in Hong Kong, SFE in Sydney Australia and our own IFOX in Dublin) represents one of the success stories of financial world in recent times.

In order to understand these recent developments, it is essential to understand what FFs are, how they are traded and who trades them. The discussion below focuses on each of these in turn. In addition, some of the more technical aspects of FFs will be detailed. Attention will be focussed on the way in which they are priced, and also on the complex trading strategy of program trading.

The Instrument

The FF instrument itself is very basic. It consists of an agreement to buy or sell a fixed amount of an underlying asset (say equities, but contracts on currencies, interest rates and stock indices are also written) for a predetermined price at a fixed future date. Futures contracts have been traded on commodities for over 100 years. The principle is identical, the only difference being that the contract is written on say Premium May 1992 Coffee or Grain, rather than financial securities.

FF contracts are liquid, and can be (and usually are) traded prior to the delivery date. In fact on some exchanges, less than 1% of FF contracts actually go to delivery. At the delivery date, those with positions (a "short position" means that you have sold contracts and a "long position" means that you have bought them) on FF contracts can close out those positions by taking an equal and offsetting position in the same contract. For example, those on the short side of the market, who have sold FF's, can close out by buying an equal number of contracts written on the same security[1].

Trading with financial futures

The essence of FF trading is the existence of two parallel markets in the same underlying stock; one being a cash or "spot" market and the other being a futures market (Breen, 1988:11). The spot price, P_s, is the amount paid (or received) for the actual underlying stock. The futures price, P_f, is that which is stipulated in a FF contract. The difference $(P_f - P_s)$ represents the profit on closure, which can be either positive or negative.

At the time at which a futures contract is written, it would be unusual to find $P_s = P_f$. This is because P_f reflects a set of assumptions about the future path of P_s, right up until the delivery date. However, as the delivery date approaches, P_f is likely to converge on P_s as the risk of market

1 Some exchanges allow cash settlement on particular contracts based on the difference between the contracts value on the last day of trading and its value on the second last day (O'Dea, 1990:36).

volatility and hence large changes in P_s diminishes. At the delivery date itself, $P_f = P_s$.

It is clear from the above that FFs are highly liquid, standardized contracts. This is by virtue of their homogeneity, which enables them to be traded with relative ease on secondary markets. It is worth noting that FFs tend to be traded by "open outcry" (physically auctioned on the trading floor). This keeps transactions costs well below those applying to over-the-counter trades, and further enhances liquidity. However when open outcry is used, there is no time on the trading floor to check the credit-worthiness of other traders making bids or offers. This led to the establishment of the clearing house, which oversees all trading on the exchange. It processes, matches and underwrites trades, thus effectively becoming a third party to all transactions, and eliminating credit risk[2].

It is partly as a consequence of its role in eliminating credit risk that clearing houses developed the system of calculating (and overseeing payment of) gains and losses on FF contracts. This procedure is known as the "margining system". At the outset of a trade, clients are required to put up an "initial margin". The size of this is determined by the exchange and the clearing house, but also by the broker's evaluation of his client's credit-worthiness. This margin is deposited into a "margin account", out of which all daily losses are paid and into which all daily gains flow. In some cases the level of sophistication of the exchange is such that transactors can actually receive interest on their margin accounts.

The correlation between credit risk and the size of the initial margin is easily observable. In September 1987, for example, a "hedger" (a safe investor) in the Standard & Poors 500 stock index futures contract would have been required to put up $5000, whereas a "speculator" (relatively risky investor) had to show $7500 up front. In tandem with this, those who set margins take some cognizance of market risk. In June 1987, for example, the initial margin for the FTSE 100 index on LIFFE (with a face value of £60,000) was £1,000 (or 1.6%). However, as market volatility increased with the approach of Black Monday in October, the face value of the contract fell to £42,000 and the initial margin increased to £15,000 (or about 35.7%) (The *Economist*, 1987:87). These additional margins are known as "variation margins".

So while the putting up of margins by all transactors at the outset of any trade is a *bone fide* act, the margining system, in general, is a highly efficient way of managing the risk of daily price movements. Contracts are simply revalued daily (this procedure is known as "marking to margin"), with gains/losses being debited or credited to margin accounts. This is essential to the risk management structure of any organized, regulated FF exchange[3].

Having discussed the nature of trading, the next step is to examine who the traders are, and how they act/interact within the market.

Traders on financial futures markets

In any FF market, we can identify at least two types of traders: hedgers, who buy or sell a position in the futures market to counterbalance an existing or anticipated position in the spot market; and speculators, who have no spot position necessarily, but rather seek to profit by correctly predicting future price movements (Kobold, 1986:32).

2 The clearing house is always fully matched and in the absence of default, has no position of its own.

3 Another way of limiting the risks associated with price volatility is to use a "price-limit" system in conjunction with the margining system. This is the procedure that is adopted on the IFOX exchange.

Fitzgerald (1986) argues that FF markets were developed to facilitate the needs of these two users. When viewed in this light, FF markets represent an efficient system for transferring risk among agents. Hedgers try to minimize potential losses from risk exposure in certain markets. Speculators, on the other hand, search for profits and will be willing to take on the risk dumped by the hedgers, in the anticipation of a high expected return. It is the existence of low transactions costs and the possibility of being paid winnings or losses daily via the 'margining system' that encourage this transfer of risk[4]. Speculators increase the liquidity of the market, which makes it easier for hedgers to open and close positions when they want.

An investor's options are not limited to FF hedging. They could, for example, hedge by borrowing cash now and buying bonds in the underlying security, using the expected cash flow receipts to pay off the current borrowing in the future. This, however, would be an expensive and quite difficult hedge. An easier and cheaper alternative is provided by FFs. The exchange itself reduces search costs involved in trying to dump risk, and the standardized nature of FFs means that contracts are liquid and can easily be transferred to third parties. If trading is "screen-based", as on IFOX, there is little documentation of trades, no trading delays and almost immediate settlement of margin debts, thus reducing brokerage costs. In sum, the use of FFs for hedging purposes is cheaper and more convenient than most other strategies.

4 It is not the case that risk can only be transferred from hedgers to speculators. It could be that one hedger wishes to hedge against a price movement in one direction, whereas another wishes to hedge against price movements in the opposite direction. If they use the same instrument to hedge, then effectively they transfer risk between themselves. In general, if two speculators are on the same side of a given contract, they increase total risk. Conversely, if two hedgers are on either side, they reduce total risk. If a hedger and a speculator share the contract, then net risk is constant.

Other important aspects of financial futures

Pricing financial futures

The pricing mechanism in FF markets differs from that of the spot market (Fitzgerald, 1986). Consider Interest Rate futures (such as Sterling Time Deposits on LIFFE, or DIBOR futures on IFOX [see appendix]). These are priced on a "discount" basis: i.e., the price of the contract is given by (100 - r), where r is the (locked in) interest rate. This preserves the inverse relationship between the contract price and the interest rate. For example you could lock in a 9.75% rate by buying DIBOR futures at a price of 90.25. If the price falls, this implies an increase in the interest rate.

Minimum losses/gains on contracts are known as "Ticks", which have a fixed value. That value is given by the size of the tick (usually 1/100 of 1%) times the face value of the contract. So, for example, a trader might purchase 20 DIBOR futures at 90.25 (tick value = 0.01% of IR£100,000 face value, for 1/4 of a year = £2.50) and sell at a later date for 90.10. The loss on this transaction is given by:

20 x 15 ticks (90.25 - 90.10) x £2.50 = £750.

Other FFs, such as Foreign exchange Futures, are simply priced in terms of the underlying security, parallel to the forward market. The exception with foreign exchange futures is that they are always priced in terms of Dollars per unit of foreign currency.

Program Trading

Quite often, traders will use index-futures as dummies for the underlying stocks themselves. Program Trading involves

using computer programs to do all the work. For example, an investor may wish to buy stock-index futures when they're cheap relative to the actual stocks, and sell when they're relatively more expensive (i.e., exploit any differentials between the value of stock in an index and the value of the index-future). Computer programs can be used to tell when the time is ripe for such a strategy. These programs can be adjusted to take account of borrowing costs, transaction costs and dividends forgone by moving out of stocks and into futures. If the investor expects a return greater than the return she could get on, say, Treasury Bills, she could take this strategy (known as "index-arbitrage") and know her profit prior to trading. This is because she could close out her position by taking an equal and opposite position in the same contract.

This type of program-trading has been at least partly blamed for the October 1987 crash. During the precipitous decline in stock prices, computer programs detected very large arbitrage opportunities from big discounts between futures and spot prices (for example, on October 19, Standard & Poors futures were trading at a 23 point discount). These discounts led to the market being inundated with huge sell orders, so much so that the New York Stock Exchange could not match the massive amount of sellers with scarce buyers and on October 20, it had to close, since the index couldn't be calculated (The *Economist*,1987:88).

The Irish futures and options exchange

On May 29, 1989, IFOX opened for trading. The exchange was set up as a result of an NCB private sector initiative. It has 24 members including banks, brokers, portfolio managers and own account traders. The trading is "screen-based", so the deal signals are sent from individual computers in the workplace and confirmed/co-ordinated by a central computer. There are several contracts traded (DIBOR 3-month interbank-rate futures exhibiting the greatest volume).

There is no overall clearing house. Rather, each member acts as its own clearing house, undertaking to meet daily margin calls (O' Dea,1990:42). At October, 1990, the 'net worth' requirement for membership was £1.5m tangible net assets. Each member also lodged £264,000 in cash or gilts into a "guarantee fund" which gave the exchange £6.4m to deal with defaults (where members don't satisfy their margin requirements by a specified time). In the case of same, the exchange undertakes to close out the defaulting member's position, precluding any further losses.

The exchange also operates a "price-limit" system (i.e., prices are not allowed to move beyond a specific point in order to prevent having to make intra-day margin calls which are administratively inefficient). This implies that the initial margin will cover the maximum losses from trading in any one day (O' Dea,1990:44).

All of these risk-minimization devices the "net-worth" requirement, the margining system, the "guarantee-fund" and the "price-limit" system - are essential elements of the risk management structure of any efficient, organized FF exchange.

Conclusion

This essay has provided a cursory overview of the FF instrument. It was seen that the extraordinarily rapid growth in the use of the instrument derives from the ease with which it can be traded, the low transactions costs which this involves, and its utility in the hedging and purchasing of risk.It can be concluded that, despite the problems caused by program trading, FF markets offer a highly efficient and useful investment medium.

Appendix

An example of a financial futures contract: the DIBOR 3-month contract on IFOX

Size:	£100,000 3-month deposit
Settlement months:	March, June, September, December
Quotation:	On discount basis (100-r)
Tick Size:	0.01
Tick Value:	0.01 x 100,000 x 1/4 = £2.50
Price Limit:	60 basis points
Initial Margin:	£300 *

* For a straddle strategy, where the trader takes simultaneous long and short positions in the same contract with different delivery months, the initial margin is only £90 since the trade involves exposure to less risk than an open position.

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Informational Efficiency, Bubbles and the 1987 Crash

Dan Ryan

Discovery proceeds from the awareness of anomaly; i.e., with the recognition that nature has somehow violated the paradigm-induced expectations that govern natural science
Thomas Kuhn

The debate about informational efficiency reveals a remarkable polarity in the viewpoints held by those who study the market and those who actually participate in it. Academic consensus in favour of market efficiency flies in the face of the views of most market participants. Since the cataclysmic upheavals of October 1987, there has, however, been a re-examination within the economics profession of the Efficient Markets Hypothesis (EMH). The apparent bubble in the equity markets in 1987, and the absence of any clear rational explanation for the collapse in prices, warrants such a reappraisal.

This essay will first consider the concept of efficiency at the semi-strong level (the most relevant level in the context of the possible occurrence of bubbles). Sections two and three then examine the role of rational behaviour and information. In section four, an alternative to the efficient markets hypothesis known as noise trading is presented. Finally, in section five, the events of October 1987 are analyzed in the light of the discussion.

Semi-strong efficiency

There are three elements in the value of a financial asset. These are, respectively, the estimated returns over time, the expected terminal value, and the discount rate to be applied. It is crucial to efficiency that market participants should form reasonably accurate and unbiased estimates of these parameters. Underlying the two former elements are company earnings, and analysts can only value stocks correctly if they have a reasonable idea of what future earnings are likely to be.

Little (Granger,1972) found no observable correlation between the change in earnings for firms over successive periods. This phenomenon is alarming, because it suggests that the predictability of earnings has been severely circumscribed, and by implication, that informational efficiency is of less help in pricing securities than one might expect. Cragg and Malkiel (Granger,1972), concurred, presenting evidence indicating that, even with the vast array of information available to them, professional securities analysts have great difficulty in predicting earnings:

> "...evidence has recently accumulated that earnings growth in past periods is not a useful predictor of future earnings growth...the careful estimates of the security analysts....the bases of which are not limited to public information, perform little better."

The weaknesses of fundamental analysis notwithstanding, the utility of a share is inseparable from its current and prospective market values. To whatever extent it is possible to estimate the

parameters underlying the valuation of a share, the exercise will produce results which are at least better than a shot in the dark. An investor who invests in a security, the market price of which is less than its value, will enjoy superior returns on the average. Asset prices must tend towards their intrinsic value in the long run, but the deficiencies of fundamental analysis suggest that significant short-term deviations may occur.

Rationality

Two main concepts of rational behaviour in the economic sphere exist. The first is a simple mathematical idea of consistency. The second is the Smithian idea of reasoned behaviour of self-interest and profit maximization. The EMH, based as it is on an economic structure composed of profit-maximizing agents, requires that both concepts of rationality are fulfilled.

Sen (1987) suggests possible flaws in these ideas of rationality. Acceptance of his alternative formulations would be extremely destructive to the EMH. Mere internal consistency cannot be adequate for economic rationality, nor can self interest maximization be seen as uniquely rational in a way that pursuing other kinds of objectives (such as altruism, public spirit, class consciousness, group solidarity) must fail to be.

He raises two other difficulties. Certain objectives may compromise the rationality of the person pursuing them. Not only must agents behave rationally in pursuit of their goals, but those goals must themselves be assessed rationally. Furthermore, even when the goals are clear, translation of these into actual behaviour is affected by the pattern of social interdependence, which is a feature of group behaviour when members have slightly or wholly divergent goals. Even when a strictly dominant strategy appears to exist, problems may arise in individual decision making. The prisoners dilemma is one instance where atomistic non-cooperative behaviour produces inefficiencies. Though each agent pursues his own dominant strategy, the result is distinctly inferior for everybody in the group.

Even greater difficulties arise in a world of uncertainty. As Sen points out "in the presence of uncertainty, rational behaviour requires an appreciation of possible variations in the outcome of any chosen action, and such behaviour must, therefore, be based on systematic reading of uncertainties regarding the outcome and ways of dealing with them"(1987:68). This is an extremely rigorous requirement and in practice, behaviour is likely to be characterized not by perfect rationality, but at best by some form of bounded rationality.

Bounded rationality describes a scenario where human behaviour is not to be seen in terms of any grand maximizing behaviour, but rather as a series of individual decisions, taken on the basis of only partial information and based on limited opportunities for reflection. Neither are these decisions fully integrated, so, as Herbert Simon (1983) points out, decisions may not even be consistent, and choices may depend on the order in which alternatives are presented. Boundedly rational economic agents will fail to maximize profits, even if rationality is defined in a Smithian fashion. Such a deviation, indeed any deviation, from the pure Smithian idea of rational profit maximization raises crucial difficulties with the concept of efficiency and especially with the stronger forms of efficiency.

Information

The information which is available to the financial markets is unlikely to be comprehensive, and may be of limited value in constructing estimates of equity values. But our analysis of the role of information must include not only difficulties with the quality and usefulness

of publicly available information, but also anomalies in the manner in which economic agents utilize information. As Kindleberger states:

> "the theoretical literature uses the assumption of the market having one mind and one purpose, whereas it is observed historically that market participants are often moved by different purposes, operate with different wealth and information, and calculate within different time horizons" (1987:281).

Arrow (1987) highlights the economic role of informational differences. Market models which are based on informationally homogeneous individuals imply zero trade. All changes in information are reflected in price changes which will simply induce each trader to continue holding the same portfolio of assets. We can deduce from this that one likely cause of trading is difference of information.

If an individual trader learns something of which another trader is unaware, it is likely that he will have an opportunity to capitalize on that information by buying or selling in the market place. However, if all parties are rational and if this rationality is common knowledge, this cannot happen. A sale of existing securities may be considered as a complicated bet; a zero-sum transaction between individuals who are identical in all things but information. If both are risk averters, they will never trade securities between themselves if they have the same information. If, however, they have different information, then each will consider that the other has some information that he or she does not have. An offer to buy or sell will itself convey information. By making an offer, the offerer is in effect saying that he expects some advantage to himself or herself, and therefore a loss to accrue to the other party, at least as calculated on the offerer's information. It is easy to see that in such a scenario, no trade will take place. Prices will, however, adjust to reflect the transfer of information arising from the offer and rejection.

This, of course, does not tally with historical experience. A considerable volume of trade does take place on all markets. This can be explained either by viewing investors as irrational, or by considering a scenario where investors have relatively little information to hand, and are acutely aware that other investors are in a similar position. In such a situation, trading may represent a fair bet. This leads us to consider why investors may not have all information to hand - the costs of information. In an efficient market, costly information presents us with a paradox. If prices at all times fully and unequivocally reflected publicly available information, there would be little incentive for market traders to incur the costs of gathering and processing information. Yet, if they abandoned their activities, the efficiency of the market would presumably break down.

Grossman and Stiglitz (1980) suggest that traders who seek out information about economic fundamentals will be rewarded by the market for their efforts through the earning of superior returns. There is in any market an equilibrium amount of inefficiency, which leaves information traders with just enough extra profit to justify their activities so that they make normal profits. In this, Grossman and Stiglitz distanced themselves from earlier writers, who had suggested that the presence of a few informed traders would lead to the whole market being efficient. Thus Grossman and Stiglitz state:

> "efficient markets theorists seem to be aware that costless information is a *sufficient* [italics

in original] condition for prices to fully reflect all information; they are not aware that it is a *necessary* condition. But this is a *reductio ad absurdum*, since price systems and competitive markets are important only when information is costly"(1980:404).

Noise trading

An alternative to the EMH, incorporating these principles, is based on the idea of noise trading. This approach is rests on two assumptions. Firstly, some investors are not fully rational and these investors demand risky assets on the basis, in part, of beliefs which are not fully justified by economic fundamentals. Secondly, arbitrage (trading by fully rational investors who are not subject to such sentiments) is risky and therefore limited. Arbitrage is risky in two ways. Fundamental risk exists in that price changes occasioned by noise trading may be justified by subsequently disclosed information. Secondly, even where an observable anomaly exists, the market may not correct itself in time to allow the arbitrageur to make a profit. Market prices will not be based solely on fundamental factors, but will be affected by market psychology. Noise traders may be subject to systematic biases in expectations formation.

Advocates of the EMH argue that noise traders cannot survive for long in the market for this very reason. Traders who are not fully rational will make more mistakes than those who are and will therefore be eliminated from the market place by a Darwinite process. Schleifer and Summers (1990) on the other hand question this judgment. Noise traders are likely to be more aggressive than arbitrageurs, and ready to bear more risk. If risk is rewarded in the market, then noise traders may earn higher expected returns, despite buying high and selling low. With higher expected returns, noise traders will not disappear from the market as quickly as the EMH supposes and may not disappear at all. On some occasions, it may even be advantageous to arbitrageurs to jump on the bandwagon, where they believe that in so doing they will push prices still higher, enticing many more naive noise traders into the marketplace, pushing prices up still further and allowing the arbitrageurs to sell into the rising market at a profit.

Neither are noise traders likely to learn from and imitate arbitrageurs. Rather, the very high returns enjoyed by some noise traders may encourage others to imitate those noise traders, ignoring the fact that they may just have got lucky. In any case, new investors enter the market all the time with the same judgment biases. Investors are likely to follow very inflexible trading strategies such as trend-chasing. Such changes in demand are unwarranted by, though not necessarily unrelated to, changes in fundamentals. Demand shifts of this type only matter if correlated across noise traders. Yet many trading strategies are highly correlated and the impact of noise traders of this type on the market is likely to be pronounced.

Bubbles and the 1987 crash

In this final section, the 1987 crash is discussed in the light of the above. Kindleberger suggests that:

> "a bubble may be defined loosely as a sharp rise in price of an asset or a range of assets in a continuous process, with the initial rise generating expectations of further rises and attracting new buyers - generally speculators interested in profits from trading in the asset rather than its earning capacity. The rise is usually followed by a reversal of expectations and a sharp decline in prices often resulting in

financial crisis" (1987:281).

An investor's demand for equity is based on the expected return on the equity over the period for which the equity is held. Therefore the current price which an investor will pay is a function of the expected price at the end of the holding period. Imperfectly informed investors will form expectations about the price at the end of the period at least partly on the basis of the current price. Such a set of functions cannot determine the market price (the problem lacks a unique solution), only the sequence of prices. Only one sequence is the market fundamental price path. All others are bubbles. In such circumstances, economic models would require further restrictions in order to make firm predictions of the current market price. Jean Tirole (Flood and Hodrick,1987) has demonstrated that real asset prices will be unique and will depend only on market fundamentals in an economy with a finite number of rational, infinitely-lived traders, but his results are very sensitive to the assumption of traders being infinitely lived.

The events of October 1987 represented to many observers the demise of perhaps the greatest bubble of recent times. Stockmarkets had registered record gains in the months leading up to the crash. The Dow Jones Industrial Average (DJIA) increased from 1738 in January 1987 to 2722, before it went into rapid decline after October 6. On a single day, October 19, the DJIA fell 508 points or 22%. Record volumes and unprecedented volatility were recorded. Can we agree with the characterization of 1987 as a bubble and what can we say about the circumstances of the crash?

The official investigation into the crash chaired by Nicholas Brady wrote that:

> "the precipitous market decline of mid-October was 'triggered' by specific events....This initial decline ignited mechanical price insensitive selling by a number of institutions employing portfolio insurance strategies and a small number of mutual fund groups reacting to redemptions. The selling by these investors, and the prospect of further selling by them, encouraged a number of aggressive trading oriented institutions to sell in anticipation of further market declines....This selling, in turn, stimulated further reactive selling by portfolio insurers and mutual funds" (Shiller,1988:287).

Shiller (1990) investigated the crash by examining the viewpoints of market participants. He found that most investors considered that stocks were overpriced and two-thirds categorized their viewpoint into a "theory of investor psychology" rather than a "theory about fundamentals such as profits or interest". The bulk of respondents quoted the price drops of the week preceding the crash as the main trigger for the far greater falls of October 19.

A more sophisticated explanation for the 1987 crash is presented by Black (1988). During 1987, investors' estimates of mean reversion (a change in expected return that moves in the opposite direction from a change in the market level after that change occurs) grew much more slowly than actual mean reversion, so that bias in their estimates grew. The crash was triggered when investors realized that actual mean reversion was far higher than they had thought. The turmoil in the markets, as this correction took its course, caused investors to demand higher returns, pulling down the market equilibrium still further. Such price movements were aided by investors' use of dynamic strategies (any investment policy which changes exposure to the market after changes in the market level). Portfolio

insurance is one of the better known such strategies, but many investors follow simpler forms of such strategies. Black's model is entirely consistent with the idea of noise trading. Noise can be considered as the bias in estimated mean reversion.

In French's (1988) view, the bubble hypothesis is based on the idea that investors know that prices are too high and that they expect to be able to sell into the market before it falls too far. This is not historically the case. There is no evidence of such a consensus ever having existed. French agrees that prices were too high, but denies that investors were aware of this. Individual investors do not have all information pertaining to a security, but may however have information which is not available to other market participants, or which may only be available to a few participants. Therefore, in forming estimates of asset values, investors will aggregate their own private information with the information conveyed in market prices. The relative weights which they will attach to their private information and to price information will not necessarily be consistent with the relative value of their information and investors may put too much weight on market signals and not enough on their own information.

To illustrate, suppose that in 1987, the typical investor's information was more pessimistic than that implied by the prices. Because investors put too much weight on the market information, she mistakenly believed that she was atypical and that other investors were more optimistic. Consequently, she was prepared to deal at irrationally high prices. A number of items of bad news corroborated the pessimistic private views of investors, leading to very significant downward revision in investors estimations of asset values. The large price revision which ensued led investors to believe that others had even more pessimistic information causing further downward revisions in asset value estimation and further selling. On this view, the major factor in the crash of October 19, 1987, on this view, was the large fall in share prices of the previous week.

Conclusion

This essay has examined the topic of informational efficiency in financial markets. Section one commented briefly on the semi-strong form of the efficient markets hypothesis. Sections two and three considered rationality and information. The fourth section looked at one possible alternative to the EMH, that of noise trading. Finally, section five analyzed the 1987 crash.

To conclude, it can be inferred from the above discussion that it is quite plausible that price indeterminacies other than bubbles may exist in markets. This does not imply permanent biases in securities prices, but securities prices may deviate substantially from the efficient level for significant and perhaps prolonged periods. In this light, it is probable that semi-strong efficiency exists only very imperfectly in real life markets.

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Of Astrology, Sherlock Holmes, and Econometrics

Lisa Finneran

There is very little in the social sciences that resembles the objective and ideal quest for truth which we meet in physics...[yet] the success of mathematical economics shows that one social science at least has gone through its Newtonian Revolution (Popper).

Econometrics: Computerized economic astrology(Hutchinson).

The above quotations summarise two opposing viewpoints concerning the utility of econometrics. This paper will argue from the perspective of the latter.

There are two questions which must be asked before an evaluation of econometrics' contribution to the scientific status of economics can be made. Firstly, what is a science? Secondly, is economics a science? It will here be contended that the application of econometrics is a necessary condition for economics to be a science. However, whether it is sufficient or not is moot. In the best economic tradition, the argument here is inconclusive: two alternative conclusions are proffered.

The discussion proceeds as follows. Section one first adopts Hicks' definition of a science, and endeavours to apply it to the discipline of economics. Section two then examines the problems which economics the science faces. Attention is focussed firstly on those rooted in the subject matter of economics, and secondly on those relating to the application of econometrics. Section three, the denouement is in two parts, one relevant for realists, the other for the consumption of economists.

Economics the science

Hicks (1986) defined science as a "body of propositions" with the following three characteristics: (i) they are about real things - observed phenomena; (ii) they are general, pertaining to classes of phenomena and the relations between these classes; and (iii) they allow tenable predictions to be made on their basis[1].

Before addressing the issue of whether economics is a science, it is worthwhile asking if it makes any difference whether it is or not.

In the last resort, the main function of economic study must be to allow for constructive policy-making. It is not necessary to specify the most appropriate policies - economics aims to formulate means towards different ends rather than the ends themselves. Given this function, it follows that economics must be a science in the sense defined above. It must be based on observed phenomena, and offer general propositions about these phenomena from which worthwhile policy prescriptions can be distilled.

From the above, it follows that econometrics seems to be a necessary condition for economics to be a science. Econometric methods can be interpreted as statistical methods specifically adapted to the peculiarities of economic phenomena. It provides the tools for aggregating,

1 Adopting this definition allows us to avoid the problems of comparing economics to the natural sciences. Arguments such as "economics is not a science because it is not like physics" become redundant and the scientific status of economics can be evaluated in isolation.

measuring, testing and forecasting. In its absence, economics would not be able to furnish the requisite "body of propositions" to validate its classification as a science.

The question remains, however, as to whether the application of econometrics is a sufficient condition to justify this classification. It is this contentious issue which the next section addresses in detail.

Economics the science of problems

Each of the three characteristics of a science delineated above are here dealt with in turn. The argument will be that economics is a science in the sense defined above, although one with major problems.

Economic theory must be based on observed phenomena

Econometrics allows aggregation and measurement of facts. Once we have our "observed phenomena", econometrics can deal with them. The problem, however, lies in observing the phenomena.

Figures can be multiplied, divided, raised to powers, regressed, lagged and modified in any number of other ways. Yet if the person who collected them was in a hurry to get home for dinner, he or she may well have written down whatever came to mind. Questionnaires also admit of less than candid reporting. Hence the motto of the British CSO: "If a figure looks interesting, its probably wrong."

It has been said that everything in economics depends on everything else. This "everything else" includes sociological, psychological and cultural factors. Yet such influences cannot be quantified. Marshall claimed that, as a result, the application of mathematical models to economic phenomena represents a waste of time, and indeed, in the large majority of cases is positively misleading. Even if the importance of these factors could be quantified, it would not be possible to separate out their individual impacts. Identification, specification and multicollinearity problems therefore inevitably impinge. In economics, one can only understand one thing if one understands everything.

It is thus clear that value judgements must be made in econometrics, admitting of ideological bias and "guesstimates". Hence, although economics is based on observed data, the accuracy, relevancy and significance of its conclusions remains seriously in doubt. To quote Worswick:

> "Econometricians are not, it seems to me, engaged in forging tools to arrange and measure actual facts so much as making a marvellous array of pretend tools which would perform wonders if ever a set of facts should turn up in the right form"(Worswick,1972).

Econometrics must provide a body of general propositions

Econometrics is necessary and sufficient in this sense in so far as it does indeed allow economic theory to provide such a body of general propositions. However, the problems discussed in the last section remain relevant. Cognizance must also be taken of the fact that, even if there were no observation problems, interpretation of data depends on the individual theorist. As one commentator has noted: "...if all economists were laid end to end, they still would not reach a conclusion." The question then arises as to whether the propositions furnished are reliable.

The difficulties encountered are magnified by the somewhat specious relationship that exists between econometrics and theory. At its simplest level, there are two opposing points of view.

If Sherlock Holmes were an economist, he would undoubtedly be representative of the first of these, the empiricists. He might

say to Watson: "It is a capital mistake to theorise before one has data. Insensibly one begins to twist facts to suit theories instead of theories to suit facts." The problem with this Friedmanite approach is that relevant data may be ignored, resulting in the specification of incorrect causal relationships[2]. In addition, if new data yields revised estimates of economic parameters, there is no way of telling whether the previous hypotheses were wrong, or if this new one is wrong, or if things have simply changed in the meantime (Machlup,1978). If further theories are built on single theory formulated in this way, new data may cause the whole edifice to collapse if it renders the basic theory incorrect. It is thus clear that proponents and practitioners of this approach leave themselves open to indictment.

The second group are the traditionals, and they work in a diametric fashion, first formulating theories and then seeking out data for the purposes of falsification. For the hardliners, no data can ever prove a theory wrong. This dogmatic approach can also be deemed culpable for incorrect specifications. Further, it magnifies the problem of conflicting theories: those that cannot be disproved tend to have a long life.

The contemporary eclectic endeavours to combine aspects of these two approaches - theories are formed based on *a priori* reasoning, and subsequently modified in line with the data. Such a methodology remains open to the same or similar criticisms as apply to the approaches it synthesizes, but not to the same degree.

The conclusion to this section is therefore that, while econometrics does indeed provide the necessary tools to enable a "body of propositions" to be formulated and forwarded, the contexts in which these tools can be applied remain open to interpretation. It must then be asked if the propositions so generated are credible.

Economic theory must provide believable predictions.

Forecasting is important in policy making and econometrics provides the techniques to facilitate it. Yet as was shown above, there can be conflicting evidence and conflicting theories leading to conflicting predictions. The most serious problem, however, is that, even if these problems did not impinge, the fact that the subject matter is "time-based" renders all predictions suspect. As a result of pervasive uncertainty, it is impossible to specify for how long economic forecasts, such as they are, remain valid. The degree of confidence which attaches to our predictions is correspondingly debilitated. As Cairncross writes:

> A trend is a trend is a trend-
> But the question is will it bend?
> Will it alter its course
> through some unforeseen force
> And come to a premature end?

Hicks (1986) points out that random, once-off events cannot be dismissed as unimportant. Examples include the oil shocks and the breakdown of the Bretton Woods system. The effects of these were not predicted by economists, largely because there was nothing in history to indicate what might happen. Hicks concludes that economics is related to history in a way that science is not.

Conclusion (for realists)

The relevant questions then are: (i) who put the "con" in economics? and (ii) who put the "trics" in econometrics? Admittedly, economics is based on observed phenomena, and it does generate credible propositions about classes of

2 For example, in summer people drink more beer. Also in summer, river water levels drop. Therefore, beer is brewed using river water.

phenomena and the relations between these classes. So by the initial definition, economics is a science. Yet having discussed the range of problems which encroach, Malthus is vindicated in his assertion that it is a dismal science of very little, if any, use to the policy-maker. Econometrics - a scientific approach - can only be successful in so far as its subject matter is scientific. That of economics being dismal, econometrics can only make a dismal contribution.

Conclusion (for economists)

Assume there are no problems, or take Sir Dennis Robinson's advice: "...look these awkward problems squarely in the face - and pass rapidly on."

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The Ricardian Theory of Rent - A Reappraisal of Fundamentals

Ross Maguire

The object of this essay is to apply the Ricardian theory of rent to a wider macroeconomic setting and to trace the implications of this application. The substance of the argument, which was inspired by the work of Henry George, an American nineteenth century economist, represents a fundamental challenge to the foundations of economics.

The discussion begins with an outline of the reasons why such a fundamental challenge is needed. In this context, section two then introduces the Ricardian theory of rent. Section three depicts a model of the Ricardo/George interpretation. Finally, section four delimits the models implications.

The need for re-evaluation

The first question that must be asked is why is a re-assessment necessary? Each reason for challenging the foundation of economics will be different - although each one must necessarily stem from some feeling of dissatisfaction, of discontent. This article is motivated by a belief that man has failed, in his present state, "to be true to himself." He has fundamentally missed the point - and consequently lives in a world within which he is discontented. At the same time, he dares not raise his head to examine the cause of his predicament for fear of exacerbating the situation.

Economists emerge who offer the possibility of alleviating the misery, although it can be contended that the life span of their ideas is in all cases extremely short. Other economists emerge, who use their genius to prove that our current state is of a natural order in that nothing can be done about it. These are of a far more insidious type, in that their work serves to kill off the yearning for something better, for a natural order which allows for the thorough and complete development of all men.

Consider for example the Keynesian theory of equilibrium at under-employment. The workings of this theory are logical, but the idea that men come into the world and are subsequently denied the right to work and everything that this entails - is abhorrent. It presupposes a "niggardliness in nature", a Malthusian idea, which in all other areas of nature is contrary to observable fact. Can we imagine anything in nature that has no function, no self-dependence whatsoever? If men have no positive economic function, if they cannot even sustain themselves through their own labours, then plainly they become a burden on humanity. To blame nature for this is to make an enormous assumption, the validity of which has never been proven.

This then is the reason for "bothering". Either we discover a law which promotes justice and consequently harmony among men - and then bring our institutions into conformity with this law, or else we succumb to the inevitable consequences of our ignorance, the results of which could be catastrophic.

The Ricardian theory of rent

George (1975) clearly recognised humanity's dilemma. In an effort to elucidate a greater understanding of economic interactions, he applied Ricardo's

rent theory to the wider economic system. He defined rent to be that share of wealth which a man is able to obtain through his control of land. He distinguished this from wages, which accrue to labour. He described wealth to be simply land modified so as to fit it for the gratification of human desire. Finally, he noted that interest accrues to the controllers of wealth.

Ricardo's law of rent is as follows: "The rent of land is determined by the excess of its produce over that which the same application can secure from the least productive land in use." To George, this law was of fundamental importance. He argued that its application throughout the economic system would confer immeasurable benefits on mankind.

The theory is essentially simple. Originally there are two factors of production, land and labour. Capital, though a factor of production, is simply land modified in some way or other by labour. Every man is born with the potential to labour. Were he not, he could not survive. In this world, the earth is entirely owned by a relatively small number of people. Thus the non-landowners, the majority of men, must of necessity become employed, and because there are great numbers of them there will be competition. Wages, the fruits of labour, are forced to a minimum.

Keynes, in his treatment of unemployment, tended towards a more Malthusian view. He writes in his "Essay on Biography": "if only Malthus, instead of Ricardo, had been the parent stem from which nineteenth century economics proceeded, what a much wiser and richer place the world would be today." Hence Keynes's description of unemployment as occurring when the marginal product of labour falls to a level where its utility to the employee is counterbalanced by the disutility of employment. This is "voluntary unemployment".

Involuntary unemployment occurs when even though men would work for a lower money wage than the marginal product would justify, there is insufficient demand for their labour. All this is brought about by pressure of numbers - the Malthusian approach. Ricardo would disagree - and his argument would be based on the law of rent.

A model

Consider an uninhabited island. A family arrive and set up on the best land - their wealth producing capacity being represented as 10 (see Figure I).

Figure I

The arrival of a second family increases the wealth of the first by virtue of the mutual benefit of co-existence. This second family settle on the next best site. It cannot produce as much as the first site (We assume equality of skill and effort throughout this model; see Figure II).

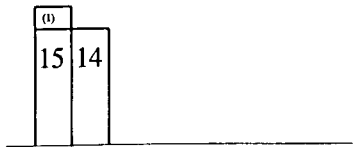

Figure II

As a result of B's arrival, wages rise from 10 to 14; that is, the wealth produced by B or the wealth produced on the best available site. Before B came along no part of the produce was rent, it was all wages. Now 1 on A's site is rent. Put another way, A could conceivably earn an income without doing anything, for he could employ B on

site A paying him 14.5, and still have 0.5. The arrival of further families (such as C) has an analogous effect. What is significant, however, is that, as the community grows, rent becomes proportionately more important than wages (see Figure III).

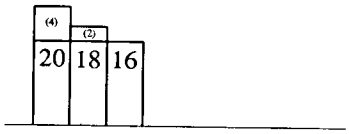

Figure III

Now a smith arrives. Position is of primary importance to him and so he settles in B's land. We will now represent this by an increase in productivity on site B of 12. It now generates 30, while A generates 25 and C generates 20. It is fair to assume a general increase as the smith will benefit all. In this new condition wages will have risen to 20 on each site - 60 in all. Rent will have risen to 15, but is 20% of total production.

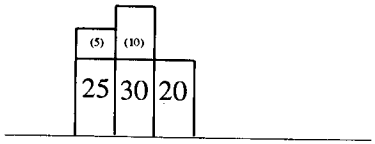

Figure IV

The natural wage is 20 and the natural rent varying from 5 to 10 depending on the wealth producing capacity of the site. It is evident that the rent is not a man made thing - it exists because of the existence of a community.

The concept of land enclosure can be easily introduced. If B recognizes the profit to be obtained from bare ownership of land, and consequently encloses land sufficient for 3 new settlers, settler E must take the next available land. Now if B asks E to work for him he will have to pay him at least the value of this next available land. Yet this wage will be much less than if land not been enclosed.

If all the land on our island is enclosed by B and new settlers E and F arrive they have no bargaining power. If there were only work for one, and B can of course control how much work there will be, they, E and F, will compete with each other for employment and wages would fall very low. Thereafter as population is increased, the power of producing wealth on any site would increase vastly, but the share taken in wages would always be governed by competition for work. The growth in population would intensify this, for it would encourage B to continue to withhold land from use. Continuing along this path, capital would be available exclusively to landowners, as E and F can hardly be expected to buy capital on subsistence wages. The rent receivers will therefore lend their surplus funds to those engaged in industry and consequently gain control of industry. Labour will maintain their capital for them and the rent they receive will further increase their power.

The above calculus reveals that rent is composed of two sorts: natural rent above the amount labour could obtain on the best land not being used and secondly, the inflated rent, or the loss to wages by the enclosures. The whole scenario depicted through this model finds empirical evidence in the decline of the Roman Empire and in the grave societal problems caused by the sixteenth century enclosure of the Commons in England.

Implications of the model

The implications of this application of Ricardo's Law are of paramount importance to the subject of economics.

Firstly, in every well-ordered society, the relations between men rest upon recognised rights and duties. The first right of all is the right to life. Equivalently, every

man has an equal right to those things freely supplied by nature, without which he cannot live. Hence exclusive property in land is morally wrong as this property necessarily excludes others and denies them their equal right. It should therefore be proscribed.

Secondly, every man has a right to work: he must if he is to live. Thus every man has an absolute individual right to the full product of his labour, subject only to the claims of those legitimately unable to work. The crux is that, since rent is created by the community, it should be returned to the community. As wages are the foundation of private property, rent is the foundation of public property.

It is in this light that the manifest failure of the communist system can be understood. In placing responsibility in the hands of the few, a natural law was transgressed. As Solzhenitzyn observed, people simply did not love freedom enough. Ricardo's analysis indicates that, unless land is non-excludable, and the fruits of each community are returned not to a small group of individuals but rather to that community, phenomena such as unemployment and subsistence wages will arise.

Conclusion

This essay, in calling for a re-evaluation of the foundations of economics, presented and developed the Ricardian theory of rent. Section one outlined the reasons why a new departure is requisite. Section two introduced Ricardo's theory of rent. In sections three and four the application and implications of this theory were examined with the aid of a simple model.

The fact is that, despite enormous progress in science and technology, millions cannot find work, and even greater numbers subsist on minimum wages, devoting the greater part of their lives to mere survival, while a very small group enjoy enormous wealth. Economics has too long been a subject concerning itself exclusively with the mechanics of a false world, denying the existence of a natural law governing the relations between men and society. Hope lies only in the rout of accepted wisdom. As George wrote in the nineteenth century:

> "Political Economy has been called the dismal science and as currently taught, it is hopeless and despairing. But... freed as I have tried to free her...in her own proper symmetry...she is radiant with hope."

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The Practice and Prospects of Econometrics

Neil Sherlock

What is a science? As Kane (1989) notes, its nature precludes perspicuous definitions, but Nagel furnishes a useful starting point: "It is the desire for explanations which are at once systematic and controllable by factual evidence that generates science"(1961:4; cited in Kane,1989). The search for a standard methodology of economic research is a consequence of assuming that economics is or will be a science. This assumption is fiercely contested, and what follows is an outline of the terms of this debate.

The discussion begins with a definition of what actually constitutes science, and then proceeds to examine the question of whether economics can legitimately be called scientific. Section two introduces econometrics as a discipline. Finally, section three looks at the practice of the discipline. It is concluded that, although there are many criticisms of economics that render it unscientific, the methods of measuring and forecasting the economy are at present the best we have, and by taking into account certain limitations, they can be made operational.

How scientific is economics?

This section examines in what sense the adjective "scientific" can be applied to economics. Two opposing viewpoints can be usefully delineated. Put simply, one contends that the discipline of economics is scientific, and the other argues the diametric opposite. What is noteworthy is that, often, the proponents of these two perspectives use a common benchmark to support their position - the natural sciences. It will be argued here that the uncritical use of the natural sciences as a metaphor for certainty and "truth" is both unjustified and unhelpful.

Nagel (1961) discusses this point at length. He believes that if the natural sciences are exact, then perhaps physics has the strongest claim to the designation "scientific". And yet there remain areas in physics that to this day remain unresolved. Each year, new atomic and sub-atomic particles are discovered, such as the axion, the latest explanation for the "missing" part of the Universe's mass. On a more general level, the cursory overview of the natural science reveals tracts of unexplored phenomena. In medicine, for example, how often is a new breakthrough in cancer research announced, only to be usurped a few months afterwards by the "latest" piece of research. Bacterial ailments have been conquered, but viral ones remain unchallenged.

Both the natural sciences and the social sciences are confounded by the problem of observation affecting measurement. In tandem with this, both categories lack opportunities for controlled experimentation. In short, it is a fundamental misconception to believe that the natural sciences achieve a level of purity and objectivity that the social sciences can never achieve.

Having said this, never the twain shall meet unless practitioners within the economics discipline attempt to sustain a scientific methodology. Econometric methods are at the core of this endeavour.

The nature of econometrics

The Econometric Society was founded on 29 December, 1930 (de Marchi and Gilbert,1989). At this time, there was seen to be a need to promulgate the merit of statistical methods in applied economics. In addition, standards had to be set and mechanisms for data collection put in place. The new econometricians had a strong sense that it was part of their mission to help make economics operational: "mathematicizing economics thus was seen as a necessary part of the larger enterprise" (de Marchi and Gilbert,1989). Hopes were high that the new departures would greatly benefit the discipline. It is arguable, however, that this benefit has not accrued.

A definition of econometrics is useful at the outset. It can be be described as the application of statistical methods to economic data. Yet such *simpliste* interpretations gloss over major points of contention. Contrast the views of Koutsoyiannis (1977) with those of the contemporary English school.

Koutsoyiannis places most emphasis on the reliability of results, contending that it is important that parameter estimates be both statistically significant and theoretically meaningful. If the estimates turn up with signs or size not conforming to the a priori criteria generated by established economic theory, then they should be rejected. In this case, the econometric result obtained is, to a large extent, contingent on existing theories. This is hardly an experimentalist approach and certainly not "scientific".

Other practitioners, such as Leamer and Hendry, claim the advantage for their approach. They use quantitative techniques to discover theories. However, while at first sight this approach appears more tenable, in practice it is equally culpable. This is because underpinning it is the belief that alternative theories may exist, but a satisfactory model must be consistent with at least one theory. This essentially leads us back to the same problem mentioned above.

The practice of econometrics

Most economic theory is developed as deterministic. The role of data is largely relegated, in practice, to the quantification of parameter values and acceptance or rejection of theoretical relationships. There is no role for discovery, least of all for data instigated discovery, and no concept of modelling the data.

The number of variables relevant to economics is vast. Shackle (quoted in Wright,1989) defines economics as "the aggregation of the incompatible and the quantification of the unquantifiable." It follows that in the application of econometric techniques, a certain amount of approximation is inevitable.

To take one example, consider the standard Keynesian equation Y=C+I+G+X-M. In the measurement of these aggregates, *ad hoc* estimation procedures are employed. Investment expenditure figures are based on spending on (a) construction and (b) machinery and equipment. Within each category, proxies are used to measure the amount of investment undertaken[1]. Consumption expenditure is not directly estimated at all, but rather is taken to be the residual in the equation when all other aggregates have been estimated. It is obvious that these figures will be specious.

Leamer (1983) believes that: "The concepts of unbiasedness, efficiency, consistency, maximum likelihood estimation, in fact all the concepts of traditional theory utterly loose their meaning by the time an applied researcher pulls from the bramble of computer output,

1 For instance the number of bags of cement sold is used to estimate construction investment, while imports of producer capital goods are used to approximate investment in equipment.

the one thorn of a model he likes best, the one he chooses to portray as a rose." The econometricians shabby art is humorously and disparagingly labelled "data mining", "fishing", "grubbing", "number crunching." Conse says of the process: "If you torture the data long enough, nature will confess." This again is a sad and unscientific state of affairs.

Combining these difficulties of quantification and aggregation with the lack of objectivity exhibited by practitioners renders economics a completely subjective discipline. This is the opposite of what the probabilists of the 1940's tried to achieve under Haavelmo and the Cowles Commission. Haavelmo shaped a coherent framework applying statistics to economics, thereby enabling agreement to be reached on methods. This agenda has been only partly implemented.

Finally, it is worth commenting briefly on the impact that technological advances have had. That such advances have indeed changed the nature of econometrics is unquestionable. Computers enable the creation of large databases, and the processing of data that in previous years was simply too cumbersome to be manageable. Inevitably, therefore, the formulation of the questions and the character of the answers has changed. However, the enduring methodological concerns of the relationship of theory to econometric estimates, of nutonomy, of the comparison of competing hypotheses, and of the status of inference in econometrics remain.

Conclusion

This essay has discussed the scientific status of economics, and the contribution which econometrics makes to this status. It was argued that the labelling of economics as scientific by virtue of the application of econometrics is a misnomer.

The criticisms of economics mentioned above are deficient in so far as they do not proffer an alternative methodology. This is because an alternative answer does not really exist. The economic methods we have at our disposal today. If we recognize the limitations of economics and its weak base instead of treating economic indicators as the absolute truth, then economics has a role to play in our society. It is when these limitations are ignored that we are in serious danger of of making a grave mistake in relation to our economy.

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The Rhetoric of Economics

Paul O'Connell

Economics is the art of conviction. Economists "...argue to render their judgements persuasive" (Klamer,1984:238). Exposition is an objective of ancillary importance.

This is the context in which the role of econometrics must be examined. Econometric methods in practice constitute a mechanism used to bolster the persuasive force of particular arguments, to secure adherence. Crucially, they are not as perceptible as other persuasive techniques, not because they are any less blatant, but because they are shrouded in false legitimacy by virtue of their apparent subscription to the credo of Scientific Method.

This essay explores this theme. Section one focuses on the dissonance between official and unofficial rhetoric. Section two investigates the reasons for this discord. Finally, section three looks at an alternative methodological prescription, countering the assertion that the anti-inductive, modernist emphasis of Popperian methodology is the only one suited to economics.

The official and the unofficial rhetoric

McCloskey (1983) distinguishes between the explicit and implicit methodology of economists. Officially, they subscribe to an amalgam of "logical positivism, behaviourism, operationalism, and the hypothetico-deductive model of science"(1983:484). Booth labels this amalgam as modernism, summarised in Kelvin's dictum: "When you cannot express it in numbers, your knowledge is of a meagre and unsatisfactory kind"(Kuhn,1977:178).

The origin and merit of such an approach can be traced to the methodological declarations of the modernist family from Descartes to Hume, Comte to Russell and Locke to Hempel. On the eve of the Cartesian Revolution, the French philosopher Ramus crystallized the medieval tendency to "...relegate rhetoric to mere eloquence" in an effort to achieve scientific objectivity (McCloskey,1983:483)[1]. In the three subsequent centuries, the direction of endeavour centred on the establishment of logical positivist foundations for knowledge. Probable argument languished.

The epistemological pronouncements of Popper and Lakatos influenced greatly the application of this Received View to economics.

> "Once put forward, none of our "anticipations" are dogmatically upheld. Our method of research is not to defend them, in order to prove how right we were. On the contrary, we try to overthrow them... using all the weapons of our logical, mathematical, and technical armoury"(Popper, 1968:279).

According to this official doctrine, theoretical disagreements can be settled in the eyes of any "objective" economist by systematically collating empirical evidence.

1 Throughout this paper, the adjective 'scientific' will be taken to mean objective and free from ideological bias.

Furthermore, on this view, falsification is a prime objective of the scientific economic theorist.

Contrast this official methodological prescription with unofficial, "workaday" practices:

> "If the results of the fitting to the data are reasonable, on grounds that are not themselves subject to examination, the article is sent off to a journal. If the results are unreasonable, the hypothesis is consigned to do a loop: the economic scientist returns to the hypotheses or specifications, altering them until a publishable article emerges"(McCloskey,1983: 494).

Thus, to use Richard's (1964) dichotomy, while economists purport to be scientific (in that arguments are advanced purely for the purposes of exposition), in practice they seek to sway and convince. To understand why such a glaring cleft divides official from workaday rhetoric, the assertion that economics is an art of persuasion must be returned to.

The sociology of economics: *per fidem decipi*

For a variety of pragmatic reasons, economists must endeavour to have their theories accepted. Pratschke reminds us that "access to power...has been the conscious desire of economists from early Elizabethan times"(1985:145, quoted in Matthews, 1985). In the contemporary world of publication-counting-deans, motives are more pecuniary in nature, but equally distortionary. The fundamental sociological identity of an economist is also at stake, a point sketched in startling relief by Klamer:

> "Purely individual judgements usually do not count....A judgement only carries force when it is shared by a group of economists" (1984:253).

Yet if slanted pregnant discourse is demanded, it is not wholly licensed. Arguments must appear conformable to the epistemological standards of the day. For example, rigour and precision are appreciated, and neat and elegant models currently "fascinate". Given these constraints, what constitutes substantively rational behaviour on the part of the economist?

Consider the choice of language. Robinson writes: "...bigger is closer to better; equal to equitable; goods sound good; disequilibrium sounds uncomfortable; exploitat-ion wicked; and subnormal profits rather sad"(1962:19). Style can also be significant. Almost without exception, when assumptions are relaxed, the subjunctive mood is invoked, suggesting that the strictures placed on the context are realistic[2]. In addition, by appeal to Ricardian vice, results of a convincing nature can be derived from analysis of not-very-convincing hypothetical toy economies[3].

Examples of such devices proliferate on a little thought. Yet in the current context, the most important one is the empirical argument. Hendry and Mizon (1985) argue that the absence of serendipity in the creation of theories and models leads to the use of econometrics with false legitimacy. In the domain of unofficial rhetoric, econometric techniques constitute a psychological construct used as a mechanism (that has been ratified by the modernist tradition) to

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2 Without a tin opener, we would not be able to open the can.

3 As a further interesting example, consider the equation MV = PT. As a useful but irrefutable equation, it is used in economics, and in physics as the equation of state of an ideal gas. However, it is often abused as a testable identity, leading to misleading conclusions.

McCloskey (1985) examined a sample of ten journal articles, each of which employed regression analysis[4]. Of the ten, only two do not admit experimenting with the regressions, sometimes with hundreds of different specifications. One uses "a sample of convenience so convenient, that it looks like a universe...about which sampling theory can tell nothing"(1985:204). Only three "...do not jump with abandon from statistical to substantive significance" (1985:204). None alter their level of significance and none mention the word "power".

An explanation for such practices is offered by Feige (1975). In an extraordinary paper, he argues that journal editorial policy puts an inordinate premium on the attainment of statistically significant results, which in turn contaminates published literature with Type I errors. He estimates the marginal net return to the production of statistically significant results for a researcher to be in the neighbourhood of $2,000 at 1975 prices. The consequence is an incentive for less than candid reporting of statistical tests and possible alternative model specifications (1975:1295).

A New Methodological Departure

It thus becomes apparent that, in contravention of their official rhetoric, economists engage in Procrustean practices that often succeed in no more than the corroboration of prejudice and whim[5]. While such a perspective is anathema to most econometricians, some have begun to adopt it (Leamer, 1983; Hendry and Mizon, 1985; Blaug, 1980). Yet their prescriptions for a new departure must be rejected. The establishment of an even more stringent mandate to be met by theorists ignores the nature of both economics and *Homo economicus*. For the reasons cited above, pre-test bias is inevitable. Economists cannot afford to be "scientific", and hence they cannot be compelled to be so[6]. If additional strictures are imposed, economists would make pretence to be meeting these criteria, while researching and publishing exactly as before - the Goodhart's Law of econometrics. The only difference: prejudice would become even harder to detect.

A robust alternative methodological prescription can only be distilled if the sociological ingredient is included. A clue is provided by Perelman and Olbrechts-Tyteca (1971) in their formidable treatise on literary argumentation. They note that the adoption of the "Descartes concept" represents "...a perfectly unjustified and unwarranted limitation of the domain of action of our faculty of reasoning"(1971:3). Not all regression analyses are more persuasive than all moral judgements. The pursuance of dialectic, syllogism, induction and other forms of argumentation has much to offer in its own right. But crucially, such methods of proof do not shelter under the cloak of self-righteousness that protects operationalism.

Such an invitation to practitioners to de-emphasise modernism meets head-on with the aged and durable fear of sophistry. In classical times, Plato chastised rhetoric in his dialogue. Indeed, it was this fear which spurred the adoption of rigorous modernist methodology. Yet the sociology of economics dictates that, while ostensibly

4 McCloskey takes his sample from the fifty full-length articles that used regression analysis in the American Economic Review between 1981 and 1983.

5 Procrustes was a Greek giant of Eleusis, who had two beds of unequal length. He would force travellers into either one or the other by stretching their bodies or cutting off their legs.

6 According to Polanyi, econometricians could, in theory be compelled to be scientifically impartial. However, this would involve the imposition of 'quixotic standards...which if rigorously followed, would reduce us all to involuntary imbecility'(1962:88).

otherwise, operationalist techniques are equally specious. In this context, there is no good reason for wishing to make logical-positivist as against plausible statements. The opposite is the case, since the latter are not defended as irrefutable. A more pluralistic methodology would result in a discipline which is more "scientific" if less superficially similar to the statistical methods used in experimental sciences.

Conclusion

In assessing the role of econometrics, this paper has isolated the dissonance between the official and the unofficial rhetoric of economists It was argued that sociological factors are at the basis of this dissemblance. Prospects for redress hinge on the readmittance of probable argument, which is not shrouded in the false legitimacy that tends to immunize empiricism from challenge.

Modernism is no longer the Received View. Rorty (1979) notes that philosophers have adjusted their metaphysical position, acknowledging the Duhem thesis and its indictment of falsification. Economists must therefore realign their allegiance. Nothing is gained by clinging to any methodology except clarity, tolerance and honesty. Emphasis on "conceivable falsification" and "some future test" is not a panacea.

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The Monetarist's Nemesis

Paul O'Connell

Augmentation [in the quantity of money] has no other effect than to heighten the price of labour and commodities..In my opinion, it is only in [the] interval of intermediate situation, between the acquisition of money and rise of prices, that the increasing quantity of gold and silver is favourable to industry (Hume, 1752).

"Monetarist" propositions concerning the significance of money clearly hold a distinguished place in the history of monetary thought. Yet these propositions have too often been couched in the equilibrium vernacular of classical formulations. Hence market mechanisms are perceived to exist and function independently of the behaviour of the supply and demand for money. Furthermore, the possibility of quantity adjustments is denied.

It will be argued in this paper that such a framework is culpable on the grounds that Marshallian and Walrasian micro-foundations have been embraced without sufficient qualification. Section one examines the development of monetarism[1]. It first describes what may usefully be called vintage monetarism, setting out the Marshallian framework adopted by Friedman. The discussion is then extended to take account of new classical specifications, focussing in particular on their Walrasian frame of reference. The emphasis here will be on the fundamental equilibrium roots of monetarism, rather than on specific monetarist propositions.

Section two delineates a critique of this monetarist doctrine. The fallacy of neglecting the means-of-exchange role of money is highlighted, as is the misleading nature of concentration on equilibrating price adjustments. It is concluded that a worthwhile alternative avenue of research must be set in a non-Walrasian, dis-equilibrium context.

One *obiter dictum* is necessary at the outset. The issue of whether new classicals can be labelled monetarists is moot. Tobin (1981), on the basis of the similarity in both schools *policy prescriptions,* calls new classicals "monetarists mark II." Hahn (1980), concurs, except that he emphasizes the parallels in the schools' *theoretical* bases. Laidler (1981), in contrast, compares the new classicals more to the Austrian school, citing *theoretical differences* as the key distinguishing feature. In this paper, Hahn's classification is adopted, while it is noted that the critique remains relevant irrespective of the categorization chosen.

The Monetarist's Genesis

Marshallian foundations

It is now almost a quarter of a century since Friedman's celebrated Presidential address to the American Economics Association, in which he presented a

1 The term "monetarism" was first coined by Karl Brunner in 1968. However, the original etymology of the word is more interesting. There was a temple on the Capitoline hill in Rome dedicated to Juno Moneta. She was the goddess of the month of June, and the protectress of marriage. Near to the temple was the building where denarius coins were struck, and hence they came to be called moneta. From this the words "money" and "monetarist" derive (O'Donnell,1990).

consistent framework for reconciling the empirically observed negative correlation between inflation and unemployment with the absence of money illusion (Walsh,1989). This transformed the central debate in macroeconomics and served to introduce the role of expectations and the equilibrium approach.

In his work, Friedman took particular cognizance of the Cournot problem, and it is this that perhaps distinguishes his writings most from contemporary analyses (Hoover,1984). Cournot was concerned with the following question: given economic interdependence, how can economic analyses be handled using practical methods? In an effort to circumvent this problem, Friedman employed Marshallian as opposed to Walrasian constructs. He ratified such an approach in his 1949 essay, "The Marshallian Demand Curve," in which he argued that Marshallian analyses represented a strand of general equilibrium that can be used as "...an engine for the discovery of truth" (1949:490). He judged Walrasian frameworks to be quixotic, contending that their merit was seen to depend more on their degree of abstraction, generality and mathematical elegance than anything else. Consequently, he generally employed single equation methods in his empirical work on money and consumption. He also made effective use of portmanteau variables. Problems were thus partitioned into more manageable sections.

Despite the fact that Friedman eschewed the full equilibrium schema, it is clear that he retained the fundamental equilibrium ideas of market-clearing and price, as opposed to quantity, adjustments. Thus were the characteristic monetarists propositions arrived at[2]. Indeed, Friedman himself writes: "The natural rate of unemployment...is the level that would be ground out by the Walrasian system of general equilibrium equations, provided there is embedded in them the actual structural characteristics of the labour and commodity markets" (1968:8).

It is argued below that, while such an approach is pragmatic, it is open to indictment on a number of charges. Before embarking on this critique, however, the contemporary monetarism of the new classicals is first examined.

Walrasian innovations

Hahn (1980) argues that if the world is in continuous Walrasian equilibrium, then the monetarist case is strong. To illustrate this, he delineates the features of a simple Walrasian economy, and shows how these are sufficient for the validity of monetarist propositions.

The point of departure is the assumption that agents treat prices parametrically, and formulate their present plans based on these and expected future prices. The latter are contingent on the state of nature. Under (homogeneous) rational expectations, the prices expected to rule in the future, given any state s, are in fact the prices that will clear the markets if state s occurs. If noise impinges, the probability distribution of prices which agents assign is assumed to be equivalent to the distribution that will be generated by the economy. The implication is that price expectations are conditioned not only on the state of nature, but also on any exogenous variables that help determine prices in that state. One such variable is the money supply.

If agents know the constellation of assets, including money, at any date and state, they will also know market-clearing prices. Under these circumstances, in a Walrasian world where agents are not

2 The most important of these are: (i) inflation is associated most closely with changes in the supply of money; (ii) unemployment is a response to the real-wage. Others can be included, but as Mayer (1978) notes, "...monetarism is not a clear-cut doctrine set forth in one particular place."

systematically disappointed, and transactions are not thwarted, a long-run rational expectations equilibrium will obtain[3]. Given the absence of internal debt denominated in money, and a neutral real tax system, such an equilibrium will be homogeneous of degree zero in money stock and in current and future prices.

As long as the constellation of assets can be accurately predicted, all markets will clear in all periods, and the economy will not diverge significantly from rational expectations equilibrium. In particular, there will be no involuntary unemployment. The step from the homogeneity postulate to the statement that "a k-fold increase in the money stock will produce a k-fold increase in prices" becomes, in these circumstances, relatively small. It is only in the case that the constellation of assets cannot be accurately predicted (due, perhaps, to the presence of a random monetary component), that the economy diverges from its unique equilibrium. Hence Lucas's (1975) conclusion that money can only have real effects if relative price movements owing to the state of the economy cannot be disentangled from absolute prices.

The policy conclusion of this analysis is stark. Given rational expectations, there is no exploitable Philip's trade-off, even in the short-run. Indeed, Walrasian analysis, obviating as it does the need for partitioning of problems into tractable units, does not admit of a short-run. But, perhaps to a degree more than vintage monetarism, the new classical framework is reprehensible. It ignores the means of exchange role of money, and denies quantity corrections. As Hahn writes: "there must be few firms...who sell as much at the going price as they would want to" (1980:8). These and other issues are taken up in the next section.

The Monetarist's Nemesis

The Role of Money

Laidler argues that:

> "...to treat the expectations augmented Phillips curve as the aggregate supply curve of a competitive Walrasian economy characterized by certain information imperfections [is] to treat a monetary economy as one in which money [has] no means of exchange role to play" (1990:xi).

Subsequent to the publication of the General Theory (1936), in which specific emphasis was placed on the demand for money as a means of exchange, an effort was made to integrate monetary theory with Walrasian value theory in the guise of IS-LM analysis. However, in pursuing this approach, monetary economists were adopting a model which could not generate a transactions motive internally. Traditional accounts of the necessity of a monetary economy centre on the information and coordination problems of barter. Yet within the Walrasian economy, information and incentives to co-ordinate the activities of otherwise isolated and self-interested agents are provided by the structure of relative prices. Hence barter-economy analyses must either treat money as an "asset pure and simple, or...introduce monetary exchange in an apparently arbitrary fashion by appealing to a cash-in-advance constraint" (Laidler,1990:7).

The Walrasian auctioneer coordinates the economy by performing three distinct tasks: setting market-clearing prices, informing agents about them, and bringing suppliers and demanders together to trade. In reality, however, this device of

3 A rational expectations equilibrium is a set of future and present prices such that markets clear at all dates and such that no agent can improve his or her forecast of the probability distribution of prices, given the information available.

tatonnement represents no more than an artificial but convenient simplification. It is precisely for this reason that money matters. In the absence of the auctioneer, money offers an alternative institution for coordinating information and economic activity (Goodhart, 1975).

However, it is not quite as good an institution as the auctioneer. Some degree of market uncertainty, and associated search and transactions costs, must impinge. If consumers find it worthwhile to shop around for favourable prices, then the timing of transactions becomes stochastic, and agents will find it convenient and indeed optimal to hold inventories of goods and complementary inventories of cash balances. "In short, if we dispense with the auctioneer entirely and have prices set endogenously, we create a world in which the precautionary demand for money becomes of the essence" (Laidler, 1990:9).

Although the existence of unsold goods and money is difficult to account for within the Walrasian model, they are important ingredients of the real world (Morgan,1978). Monetarism must be criticized for its failure to take sufficient cognizance of this. However, this criticism only derives its potency when the concomitant implication of price-stickiness is considered.

Price Stickiness

Price stickiness can arise from inertia in expectations, the existence of nominal contracts of fixed duration, or from the existence of non-trivial menu-costs. The Walrasian monetarist paradigm rules out the occurrence of such inflexibility. However, if the proposition made above that monetary exchange involves an inevitable degree of uncertainty holds, then price rigidities must obtain. Such rigidity can arise even without relaxing the assumption of rationality. It follows trivially if costs of information are imputed. In this case, agents will gather information only up until the point that the marginal cost of doing so equals the marginal benefit that its possession confers. However, Hahn (1980) endeavours to integrate rational behaviour with a non-Walrasian world in a more formal way.

The point of departure for Hahn's analysis is that prices do not clear all markets. He then poses the following question: "...do there exist price and quantity constraints on the trading of agents such that all constrained trades balance and no agent can improve himself by a change in price?" (1980:5). If such prices and quantities do exist, then they characterize a rational conjectural-rational expectation equilibrium. Although proof of the existence of such an equilibrium requires stability results that have not yet been established, Hahn argues that the cadre does not appear vacuous.

If such an equilibrium does exist, then the conclusions reached earlier must be radically altered. Both prices and quantities now become signals, and multiple equilibria in which markets clear in the constrained excess demand functions can be established. They may all still possess the homogeneity property, but since quantities vary endogenously, the step from homogeneity to "a k-fold increase in the money stock will produce a k-fold increase in prices" is now tentative. This "endemic non-uniqueness" allows discussion of movement from one equilibrium, to another characterized by a lower level of involuntary unemployment. Money, in this context, is clearly non-neutral.

The discussion above highlights the fact that, when Jaffe's "abandonment of reality" (the Walrasian framework) is dismissed, conclusions that differ sharply from monetarist propositions result. Yet so far, the assumption of rationality has been maintained. This assumption is now challenged.

Irrationality

Keynes was unequivocal in his denial of expectational rationality: "...a large proportion of our positive activities depend on spontaneous rather than on mathematical expectation" (1936: 161). Akerlof and Yellen (1987) argue that economists have accorded the assumption of rational, maximizing behaviour unwarranted ritual purity. They argue that it is necessary to relax the assumptions of the perfectly competitive Walrasian model, and impose instead a theory which conforms more to reality based on the assumption that agents are not fully rational.

Individuals do indeed suffer from money-illusion, follow rules of thumb and give weight to considerations of fairness and equity. The burgeoning weight of psychological research (see for example Bazerman,1986) suggests that cognitive biases produce such unscientific behaviour. Blinder concludes, "...the von Neumann-Morgenstern axioms are routinely violated" (1987:135). In this light, it appears short-sighted to pursue the development of models founded on simple homogeneous rational expectations. People do not always optimize at the margin, and monetarist formulations remain culpable in this regard.

Conclusion

This paper has argued that the monetarist doctrine is deficient in a number of critical respects. Foremost among these is its appeal to the equilibrium world of Marshall and Walras, an appeal which cannot be justified in the light of observed phenomena. In reality, quantity changes play a significant part in the process of economic adjustment. Markets in current and future periods are neither perfect nor complete. "High unemployment rates, excess capacity, and surplus stocks demonstrate the existence of the ubiquitous "quantity constraint" on any market" (O'Neill,1990).

In addition, the rationality postulate of monetarists must be exposed to serious questioning. "The commonly regarded *sine qua non* of good economic theory - a microeconomic foundation based on perfectly rational, maximising behaviour" must be dropped in favour of the pastiche of sociological/psychological behaviour that Keynes originally envisaged (Akerlof and Yellen,1987).

Keynesian inspired non-Walrasian models of price rigidity that have relaxed the assumption of rational atomistic agents, have so far had a high average product (Mankiw,1986). Monetarists must endeavour to explore similar avenues. To quote Keynes:

> "I shall hope to convince you some day that Walras' theory and all the others along those lines are little better than nonsense" (letter to Hicks,1934; quoted in Morgan, 1978).

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Fixed Exchange Rates and European Monetary Union

Philip Lane

This essay discusses both the rationale underpinning the adoption of some form of exchange rate coordination, and the theoretical issues pertinent to the selection of an appropriate exchange rate regime. Section one forwards three classes of arguments against floating exchange rates. Section two delimits the n-1 problem, and how it affects the choice of the optimal exchange rate mechanism. Finally, section three discusses the implications for European monetary union.

Why exchange rate coordination?

In the wake of Friedman's 1953 paper, economists generally accepted that floating exchange rates provide extra freedom in attaining the twin policy goals of internal and external balance. The contention here is that there are circumstances in which a policy of flexible exchange rates is not optimal.

First, consider an exogenous financial shock. Let there exist two countries, Country A and Country B (de Grauwe, 1989). The exchange rate between the two countries is a managed float and Country A sets its monetary policy without regard for external effects. Imagine that there occurs an exogenous shift in investors' currency preferences, prompting them to desire more of Country A's currency and less of Country B's. The result is that the interest rate rises in Country A and falls in Country B. This induces a capital inflow into Country A and an appreciation of its currency.

Suppose Country B wishes to avoid the depreciation of its currency: it must contract its money supply in order to induce its interest rate to rise. It is clear that the net result is a contraction in the world's money supply: the money supply in Country B has decreased, while the money supply in Country A is unchanged. This example illustrates a general principle: when an exogenous financial shock occurs, just as an interest rate target is optimal in a closed economy, so is an exchange rate target optimal in an open economy.

However, the argument goes deeper. Even in the event of a real shock (say, an exogenous increase in aggregate demand in Country A), floating exchange rates may not be optimal. Conventionally, a flexible exchange rate, by permitting the interest rate to vary to dampen the effects of a real shock, is an optimal response in these circumstances. However, the experience of the 1970s and 1980s has led to considerable debate concerning its the efficacy as an adjustment mechanism (Krugman,1989). In particular, the ability of financial markets to price currencies efficiently is doubted. The dominating influence of speculative flows, it is argued, confuses the relationship between fundamentals and the value of a currency. In these circumstances, traders may rely on backward-looking rules, and hence currencies may drift from long-run equilibrium values, even permitting speculative bubbles to appear in foreign exchange markets.

Moreover, if exchange rates are excessively volatile, their effectiveness as an adjustment mechanism is lost. Dixit (1987) gives the example of a monopolistic export industry. If it is uncertain whether

an exchange rate movement will persist, a firm in this position will not be quick to adjust export prices (particularly if there exists a sunk cost to entering the export market), and the phenomenon of "pricing to the market" will occur. That is, if flexibility is excessive, the benefits of flexibility are lost.

Two further classes of argument against floating exchange rates can be advanced. Firstly, even if flexible exchange rates are efficiently priced, an open economy may not relish the independence to set its own monetary policy which is offered by flexible exchange rates. If an open economy has a monetary authority that is weak on inflation, it may obtain a lower rate of inflation by fixing its exchange rate with an economy which possesses a strong monetary authority, and passively accepting the monetary policy set in this economy. The incentive to enter into an exchange rate agreement for this purpose is stronger the more highly valued is price stability as a policy objective.

Secondly, if a group of open economies satisfies certain criteria, adjustment can take place in response to any type of shock, without any requirement that exchange rates alter. These criteria are that goods, financial and factor markets are fully integrated, and that there exists a high degree of flexibility in local wages and prices. Dividing such a group into separate units, each with its own currency, constitutes a pure inefficiency. In other words, if other adjustment mechanisms are available, flexible exchange rate generate costs but not corresponding benefits.

It is clear, then, that tenable arguments can be forwarded in favour of some sort of exchange rate coordination. Suppose that a group of open economies, accepting one or more of these arguments, decides to coordinate exchange rates in some fashion. Now the problem is to construct an appropriate exchange rate mechanism. This is the topic of the next section.

How should exchange rates be coordinated

In an economy with n goods, only n-1 independent relative prices exist. Similarly, in a system of n currencies, only n-1 bilateral exchange rates need to be determined. The implication is that a degree of freedom exists in the choice of policy instruments, and a numeraire for the system must be selected. This is termed the n-1 problem, and it has both symmetric and asymmetric solutions. The former is a solution in which all countries participate in providing the nominal anchor to the system. The latter, on the other hand, is a solution in which one economy in the system provides the nominal anchor, and all other economies passively accept the resulting constraints on their monetary policies.

The classic symmetric solution is to allow exchange rates to float: each economy sets its monetary policy independently and exchange rates are determined endogenously. In the context of co-ordinated exchange rates, an example of a symmetric solution would be the tethering by each economy of its currency to a basket of goods which would then serve as a nominal anchor to the system, as long as the economy refrains from sterilizing reserve flows (Giavazzi and Giovannini,1989). This symmetric solution seems fair in that no single economy has the power to set the system-wide level of interest rates solely for its own benefit. However, in the current context, attention will focus on the situation in which all the economies in an economic system prefer an asymmetric solution.

Borrowing from the theory of games, inflation may be construed as the inefficient outcome of a noncooperative game between the economy's monetary authority and the public (Rogoff,1989). To appreciate this, imagine that the monetary authority announces in period t the monetary policy

for period t+1. Suppose that the public forms its expectation of the inflation rate that will pertain in period t+1 in accordance with the announced policy, and enters into the appropriate nominal wage contracts. The monetary authority now has an incentive, if full employment is a policy goal, to unleash a surprise inflation in period t+1, as this will reduce real wages and hence expand output and employment. The public, however, will be aware in period t that the monetary authority is capable of deviating from its announced policy path. If it believes the monetary authority will succumb to the temptation to inflate, it will increase its inflation expectations and demand higher nominal wage contracts in the coming period. This has a self-validating effect in that the monetary authority, if it wishes to avoid a contraction in output, must then relax monetary policy so that the anticipated inflation rate is realized. It turns out that the solution to this time consistency problem, whereby the monetary authority may find it optimal at some future date to deviate from its announced policy path, depends on the monetary authority's anti-inflation reputation.

Reputation is important because the game between the monetary authority and the public does not take place one-off, but rather is repeated in every period. It follows that, in these circumstances, past experience conditions the public's level of confidence in the monetary authority's anti-inflation commitment. A monetary authority may establish a strong anti-inflation reputation early on by refusing to validate the inflation expectations of the public, even at the cost of allowing a recession. In contrast, if a monetary authority does succumb to the temptation to inflate, it will acquire the reputation of being soft on inflation, and the public will maintain high inflation expectations.

It can be argued that an open economy with a monetary authority that is weak (perhaps by dint of domestic institutions) may effectively purchase a strong anti-inflation reputation by fixing its exchange rate with an economy possessing a monetary authority whose anti-inflation credentials are assured. Here, an asymmetric solution to the n-1 problem is optimal. By allowing the economy with the strong monetary authority to provide the nominal anchor to the system, the ability of the monetary authorities of the other economies in the system to unleash a surprise inflation is removed and hence these monetary authorities gain a reputational bonus: that is, there is an advantage to "tying one's hand" (Giavazzi and Pagano, 1988). In addition, the "strong" economy will gain in two ways. First, greater exchange rate stability stimulates trade flows within the system. Second, it gains in competitiveness relative to the other economies in the system in the period before inflation rates converge.

Prospects for EMU

It has been argued that the early history of the EMS conforms to the scenario delineated above (Collins, 1990). The common objective of member economies was to reduce inflation: the problem was that monetary authorities in several economies lacked credibility. By allowing the Bundesbank to set monetary policy for the entire system, with the result that the EMS was effectively a DM-zone, external discipline was imposed on the weaker economies and hence reputational bonuses were obtained.

What has been described above are the factors explaining movement towards exchange rate coordination. However, the current EMS is a system of only quasi-fixed exchange rates. How do we move to full currency union? There are dynamic and strategic aspects to the problem.

The dynamic aspect is the following. Closer exchange rate coordination facilitates greater integration of markets

which in turn enables closer exchange rate coordination. This "bootstrap effect" is a manifestation of the Lucas Critique: a change in the policy regime (here, a change in the rules governing the money supply) alters the behaviour of economic agents. A critical factor in movement towards EMU is therefore the degree of responsiveness of real variables to changes in the rules governing the money supply.

The strategic aspect is that there exist spillover effects in choosing to join a currency union: Country A's decision to join influences, and is influenced by, the decisions made by Countries B and C. This creates a bargaining situation: each country seeks to exploit its strategic power in order to influence the design of the new currency union. Issues for negotiation include the number of seats each member will have on the board of the new EuroFed, and the par values at which exchange rates will be irrevocably fixed. With regard to the second of these issues, there is likely to exist a temptation for individual member economies to devalue "one last time" prior to the fixing of exchange rates, in order to secure maximum competitive advantage in the new currency union. More generally, the par values at which exchange rates are fixed should reflect underlying fundamentals. In this way, it is improbable that the other member economies would accept the fixing of the DM at its current value, which is considered too low in the wake of the unification boom in Germany. In a situation in which the no-agreement payoff is positive, that is, when there remain some benefits to flexible exchange rates, such pre-participation negotiation is likely to be all the more intense.

It must be concluded, then, that the issue of whether European Monetary Union is optimal is indeterminate. It depends on the outcomes associated with these dynamic and strategic problems. Note that, except in the scenario where the new "super" central bank exactly replicates the characteristics of the strong economy's monetary authority, the monetary policy of the currency union will be different to that prevailing under the asymmetric solution. The closer is the outcome of the strategic problem to symmetry in policy making, the closer will monetary policy reflect some average of the policy preferences of the different member economies in the currency union. If the group of member economies fully satisfies the definition of an optimum currency area, this is unlikely to deviate much from the asymmetric solution. With full integration of markets, flexibility in wages and prices, and full factor mobility, there is no reason to suppose that Italians will be softer on inflation than Germans. However, if economies commit to a currency union prior to satisfying the criteria by which an optimum currency area is defined, preferences concerning monetary policy are likely to diverge and an inflation rate higher than that obtained under the asymmetric solution is possible.

This analysis suggests that lower inflation cannot be predicted with certainty to be an outcome of EMU, particularly if market integration is less than perfect. This is no bad thing if output is positively related to inflation and if full employment is more highly valued than price stability in Europe's welfare function.

Conclusion

This essay has discussed some of the issues relevant to monetary union. The theoretical justifications for exchange rate co-ordination were first described. Then the nature of the choice of exchange rate mechanism was examined. Finally, it was argued that the move to full EMU cannot be countenanced without a fuller evaluation of the extent to which the EC conforms to the definition of an optimal currency area, with well-integrated markets. In this light,

Mr. Pohl's call for a measured and conservative approach to EMU is vindicated.

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Mercantilism: An Early Manifestation of Economic Nationalism

Orla McKeon

Mercantilism, as a body of thought and period in economic history, has suffered much more than other economic philosophies. Berated by Adam Smith for advancing policies for the self-interest of merchants and businessmen, it has never really managed to lose this taint foisted on it from early on. Yet to dismiss a theory and an era so rich in thought and prescription seems both severe and unwarranted.

This essay will not examine specific policies that have been labelled mercantilist. Rather attention will focus on the doctrine as a whole. Most importantly, its identification as an early form of economic nationalism will be directly considered. The discussion proceeds as follows. Section one discusses the objectives of mercantilism, focussing on the specious contradistinction between "power" and "plenty" interpretations. Section two details the role played by mercantilism in the unification process. Finally, section three looks at the power aspects of mercantilism on the international stage.

Power versus plenty: the means and ends controversy

Writers and analysts have generally found great difficulty in trying to define what is meant by the term "mercantilism". This precluded to a certain extent the evolution of a consistent and generally acceptable body of mercantilist thought. Nowhere is this more evident than in the debate concerning the means and ends of mercantile policy.

Writers in this field have tended to home in on the power versus plenty argument. Thus, for example, Heckscher (1962) argues that mercantilism is a system in which "plenty", or wealth, serves as a means to the ultimate end - power. In support of this assertion, he cites mercantilists of the era, in particular Colbert, who wrote in 1666 of the Dutch:

> "It is certain that their whole power has hitherto consisted in trade; if we could manage their trade, they might find it more difficult in the future to carry out their preparations for war than they had hitherto done" (Heckscher, 1962:17-8).

This suggests that, for Colbert, war was an end in itself, and that the acquisition of power via a concerted economic policy would ensure a healthy state of public finance.

Viner (1969), an ardent critic of much of Heckscher's thesis, rejects the notion of power as the sole end of mercantilist policy, arguing that nowhere does Heckscher cite a single passage in which this notion is explicitly and unreservedly stated. Viner points out Heckscher's reliance on the semantics of Colbert's writings to support his argument. It is true that, of all the mercantilists, Colbert was probably the most passionate advocate of economic warfare. Yet Viner doubts whether Colbert ever really rejected the desirability of guiding French policy so as to augment French prosperity. He lambastes Heckscher for not providing a mercantilist statement which explicitly lends credence to his view.

Ironically, Viner can be rebuked on similar grounds - he fails to quote a passage in which "plenty" is asserted as the ultimate end of policy.

In the power versus plenty argument, an important consideration is who in fact were the real instigators of the prescribed policies. To Smith (1976), the mercantile system was a fraud perpetuated by the business class on the public. He attributed all of its policy prescriptions to the machinations of merchants whose aim was monopoly in the home market. To a large degree, it is this thesis which has been adopted by many, with some seeing the usual identification of merchant interests with national advantage as an insupportable deception (as in Smith above), and others (Gomes,1987; Roll,1973) arguing that it is not a surprising feature of mercantilism, given the circumstances of the time. The latter group note that the expansion of commerce had brought with it a divergence of individual trading interests, all of which looked to a central authority to protect them against the claims of their rivals. Much is made of the fact that many mercantilist writers would have directly and personally profited from the policies they themselves were advocating. That may be true, but it is also the case that these merchants were the people best qualified to write on such matters.

Wilson (1967) analyses the self-interest argument in greater detail. He notes that, although in the early stages of mercantilism many of the policies advocated were instigated by merchants for self-interest, by the mid-seventeenth century there was evidence of governments trying to gather their economic policies into a more uniform shape (see below). This coincided with the realization that their own welfare was in many cases contingent on the welfare of their subjects. This view has been advocated by Viner (1960), who sees in mercantilism the appeal of merchants to non-economic considerations to make their proposals attractive to government, and in tandem with this, the appeal of governments to the cupidity of merchants in order to win their support for wars embarked upon for political reasons.

In this context, the conclusion must be that wealth and power were *both* the ultimate aims of mercantilist policy. As Schmoller (1895) argues, "In all ages history has treated national power and national wealth as sisters; perhaps they were never so closely associated as then." "Power" and "plenty" were therefore not mutually exclusive conceptions, but rather were naturally intertwined. Nowhere is this more clear than in the characteristic mercantilist practice of granting charters and rights to certain companies to enable them to establish colonies. The merchants shared in the profits from such acquisations but crucially, this process provided the state with the means of extending its power to every corner of the globe.

Given these objectives, in what way can mercantilism be construed as an early manifestation of economic nationalism. Heckscher (1962) believes that it cannot, arguing that expressions like "nationalism" should not be applied to the mercantilist era. To the people of the sixteenth and seventeenth centuries, the only collective entity was the state, with power being its singular concern. Yet, this should not detract from notions of mercantilism as a form of economic nationalism. Throughout much of Europe the state nation was the common form, and its existence provided the necessary coherence to bring into existence the nation. The dominance of the state therefore was a natural consequence of mercantilism as an early form of economic nationalism.

Mercantilism as a system of unification

Having considered both power and plenty as objectives of mercantilist

philosophy and practice, the remainder of this essay will concentrate on the power aspects of the era. This section will look at those aspects pertinent at the intranational level.

Internally, the most important feature of "power policy" was the move towards greater unification. Schmoller's (1895) writings represent perhaps the definitive work on this unification thesis. "...mercantilism...in its innermost kernel...is nothing but statemaking - not statemaking in a narrow sense, but statemaking and national economy-making at the same time" (1895:50-1). Examining the stages in economic evolution, from the village, to the town, to the territory, and ultimately to the national state, Schmoller proposes that historical progress has consisted mainly in the establishment of ever larger communities as the controllers of economic policy,. His work charts the slow pace of unification in Germany against the background of sweeping changes elsewhere:

> "Everywhere, save Germany, economic bodies were stretching out and becoming political...What to each in its time, gave riches and superiority...to Milan, Venice, Florence and Genoa...Spain and Portugal;...to Holland, France and England and to some extent Denmark and Sweden; was a state policy in economic matters, as superior to the territorial as that had been to the municipal" (1895:47-8).

In France, efforts at unification also proceeded: Louis XI (1461-1483) sought to bring about uniform weights and measures in France and forbade the importation of foreign manufactures. The edict of 1539 introduced freedom of trade in corn within France and was based on the idea that in a united nation, districts should help support one another. Under Colbert's administration (1662-1683), the submission of the towns to a uniform ordinance, the partial abolition of the provincial estates and the diminution of the power of the provincial governor were all aimed at making the French people a noble and united body under its monarchy.

Mercantilist policies of unification in England included the assimilation of municipal practices to a uniform standard; the legislation which regulated on a nation-wide basis the woollen industry, the conditions of labour, the statutory price of bread, weights and measures, the currency and the customs system; and the elimination of all internal barriers to trade. It is this transition from a municipal society to a national one which leads Lipson to call mercantilism "town economy writ large" (1943:xxxvi).

Hechshcer (1962), in his analysis of the unification process in England, places great emphasis on the development of London as the hub of commercial and economic activity. This centralization greatly aided unification in England. However, in another paper, Heckscher (1938) re-examines the notion of mercantilist unification, and to a certain degree sides with the German scholar Rachel, who argues that it was not economic unity which was the key issue for mercantilist statesmen but economic power. This assertion is based on the half-hearted and unsuccessful attempts at unity that were made. Yet the evolution of nation states in this period is well documented (see for example, Held et al "States and Societies" (1983)). To argue that mercantilist policies had little influence on this development would appear unrealistic. Perhaps future analysis might furnish a more definite answer.

Mercantilism as a system of power

We have already examined mercantilist

efforts to secure state power internally by reference to the unification thesis. Externally, the means to increase the state's power was through trade. "What nation soever," wrote an Englishman at the time of the first Navigation Act in 1651, "can attaine to and continue the greatest trade and number of shipping will get and keep the sovereignty of the seas, and consequently the greatest Dominion of the World" (cited in Howard, 1976). The intense commercial rivalries and wars which resulted between states were largely the consequence of a pervasive belief in the zero-sum nature of world trade. Trade was essentially seen as a form of war. Howard quotes a British merchant in 1745 airing his views on the prospect of peace between France and Spain: "...our commerce in general will flourish more under a vigorous and well-managed naval war, than under any peace which should allow an open intercourse with those two nations" (1976:46).

The list of wars arising from economic considerations during the mercantilist period is long and bloody. Both the first and second Anglo-Dutch Wars (1652 and 1665 respectively) arose out of commercial rivalries and, in particular, out of the Navigation Acts in England, which had enclosed trade between England and the colonies in English shipping. Colbert's tariffs of 1664 and 1667 proved to be the preliminary of the war of 1672 between France and Holland in which jealousy of the wealth of Holland played a leading part. The Seven Years War was a result of the colonial rivalry of England and France in North America. The later wars of Sweden, aiming at the conquest of Poland, and the aggressive movements of Russia towards the Swedish and German provinces on the Baltic, were all directed towards the acquisition and domination of Baltic trade (see Howard, 1976; Schmoller, 1895; and Wilson, 1967).

Underpinning these wars was the balance of trade. Schmoller (1895) locates the development of this concept in the move from a municipal to a national society. Before the mercantilist era, attention had been fixed on the exportation from and importation to particular towns and territories. In the new state nations, some concept was required which would capture the trade of the state as a whole. That this concept should have emerged in England (see Mun's "England's Treasure by Forraign Trade" (1895)) is also seen by Schmoller to have been inevitable. Given its insular position and small land size, the national economy in England, had from early on, displayed its exports and imports, its money supply and supply of precious metals as a connected whole. The Balance of Trade thus became the barometer which registered the economic health of the nation. "The ordinary means to increase our wealth and treasure is by Forraign Trade, wherein we must ever observe this rule; to sell more to strangers yearly than we consume of theirs in value" (Mun, 1895:7). Hence, as Wilson (1967) argues, the idea of international conflict was inherent in the Balance of Trade doctrine. The observance of the above rule would also necessitate state intervention in the economic process. Or as Keynes (1936) put it, a favourable Balance of Trade became " a prime object of practical statecraft" rather than "the puerile obsession" that it seemed to later economists. Warlike tendencies were the natural result.

That the mercantilists failed to recognize that a trading nation benefits by having wealthy customers even if they are also competitors is a worthy criticism of the philosophy and the era. Their conception of a fixed quantity of wealth or trade was also erroneous. The constant wars exacted a heavy price in terms of the dislocation of industry, a rise in unemployment, and increased poverty (Lipson, 1943).

Conclusion

This essay has sought to examine the philosophy of mercantilism in its whole sense, and in particular the validity of the perception of mercantilism as an early manifestation of economic nationalism. The traditional power versus plenty argument as sole ends of mercantilist policy has been reviewed, with the conclusion that there can be no such argument. "Profit and power ought jointly to be considered" (Child,1964). This inextricable combination of economic and political motives led to the emergence of economic nationalism in many of the European states during the mercantilist era.

In addition, particular aspects of power during the mercantilist era were examined. Securing the state's power internally took the form of a drive towards unification; the embellishment of power on the international sphere was directed by the pursuit of trade advantage.

With the recent stalling of the Uruguay round, some commentators have portentously forecast a return to protectionism, and hostile commercial rivalries. Perhaps the greatest tragedy of the mercantilist era was how its inherent economic nationalism, which in many other ways represented a positive and redeeming feature, manifested itself in warlike sounds. If a lesson is to be learnt, from this period, it is that this experience should not be repeated.

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Proceedings of the Student Economic Workshop 1990/91.

The Baby Boomers Free Lunch" was the rather apt title Paul O'Connell applied to his paper on the impact that changing demography should have on taxation and social security policies in the USA. Paul's conclusion was that as the labour force shrinks a falling need for fixed investment will release funds for increased social welfare needs, justifying a pay-as-you-go social security system.

This paper was followed by one from Philip Lane, who surveyed the prospects, positive and otherwise, for Eastern Europe. This "economics of disharmony" theme was continued by Tony Lynch, in prophetic paper on the likely consequences of the Gulf crisis on Ireland's vulnerable economy.

Billy Stamp followed with more views on the Irish unemployment problem. He delivered a paper entitled "Two Cheers for the Labour Market." This topic proved to be one of the most fruitful in terms of the polemic it produced, with Paul Devereux and Philip Lane arguing fervently for a return to demand management on an EC-wide scale.

Joe Smyth, in his elegantly entitled "Exchange Rate Policy - an Effete Concept", discussed the issues relevant to European Monetary Union. Once again, this paper provoked an interesting debate, centering on the relative efficacy of exchange rate coordination.

In keeping with the practice of having guest speakers at one meeting in the academic year, the Workshop was overflowing to hear Professor Dermot McAleese outline his "Expansionary Fiscal Contraction" paradigm. He was roundly contradicted by Dr. Frank Barry of UCD, who in a memorable opening sentence, said he believed the reason why Professor McAleese's theory was counter-intuitive was that it was wrong. The ensuing debate was broad based and informative, and it generated much worthwhile criticism from the audience

The final Workshop paper for 1990/1991 will be given by Ciaran-John O'Neill, who will speak on negative income taxation.

Much credit is due to the year's contributors, and we look forward to the Workshop's continued success in future years.

Billy Stamp,
Chairman, Student Economic Workshop.

Planning Permissions and the Optimal Capital Stock

Colm O'Reardon

The Planning Permissions data series was originally intended to be an indicator of potential output flows from the building industry[1]. Whether it does in fact represent such an indicator is moot, since there appears to be little if any relationship between the number of permissions granted and the output of the construction industry. However, it could plausibly be argued that the data series provides a proximate measure of the desired level of capital stock in the economy, a theoretical construct usually denoted by K*. This paper investigates whether this is indeed the case.

The structure of the discussion is as follows. Section one will briefly describe the theoretical notion of K*. Section two will then analyze the nature and scope of the planning permissions data series, and its subdivisions. Section three considers the determinants of investment, and by extension, K*. Section four formulates the model used to investigate the above hypothesis, and presents the test results. Finally, section five looks at some implications which arise.

The desired capital stock K*

The theoretical construct K* is one which appears regularly in analysis textbooks to explain the determination of investment flows into an economy. K* represents the level of capital stock which, on aggregate, entrepreneurs wish to hold. Any deviation of K* from the actual capital stock will cause entrepreneurs to wish to alter the capital stock which they hold, leading to investment or disinvestment within the economy. Hence the determinants of investment are seen to be the factors which impact on K*. It should be noted at this stage that the term "capital stock" refers to all kinds of productive capital items, not just to industrial and commercial buildings. This should be borne in mind throughout the discussion below.

Scope and nature of the planning permissions data series

The planning permissions data series is compiled on the basis of planning permissions granted by local authorities under the Local Government (Planning and Development) Act 1961. Only the kinds of development covered by the act are included in the data series, and so the activities of many state bodies and much of the activity in the agricultural sector are excluded.

It is important to be aware of the process by which the data is compiled. When a planning permission is granted, the details of the proposed development are forwarded to the C.S.O., from which they compile the data on the total number of permissions granted and, where relevant, the total proposed floorspace of the approved developments. However, no information on the cost of the developments is available from the local authorities, as such information is not required for planning applications. In an attempt to overcome this difficulty, the C.S.O. writes to the person or company to which the permission

1 The Planning Permissions Data series is published as a quarterly bulletin by the C.S.O. and also in the annual Irish Statistical Bulletin.

has been granted requesting details of the cost of the proposed development. Since replies to these requests are received in only around 60% of cases, the figures given for the total cost of developments for which permissions have been granted represent no more than approximations.

The dubious reliability of these cost data means that we must look to the other two aggregations - total number of permissions granted and total floor space - for our potential measure of K*. Problems also arise, however, with the first of these. Taking the residential sector as an example, one permission might cover a single "once-off" house, or it might refer to an estate of three hundred houses. Similarly, in the industrial sector, the number of permissions granted is in no way weighted to account for the size of the approved developments. Consequent on these difficulties, the most suitable of the three aggregations to use is that of total floor area.

The data is presented by the C.S.O. under various "functional categories". The following planned floor area sub-totals are given: dwellings; commercial buildings; agricultural; government health and education; and others. Since the current discussion is concerned with private-sector investment for productive purposes, the focus of attention is limited to the "commercial buildings" and the "industrial buildings" categories. Although the "buildings for agriculture" category does represent private-sector investment, the fact that most construction in the agricultural sector is excluded from the terms of the 1961 Act suggests that its inclusion in the analysis would represent a distortion.

The most significant implication of this decision is that the thrust of the analysis has moved from the general, economy-wide notion of K*, to an examination of the combined "commercial buildings" and "industrial buildings" sub-totals as a proximate measure of k**, where k** represents the optimal stock of industrial and commercial floor-space. Although it would appear that the above is a severe limitation, the benefits to be gained in accuracy make such a restriction desirable. Moreover, on a theoretical level, it can be argued that changes in K* will be reflected in changes in K**, thus supporting the assertion that the narrow range of data chosen will be indicative of trends in the private sector as a whole.

The determinants of investment

Since K* is not really a measurable quantity, the method of testing the initial hypothesis involves examining whether the determinants of the planning permissions variable are similar to those that the theory of investment tells us determine the level of K*. These factors which affect the level of investment (through their effect on K*) are well documented, and require no explanation here. Attention is usually focused on the real rate of interest, the level of business confidence, and changes in the level of national income.

While the theory of investment has always laid considerable stress on the real rate of interest as a determinant of K*, it is omitted from the current discussion. This is for several reasons. Firstly, it eliminates the considerable computational difficulties involved in establishing a reliable series of data on real rates of interest prevailing in the Irish economy for the years in question. Secondly, it allows attention to be devoted to changes in levels of national income and business confidence, variables which arguably are more likely in the long run to affect the type of investment decisions currently under consideration.

Having decided to ignore interest rate changes, the next problem which arises is that of choosing a variable to use as a proximate measure of business confidence. Here, the number of bankruptcies in Ireland during the years in question is used[2]. The

data refers to the number of bankruptcies processed by the Irish courts for the years in question and so does not reflect the total number of business failures during the period concerned (this would require, *inter alia*, data on the number of receivers and liquidators appointed). One might, nevertheless, reasonably expect a negative relationship to exist between the number of bankruptcies in any year and the level of business confidence, and by extension, between the number of bankruptcies and K**[3].

The final influence on the desired capital stock that is held to be significant is changes in the level of national income. The theoretical argument is that increases in national income cause firms to revise upwards their desired level of capital stock in order to meet anticipated rises in demand for their products. Long-run data on national income is available from the Department of Finance[4]. Several measures are obtainable, but in the current context, attention is focussed on Gross Domestic Product at Constant (1985) Factor Cost by sector. Since the scope of enquiry has already been limited to examination of decisions made in the commercial and industrial sectors, data on the industrial sector alone is used.

The model and tests

The immediate difficulty which arises is one of specification. The nature of the influence which the factors outlined above exert on K** must be formulated. For the purposes of this paper, the following test was chosen.

Four specific independent variables were delimited, and observations of these for n years were obtained. The n years in question are those for which data was available, 1970-1987[5]. The first of these variables, X1, is the percentage change in G.D.P. that occurred in the year prior to observation more formally:

$$X1_t = (G_{t-1} - G_{t-2}) / G_{t-2}$$

where Gn represents G.D.P. in the industrial sector in year n, and X1n is the observation generated by this calculation for the year n. The second independent variable, X2, is simply X1 lagged by one period, or specifically:

$$X2_t = (G_{t-2} - G_{t-3}) / G_{t-3}.$$

X3 is defined as X2 lagged by one period. Finally, X4 denotes the number of bankruptcies in a year.

Simple linear regressions of Y (the total floor area of approved developments in the commercial and industrial sector) on each of these independent variables were carried out. The results of these regressions are presented in Table I. The conclusions to which these results give rise are discussed in the fifth and final section.

The test results - comments and conclusions

The test results are initially quite

2 This data is published regularly in *The Irish Statistical Bulletin.*

3 It has been suggested that a rise in the number of business failures is a sign of increasing confidence in the economy. This sort of analysis is, however, best applied to the type of situation which existed in the U.S. in the early 1980s where small firms were making a major contribution to increases in employment. As stated above, the bankruptcies figures used here are more likely to be negatively related to the level of business confidence, although it would be difficult to control for changes in attitudes to bankruptcy.

4 Department of Finance Research Paper 1/90. Department of Finance Databank of Economic Time Series: Long Run National Accounts. By Hurley, D. G. and Donohoe, B.

5 The planning permissions data series was first published in 1970 and the latest figures available are for 1989. The G.D.P. data in the Department of Finance Research paper cover the years 1964-1987, and the particular edition of the Irish Statistical Bulletin I used gave bankruptcy figures from 1971 onwards. Therefore the regressions executed were for observations on all five variables for the years 1971-1987 inclusive.

18 observations	13 error degrees of freedom		
Sum of squares total	3263427.78	R-squared	.46544
Sum of squares errors	1744514.12	F(4,13)	2.82971
Sum of errors	0	Prob>F	.06868
Regression Variance	134193.39	Rbar-squared	.30095
D-W statistic	.71962	Corr(Y, Yhat)^2	.46544

Variable	*Estimate*	*Std error*	*t-statistic*	*Prob value*
Constant	1190.4	350.24	3.399	.00475
X1	2956.77	2594.71	1.1395	.27504
X2	2652.31	2359.64	1.2403	.28133
X3	3531.62	2283.63	1.54649	.14598
X4	-11.56	6.8156	-1.69606	.11367

Table I

disappointing. An examination of the t-statistics demonstrates that the null hypothesis Ho: B=0 would be accepted in either a one-tailed or a two-tailed test at the 5% significance level for all the X variables. Moreover, examination of the F-statistic suggests that the regression is overall not very significant at the 5% level. Thus the standard tests yield negative results.

Some encouragement may be taken, however, when the tests are repeated at a 10% significance level. The F-test results in the rejection of the above stated null-hypothesis, and one-tailed t-tests suggest statistically significant effects for the X3 and X4 variables.

Of particular interest are the results for X4. Analysis of the simple regression of Y on X4, and the multiple regression results indicate that by far the largest proportion of the R-squared in the multiple regression can be attributed to this particular independent variable. Moreover, the t-statistic in the simple regression was significantly large.

Conclusion

The conclusion, then, is that, while the regression results presented here are initially far from convincing, they suggest that further investigation of the original hypothesis is warranted. Considerable respecification of the model is obviously required. A revised model might include a different functional form, as well a more inclusive set of independent variables.

Income Taxation in Ireland

Sinead Grennan

Taxation is the process by which the people pay the expenses of carrying on government. Its genesis can be traced to the earliest and simplest societies. This paper analyzes the income taxation system that is in place in Ireland. The principles of taxation are delineated, and the extent to which the Irish system conforms to these is examined.

The discussion is divided into four sections. The first of these looks at the functions of taxation. Section two deals with the Irish tax base, an aspect of the system that is of fundamental significance. Section three examines the implications of the rating structure that is employed in the collection of Irish levies. Finally, section four looks briefly at the impact that the system has on equity and distribution.

The functions of taxation

The purpose of taxation is not merely to finance government expenditure. The taxation system can be designed in such a way as to fulfill other objectives such as redistribution of resources, regulation, social partnership and co-operation with other governments. These are goals which, as societies become more advanced and sophisticated, the government is put under increasing pressure to attain.. In this context, a properly designed taxation system can constitute an extremely effective policy tool.

However, it must be remembered that there are certain principles to which taxation systems must conform. The selection of these principles represents a value judgement, but it is arguable that more people would subscribe to a system that is stable, simple, fair and just than to one which did not embody these qualities. Society does not admit of the unconstrained imposition of taxes to achieve government objectives.

Having delimited the purposes of taxation, the question of the extent to which the Irish tax system fulfills these functions while conforming to the requisite principles arises. It is this issue that the following sections deal with.

The Irish tax base

If a common theme running through the five reports published by the Commission on Taxation between 1982 and 1986 is to be chosen, it is arguably that of the relatively diminutive Irish income tax base. The reason for this small tax base is the complex set of deductions that are allowed to tax-payers prior to assessment. The immediate consequence is that average tax rates have to be high in order that sufficient revenues accrue to the exchequer.

The deductions permitted are of four kinds: allowances, exemptions, reliefs and exclusions. The discussion here focuses on the third and fourth of these.

Reliefs

Reliefs relate to certain specified expenses. There are of two types: business and non-business. The former are availed of primarily by the self-employed, and it is from them that much of the dispute between the PAYE and self-employed sectors stems. It is argued that specious claims allow the amount of assessable income to be

artificially reduced by those who are self-employed. However, it must also be remembered that taxation on benefits-in-kind mitigates this horizontal inequity to some extent.

Non-business reliefs can be claimed by everybody. Categories include life assurance, medical insurance and mortgage interest relief. It is contended by some that the higher income groups are the ones best positioned to take advantage of such reliefs, and that therefore they exacerbate vertical inequities. In effect, they constitute a tax avoidance mechanism.

In the 1991 Budget, the Fianna Fail/ Progressive Democrat coalition took some steps towards correcting these deficiencies (see article by Tony Lynch in this volume). Life assurance premium relief (LAPR) was cut form 50% to 25% of allowable premiums. Some commentators suggest that the complete elimination of this relief would remove what has been a significant distortion in the Irish savings market for some time now (*Irish Times*, issue dated February 1,1991). However, the removal of this and other reliefs may prove difficult, since in many cases the benefit has become capitalized. An example of this is mortgage interest relief, the introduction of which spawned a rise in house prices, and hence benefited house owners rather than house buyers as it was intended to do.

Exclusions

Certain types of income are not treated as income by the tax authorities and therefore excluded from tax. These include capital gains, gambling winnings and owner occupancy. Subsequent to the criticism which these exclusions received in the reports of the Commission on Taxation, some steps, albeit minor ones, were taken to redress their effects.

Capital gains are subject to a separate category of assessment, but the efficacy of this separate category is severely compromised by the large exemptions which apply within its own schedule. The rates applied are also lower than those levied on income, resulting in a distortion in favour of capital as opposed to interest earnings. The overall consequence is a loss of revenue to the exchequer.

Owner occupancy is treated very favourably within the Irish tax system, and those who rent are consequently discriminated against. Many argue that owner occupancy should be taxed as a form of imputed income to ensure greater equity. Once again, however, the problem of capitalization impinges, and it would be difficult in practice to introduce such a reform.

Together with allowances and exemptions, these categories of reliefs impact severely on the Irish tax base. According to one estimate they reduce it by as much as 43%. In this light, the Commission on Taxation's calls for a significant widening in the tax base must be seen as legitimate. However, to the economy's detriment, the reforms suggested by the Commission have not been instituted.

The schedule of rates

It was noted above that an immediate consequence of a contracted tax base is the imposition of high *average* tax rates. Yet the Irish system is also characterized by high *marginal* tax rates. These give rise to a number of effects which are discussed below.

Progressivity

In Ireland, taxable income is subject to tax according to a progressive schedule. The applicable rates are, for fiscal 1991, 29%, 48% and 52%. However, marginal rates do not increase uniformly with income for a number of reasons. Above a certain income level, PRSI contributions are not applicable (the 1991 Budget removed the

ceiling on health contributions). Below a certain income level, the youth employment levy and health contributions are not applicable. In addition, the existence of the general exemption limit implies a very high marginal tax rate over narrow ranges of income. The average income earner is currently assessed on a large portion of his or her income at the top rate of 52%. This issue of progressivity will be returned to below briefly in the context of the redistributive role of the Irish tax system.

Work behaviour

It is arguable that high marginal tax rates have a disincentive effect on work effort. The effect of this on employment and emigration is difficult to measure, but probably significant. High *average* tax rates contribute to the poverty trap (*Irish Times*, issue dated March 7,1991). It is likely though, that the root cause of the poverty trap is the welfare system rather than the taxation system.

Avoidance and evasion

Perhaps the most significant impact of high marginal and average tax rates is revealed in the extent of tax evasion and avoidance that occurs in Ireland. This is borne adequate witness to by the "success" of the tax amnesty in 1988.

Avoidance is an individual's manipulation of his affairs within the law so as to reduce his tax liability. Evasion, by contrast, is illegal.

One manifestation of avoidance was the Business Expansion Scheme (BES). It was designed to stimulate investment in high-risk business and service ventures by offering tax incentives. In practice, it was used to reduce tax bills on projects which carried little risk. This was the main reason for its effective abandonment in the 1991 Budget.

These problems are compounded in Ireland by legislative deficiencies. The penalties resulting from avoidance and evasion are relatively low in Ireland. While the revenue authorities have increased their efforts to combat evasion, they are hindered by the secrecy accorded to bank and building society account holders. In addition, the authorities are lax in their pursuit of offenders. Evaders are forewarned prior to inspections. In contrast to the US, which has 2500 in jail for tax offenses, and Denmark, which has 50, Ireland at present has no one sentenced (*Sunday Business Post*, issue dated February 3,1991). Finally, the social conscience is weak. Those who can "fiddle the system" are accorded a certain amount of respect.

Avoidance and evasion are prominent in the Irish context. The consequence is that the effectiveness of the tax system in performing its functions is compromised; rates have to be increased to raise a given amount of revenue. Prospects for the redress of this problem hinge on the adoption of lower rates, and the imposition of more severe penalties for evasion.

This section has discussed a number of aspects relating to the Irish system of tax rates. The fourth section now looks briefly at the redistributive role which this system plays.

Taxation and redistribution

The important distinction to make in this context is between horizontal and vertical equity. The former means that people in similar circumstances should be treated equally. The latter embodies the idea that people on higher incomes should pay proportionately more tax.

As was mentioned above, controversy surrounds the extent to which horizontal equity is debilitated by the existence of business reliefs for the self-employed sector. In recent years, the average tax burden of the PAYE workers has declined to a level below that of the self-employed. The potential for inequity remains, however,

and, as concluded above, a solution to the problem must lie in reform of the the system of reliefs and a widening of the tax base.

In theory, the progressive nature of the Irish income tax system should enhance vertical equity. However, the nominal progressiveness of a tax system is a necessary but insufficient condition for actual progressiveness. In Ireland, the complex system of allowances, reliefs and levies has created a situation where the income tax system is regressive in the aggregate. As a result, income distribution in other EC countries tends to be more equitable than that in Ireland.

Conclusion

This paper has analyzed the Irish income tax system. The functions and underlying principles of any such tax system were first discussed. Then the contentious issue of the Irish tax base was examined. Section three looked at the Irish schedule of tax rates. Finally, section four dealt, albeit briefly, with the principle equity issues arising.

Urgent reform is needed, but how this reform should proceed is unclear. There are huge administrative costs involved in the overhauling of any tax system, and there is no guarantee that the new system would be any better than the old. Although criticized for doing so, given the uncertain international climate, it is not surprising that Mr. Reynolds, the Minister for Finance, chose minor changes rather than tax reform in the 1991 Budget. Yet the issues are not ones which will dissipate with time. While it is politically, feasible, the drive for tax reform should be pursued with renewed vigour.

The 1991 Budget

Tony Lynch

The 1991 Budget may have been different in the sense that it was the first ever televised budget. However, there can be no doubt that it was another Albert Reynolds budget. It takes the same cautious, conservative approach to the economy as we have come to expect in recent years - a tinkering here and a slight adjustment there.

In this paper, the 1991 Budget is reviewed. Section one sets the stage, outlining the environment in which the Budget was written. Section two analyses the principal adjustments which were made. Finally, in section three, the probable impact of these changes on the main macroeconomic variables is assessed.

The environment

The international environment was certainly not conducive to an agreeable budget. In Britain, some commentators have warned of a possible 30's style depression if money is not pumped into the economy soon. The Chancellor has heeded this advice, and is now cutting the Base Rate whenever Sterling's position within the European Monetary System permits. The Chancellor also appears to be easing up on fiscal policy, as predictions of a PSBR of £8 - £10bn are forthcoming. The United States - another major export market for Ireland - is also enduring a recession, albeit a shallow one. The government continues to struggle with its huge trade and budget deficits, problems compounded by the $500 billion bill which the Federal Deposit Insurance Corporation is facing following the savings and loan debacle. The effects of this recessionary environment are clearly manifested in Ireland in the decisions of computers and electronics companies - such as Digital - to begin to introduce redundancies and short-time working.

Having said this, the German economy remains robust, and Irish exporters continue to benefit from this. Germany is a doubled edged sword, though. The governments decision not to raise taxes to finance re-unification has put upward pressure on Irish interest rates.

Investment had been badly hit by the outbreak of war in the Gulf. Decisions were postponed until the international political climate stabilizes. At the time at which the Budget was presented, the outcome of the war was uncertain. Since then, with the culmination of the crisis, many sighs of relief have been breathed. However, it is likely that uncertainty will remain prevalent for some time to come.

This hostile international environment has been matched by growing domestic fiscal strains. As a result of the coalition agreement between the Progressive Democrats and Fianna Fail, the government is committed to income tax rates of 25% and 48% by 1993. On the horizon, the cost to the Exchequer of EC harmonization of VAT and excise rates could be in the region of £600m. Public sector pay will rise by 8.3% as a result of the Programme for National Recovery, and its successor, the Programme for Economic and Social Progress (PESP) will also strain the public purse because of commitments to increase

education, health and social welfare spending.

This then was the harsh environment in which the 1991 Budget was framed. The next section analyses the nature and scope of the package which Mr. Reynolds announced.

The 1991 budget

Most of the post-budget controversy centered around a single figure - the Department of Finance forecast of real GNP growth for the year 1991 of 2.25%. Although this is in line with the forecasts of the ESRI and the Central Bank, it is far now implausible to suggest that, for fiscal 1991, real GNP growth could range anywhere between 1% and 3%.

Taxation and revenue

The likely tax revenues for the year depend fundamentally on this figure. The opening position was that tax revenue would increase by £482m to £8358m. In the Budget, the top rate of income tax was cut by one point to 52% and the standard rate also by one point to 29%. The ceiling on the health levy was removed which actually meant that the marginal rate for those on incomes above £16,700 actually rose from 53% to 53.25%. Life assurance relief was halved from 50 to 25% of the premium. The total cost of these measures was estimated at £61.7m.

On the indirect taxation front, the 23% VAT rate was reduced to 21%, but the 10% rate rose to 12.5% (except for hotel accomodation; car, boat and caravan hire; newspapers; and construction; to which the 10% rate will still apply). The cost of these changes was estimated to be £31.7m. The excise tax on cigarettes was increased by

GROWTH FORECASTS IN ECONOMIC AGGREGATES - 1991

%Volume Change	Davy	Goodbody	Central Bank	ESRI	Dept. Finance
Cons. Expenditure	2.5	2.6	2.75	2.75	3.25
Investment	1.5	1.0	5.00	4.25	5.50
Government	1.0	1.0	0.00	0.50	0.75
Exports	5.8	5.8	6.00	5.75	5.50
Imports	4.5	5.0	4.75	4.75	5.50
GDP	2.0	2.0	2.25	2.50	2.25
GNP	1.5	1.6	2.25	2.25	2.25

Sources:
(i) Irish Times, issue dated 31 January 1991
(ii) Davy's Stockbrokers: Budget 1991
(iii)Goodbody Stockbrokers: Budget Special 1991
(iv)Riada Stockbrokers: Riada Budget 1991

more optimistic than any independent commentator's forecast, as is clear from Table I. Because of its capacity to fluctuate widely, investment is perhaps the key variable. For example, an agreeable post-crisis level could revive Aer Lingus's plans to invest in the Dublin - Shannon - Los Angeles route. In addition, the construction industry may benefit from any contract work to be done in post-war Kuwait, but this is uncertain. These possibilities were not taken account of in the Budget. It is not

EXCHEQUER REVENUE (£m)	1990	1991 (opening)	1991 (post-budget)
Customs	114	125	125
Excise	1674	1725	1750
Capital	71	73	87
Stamp Duty	271	235	271
Income	3024	3279	3184
Corporation	474	527	527
VAT	1979	2112	2090
Aqricultural Levies	10	11	11
Road Tax	160	164	179
Employment Levy	125	134	134
TOTAL TAX REVENUE	**7903**	**8385**	**8358**
Non Tax Revenue	366	403	416
TOTAL REVENUE	**8269**	**8788**	**8774**
% of GNP	36.6	36.9	36.8

Sources:
(i) Irish Times, issue dated 31 January 1991
(ii) Davy's Stockbrokers: Budget 1991
(iii)Goodbody Stockbrokers: Budget Special 1991
(iv)Riada Stockbrokers: Riada Budget 1991

10 pence, projected to yield £21m, but the other "reliables" went untouched.

Road tax was increased for the first time in five years by 10%, which is expected to yield £14.7m. The Bank Levy and the PRSI allowance were both renewed (both measures cancel in cost terms). Finally, worthy of note was the effective abandonment of the Business Expansion Scheme. This follows the Comptroller's and Auditor-General's damning indictment of the scheme towards the end of last year. This measure provoked harsh criticism from the both the tourism and shipping sectors.

Expenditure

The government had forecast that expenditure would increase by £465m to £8986m in the White Paper on Receipts and Expenditure. In the budget proper, the Minister increased this estimate by £33m, with the bulk of this being allocated to health, social welfare and education in line with the Programme for Economic and Social Progress. The Minister made no change in the Budget to the Central Fund allocation of £2797m.

Current spending is expected to total £9019m for fiscal 1991. Perhaps the most welcome but derisory alteration was an increase in the allocation to the Family Income Supplement Scheme of £1m. This measure will do nothing to alleviate the effects of the poverty trap.

The effects

The short term

Broadly speaking, the Budget was positively received by the financial markets (*The Irish Times*, 1991). Attention focussed on projected Exchequer Borrowing Requirement of £460m, which was below market forecasts of between £500 and £700m. It is worth noting that the achievement of such a low EBR is contingent on the realization of the Departments forecast growth rate of 2.25%.

The Budget in isolation will put downward pressure on interest rates which will give the economy a much needed boost. With small savings of £100m and a reduction in Exchequer balances of £60m, the Minister may require as little as £300m from the markets over the year. Some dealers have speculated that long bond yields will fall by 1%, and that Irish Equities will be priced upwards (Riada Budget, 1991).

The effect on the economy can only be described as marginally expansionary. The minimal reductions in income tax and the reduction in VAT will only increase real disposable incomes slightly, and certainly not by the same magnitude as was the case in recent years. The changes in indirect taxation are not expected to impact significantly on inflation, since reduction in the prices of luxury items will be offset by the increased costs of fuel and heating.

EXCHEQUER EXPENDITURE (£m)	1990	1991 (opening)	1991 (post-budget)
Interest	2108	2194	2194
EC Contribution	284	367	367
Total Central Fund	**2604**	**2797**	**2797**
Pay	3161	3419	3422
Non-Pay	2656	2770	2800
Total Supply Services	**5817**	**6189**	**6222**
Total Current Spending	**8421**	**8986**	**9019**
Less Total Revenue	**8269**	**8788**	**8774**
Current Budget Deficit	**152**	**198**	**245**
%of GNP	0.7	0.8	1.0
Plus Capital Borrowing	**310**	**214**	**215**
EBR	**462**	**412**	**460**
% of GNP	2.0	1.7	1.9

Sources:
(i) Irish Times, issue dated 31 January 1991
(ii) Davy's Stockbrokers: Budget 1991
(iii)Goodbody Stockbrokers: Budget Special 1991
(iv)Riada Stockbrokers: Riada Budget 1991

In this light, inflation is expected to average 3.0% for the year. The changes in income tax and the Family Income Supplement in themselves were so slight that the Budget will do nothing to create employment, which is therefore likely to increase throughout 1991.

The medium term

The nature of the Budget raises questions about the strength of the government's commitment not to return to the vices of the early eighties. This point is born out by the fact that last year's EBR would have been £360m, and this year's target would be £562m, had the 1990 Structural and Regional Development Fund payments arrived from Brussels on schedule. The Minister, however, can contend with some justification, that, given the uncertain backdrop against which the Budget was framed, any fiscal innovations could possibly have proved counter-productive.

In the next few years, the government will have to face huge bills for its economic policy. VAT reductions in the run up to 1992 combined with the reductions in tax rates embodied in the PESP will impact severely on revenues. This means that in 1992/3 there will be a need for further fiscal adjustment. A necessary condition for such adjustment will be continued consensus between the social partners and the success of the PESP. A return to full prosperity by the global economy would greatly facilitate this.

One aspect of fiscal reform which deserves more attention is the introduction of a property tax. Such a tax would yield significant amounts of revenue (estimates suggest £400 - £500M in the first year, and up to £600M thereafter) while at the same time substantially widening the tax base. However, given the political sensitivity of this issue, it is unlikely that such a tax would be introduced in the current Zeitgeist.

Conclusion

This essay has looked at the 1991 Budget. Both the backdrop to the Budget and the adjustments which it contained were discussed. In addition, a prognosis for the economy, in the light of these changes, was sketched.

It is possible that, unless significant fiscal reforms are implemented in the medium term, a return to the misery of the early and mid-1980s will occur.

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The Irish Labour Market - Time to Reassess Supply Side Policies

Billy Stamp

Despite sustained recovery from recession, Ireland continues to suffer unemployment rates far in excess of our European Community partners. In Stamp (1990), the mechanism by which inappropriate welfare policies spawn chronic unemployment was outlined. In this essay, the case for supply side policies in the labour market at a disaggregated level will be argued[1].

The discussion is divided into three broad sections. In the first, the changes that have taken place in the Irish labour market over the last decade will be described. Following this, section two briefly examines a number of the implications arising from these changes. Finally, section three will contrast the policy approaches to labour markets in the US and Sweden with those pursued in Ireland.

Labour market trends

There are three broad structural changes which have taken place in the Irish labour market in the 1980s which are particularly relevant. These relate to the overall labour force, sectoral trends, and the shift away from traditional full-time permanent employment. Each of these is examined in turn below.

Overall labour force trends

In the period 1980 to 1988, total employment fell from 1,156,000 to 1,091,000 (Department of Finance,1981,1989). The unemployment rate rose from 6.9% (April 1979) to 16.7% (April 1988) (*Labour Force Survey*, 1979,1988). These figures in themselves are startling, but they conceal some important underlying issues.

Firstly, the traditional mobility of the labour force has continued. Net emigration, close to zero in 1980, was 14,400 per annum on average in the period 1981-86, and 35,000 per annum on average in the period 1986-89 (Foley and Mulreany,1990:351). These figures demonstrate the extent to which the unemployment figures underestimate the potential size of the Irish labour force. It is worth noting that the propensity to emigrate is highest in the 20-24 age cohort, and third highest in the 15-19 age cohort, the two groups from which the least return has been gained from expenditure on education and training (*The Irish Times*, 1991).

Secondly, the duration of unemployment continues to compare unfavourably with that obtaining in other EC countries. Ireland and Spain share the worst record in Europe for long term unemployed, with over two thirds registered as unemployed for more than two years, against an EC average of 33%, and 8% in the U.S.A. and Sweden (The *Economist*,1990).

Sectoral changes

The nature and extent of sectoral changes are summarized in the table below.

Once again, there are issues concealed by the aggregation. For example, whilst manufacturing employment fell by 6%, employment in textiles, clothing, footwear

1 The author wishes to thank Dr. Sean Barrett for helpful comments on an earlier draft.

ESTIMATED EMPLOYMENT BY SECTOR

	Thousands 1980	1988
Agriculture	209	166
Industry	371	300
Services	576	625
Total at work	1,156	1,091

Sources:Dept of Finance, Economic Review and outlook 1981,1989.

Table I

and leather, all labour intensive and traditional industries, fell by 41%, due primarily to an inability to compete at home and abroad (Foley and Mulreaney,1990).

Changes in employment patterns

Finally, there has been a drift away from traditional "permanent full time" employment, reflecting firms' attempts to circumnavigate labour legislation in order to maintain a flexible labour force. This is partly in response to uncertainty of, and fluctuations in, demand. Between 1983 and 1987, the number of employees in temporary employment increased by 38%, while the total number employed declined by 2%. Over the period 1980-1988, part-time employment as a percentage of total employment rose from 5.1% to 8.1%, in contradistinction to a change in the EC average from 11.2% to 12.8%. Another aspect of this trend is the growth of non-agricultural self employed workers from 63,400 to 71,900, many of whom are employed by high-tech firms on a contract basis (*Labour Force Survey*,1988).

Implications

What then are the implications of these changes. Clearly, the Irish labour force continues to be mobile. As Walsh (1977) notes, despite the narrowing of the gap in industrial earnings between Ireland and Britain, there is still a considerable difference in the overall level of income between the two countries, and between Ireland and the rest of the E.C. Given the increasing acceptance of emigration as an automatically considered option for graduates and highly skilled young workers, their departure can, and does, lead to skills-shortage bottlenecks in the Irish economy. This in turn restricts secondary employment, and contributes to keeping the level of unemployment at its present level.

It is a feature of the Irish economy that inflationary bottlenecks can coincide with high unemployment. The long term unemployed do not, in reality, form part of the competitive labour market and hence do not exert downward pressure on wage rates. This is evidenced by Table II below.

Admittedly, competitiveness depends on a multiplicity of factors, such as labour costs per unit of output, the quality and quantity of the capital stock, and on the non-wage costs of employing workers. However, one would still expect a marked improvement in relative wage costs in the presence of high unemployment rate differentials. This improvement clearly has not manifested itself in the Irish economy.

In relation to sectoral change, the continued fall in the numbers employed in agriculture is marked, at 41,000 over the period 1980-88. It should be noted that this decline follows on a decrease of 85,000 in agricultural employment in the decade 1971-81 (Department of Finance,1981, 1989). Although this trend can be expected to continue, it is likely that it will do so at a slower rate. Indeed, in 1989, agricultural employment actually increased by a small amount. The consequence of this should be higher overall employment figures in future

Nominal unit labour costs in Ireland relative to 19 industrial countries (1980 = 100)

Year	Index
1980	100
1981	94.8
1982	97.9
1983	100.1
1984	97.1
1985	98.0
1986	103.6
1987	100.1
1988	95.5

Source: European Commission 1989.

Table II

years, as in the past, improvements in the secondary and tertiary sectors have been largely offset by the decline in the agricultural sector.

The change in the composition of the workforce towards part-time, temporary and self employment reflects an EC wide trend, as more women enter employment, and as firms react to protective labour legislation and market uncertainties. This has implications for trade union membership as these groups' priorities - child care, equal opportunity, flexible working hours - differ from the traditional concerns of trade union members. This combined with a shift towards higher skilled employment in service industries has resulted in a decrease in union membership.

The policy debate

So far, this essay has empirically examined aspects of the Irish labour market. A number of the implications of these changing features have also been discussed. The question that remains is what, if anything, can be done to redress the situation.

The Irish economy is continually modernizing, and the labour market must adapt to the new circumstances. However, it is essential that government policy be concomitantly modified. Irish unemployment, at close to 18%, is far in excess of the EC average of 9%. In the US, some one in four of the workforce change jobs every year, yet the average duration of unemployment is only 3 months. In Ireland, the average duration of unemployment is a staggering 28 months (The *Economist*,1989).

There is a clear need for a reassessment of active labour market policies. Information flow needs to be improved in order that frictional unemployment can be mitigated. Training programmes also require refurbishment. In 1989, only 11% of those trained by AnCO went on to permanent employment (*The Irish Times*,1991). Work experience and employment incentive programmes of various names have also been shown by Breen (The Irish Times,1991) to have resulted in little additional employment. Employers have claimed payroll subsidies for employees they would have hired anyway. It is clear that Irish policies have been less than successful.

Contrast this with the experience in the USA, where there is less generous welfare, combined with strict availability criteria, weak trade unions and high labour mobility. More comparable, perhaps, as an interventionist economy, is Sweden, where less than 8% of those unemployed remain so for more than 12 months. Sweden's approach is often cited as the "Carrot and Stick". The carrots include placement and counselling, retraining, temporary public sector employment, recruitment subsidies to companies, and mobility allowances to workers. There is also the stick - a maximum 300 days welfare, and an immediate loss of entitlement if employment is not accepted.

The success of these policies is beyond

question. Perhaps they have been too successful. With inflation at 8% and wage inflation at 11%, Sweden's economy appears to be overheating. However, their experience shows how an interventionist economy can tackle unemployment, and the experience of the US shows how similar results can be obtained through lack of intervention. Ireland appears to have taken the welfare policies of Sweden and combined them with the non-intervention policies of the US. The Irish Government seems content to avoid industrial unrest through an epidemic of Baumol's disease (Finneran,1990).

Set against labour market flexibility expenditure by the exchequer, we must consider Ireland's heavy expenditure on social welfare unemployment schemes, labour market training (FAS, CERT), industrial development agencies, and tax breaks[2]. It is reasonable to suggest that this range of schemes is an ineffectual substitute for the employment growth achieved in the U.S. through industrial growth measures, or the low unemployment achieved by Sweden by active intervention. Note that these measures have been successful in countries with relatively high public sector shares (*The Economist*,1991). Diverse root and branch policies, yet successful outcomes.

The Swedish programme is costly, demanding an expenditure of 2% of GDP on active labour market intervention. However, a lower dole queue means a lower dole bill. This level of expenditure compares favourably with a European average of 1%, and 0.4% in Ireland. No doubt the Irish Government would claim that it cannot afford such levels of expenditure. Can it afford not to?

Conclusion

This essay has reviewed the main characteristics of the Irish labour market. The implications of the changes that have occurred over the last decade have been considered. It was concluded that if a more effective policy regime is to be put in place, cognizance must be taken of the alternatives that have worked in other countries such as the US and Sweden. The current ominous forecasts of an unemployment level that is still well above 200,000 by the turn of the century will otherwise turn out to be prophetic.

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2.Readers' attention is drawn to an article in the Irish Times of 7/3/91 entitled "Moves to help low paid leave £8000 to £10000 wage earners in new poverty trap" , especially the accompanying table. As was argued by the author in the 1990 edition of the *SER*, *Family Income Supplement, though an official recognition of the existence of the welfare trap, and its negative incentive effects, is an inefficient means of dealing properly withthe problem. The reported "furore in the Department of Finance and Social Welfare" (sic) may have the positive effect of a proper evaluation of a Basic Income System.*

A Note on the Irish Health Care System

Corinna Hopkins

This essay criticizes the system of primary health care currently in place in Ireland. It is argued that this system, by discriminating against preventative medicine, debilitates the health of the lower-socio economic classes. Harts inverse care law applies directly.

Section one will consider the two fundamental concepts underpinning effective health care, while section two will illustrate how the system of General Practice prevailing militates against the incorporation of these concepts into the Irish health care system.

Cost effective health care

Consider two hospital beds. In one there is a 19 year old expectant mother close to the time of delivery. In the other, there is a 71 year old man admitted to hospital for the a recurrence of a smoking-related disease. The obstetric bed contains a combined life expectancy of over 130 years, and the majority of these years will be productive ones. The geriatric bed contains a life expectancy of 2 to 3 years at the outside, most or all of which will use up health care resources, and none of which are likely to be productive. This scenario will be returned to below.

Cost effective health care is based on two simple concepts. Prevention is always far better and ultimately far cheaper than cure. The most appropriate arena for prevention is outside, in the community, in the General Practitioners surgery. It involves the drafting of enlightened, action-oriented legislation, the effective use of the media, and imaginative educational policies aimed at both children and adults in school and in the workplace.

In contradistinction, the cure of disease is a costly business. When a person becomes a patient, they incur charges, costs, and loss of productivity. Walking into the GP's surgery is relatively inexpensive. Walking into a hospital casualty department is more expensive, and most expensive of all is the cost of "high tech" inpatient treatments, where hotel costs start at £150 to £200 per day in a general hospital, even before treatment is commenced.

The bias against prevention in Ireland

These criterion can be used to assess the efficacy of the provision of Irish health care services, and in particular, the provision of primary care.

General Practice (or primary care) represents a midway between the healthy man in the street and the luckless individual caught up in the miasma of the high technology intensive care unit. In countries like Ireland and the UK, over 90% of doctor patient contacts involve a General Practitioner, making General Practice the largest interface between the public and the medical profession.

The General Medical Services Scheme (GMS) is a government sponsored agreement which provides free primary care to the patient at the point of delivery. It applies, roughly, to the least well-off 40% of the population. The GP provides his services to these patients according to a contract that is based on a mixed capitation/ fee-per-item system. The GP also provides his services to the remainder of the

population, based on an arbitrary system of payment.

It is instructive to look at the impact which the GMS has on the provision of health services. Capitation fees, which represent a set fee per patient per annum, average approximately £30. In addition, GPs can claim an additional fee for carrying out specific services. These additional items are limited and specific. In particular, they are all services which would otherwise need to be carried out (more expensively) in a hospital. Yet they do not include any activity which could be described as preventative or effective in preserving health.

For those patients on a private fee schedule, GPs receive their payments exclusively on a fee-per-item schedule. Consultation prices range from £10 to £20 per visit, with additional charges levied for any other services. In practical terms, this means that a GP is effectively penalized for spending extra time with a GMS ("poor") patient. The marginal revenue from each additional visit to such a patient is zero. In contrast, the marginal revenue from additional visits to a "rich" private patient remains constant, and may in certain circumstances be increasing. The private patient will be profitably invited back to have valuable and recognized preventative procedures discussed and carried out, a benefit which will not accrue to the GMS patient. The irony is that the wealthy patient will, in in many cases, have his/her excess costs paid by insurance premiums which are in turn subsidized by public monies through tax write-offs.

Thus, in considering these fee schedules, we can see a perfect example of poor decision making. Harts inverse care law, which states that if resources are made available for health purposes, they are most likely to be taken up by those who least need them, applies directly.

It is good economics to control GMS expenses. However, the manner in which this control is exercised in Ireland is reprehensible. It demonstrates a narrow-minded concern with short-term cost containment, rather than with more laudable aims such as cost-effective, preventative medicine. The absolute lack of any incentives for prevention in the GMS agreement is even more disturbing when it is remembered that the Irish, and particularly the lower socio-economic classes, have a particularly poor record for self-induced illnesses caused by over-eating and smoking.

To return to the initial scenario of the two hospital beds, if we follow a rational approach based on preventative medicine, it follows that the expectant mother should be targeted for family planning advice, smoking prevention and parenting skills. None of these health care options are particularly expensive. Nevertheless, if she was admitted from a council estate, it is likely that she will return there without ever having these services.

The 71 year old patient, by contrast, will be treated royally by comparative economic terms. Despite the pessimistic prognosis which cannot be changed, he will be irradiated, resuscitated and possibly operated on. The number of costly operations carried out each year for end-stage atheromatous disease (caused in large part by smoking) is staggering. If he dies in the hospital, he will probably do so with all the costly and futile blessings of a sophisticated self-perpetuating tertiary care centre. If, on the other hand, he is returned home, for another year or two, he will be discharged with a costly list of medications[1].

This is money spent unwisely in treating the symptoms of advanced diseases which

1 The pharmacy bill for the GMS is roughly twice the entire amount paid to doctors, and is mostly the result of Geriatric polypharmacy.

are still not being prevented in Ireland. Despite strong evidence of the value of prevention elsewhere, Irish health-policy makers remain obstinate.

Conclusion

This essay has attacked the GMS system currently in place in Ireland. It is clear that it runs contrary to the established foundations of any efficient health care structure.

By contrast, in a re-negotiation of the NHS Contract for English General Practice, incentives have been provided to GP's to carry out certain preventative measures. For example, they can earn an additional payment if they screen a target of 70% of women at risk in their practice for cervical cancer, and an even higher payment if they reach a 90% target. It is on the adoption of policies such as this that prospects for redress hinge.